COGNITION, CONTENT, AND THE A PRIORI

A STUDY IN THE PHILOSOPHY OF MIND AND KNOWLEDGE

Robert Hanna

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Preface and Acknowledgments

In *Cognition, Content, and the A Priori*, I work out and defend a five-stage contemporary Kantian theory of (i) intentionality and its contents, including nonconceptual content and conceptual content, (ii) sense perception and perceptual knowledge, including perceptual self-knowledge, (iii) the analytic-synthetic distinction, (iv) the nature of logic, and (v) a priori truth and knowledge in mathematics, logic, and philosophy. Looking at all of these contemporary issues, problems, and topics through Kant-corrected lenses, for me *the philosophy of mind*—especially including the theory of intentionality and mental content, cognitive semantics, and cognitive phenomenology—and *the theory of knowledge*, are essentially one and the same subject. Correspondingly, *Cognition, Content, and the A Priori* builds on and extends the cognitivist theory of logic I developed in *Rationality and Logic*, and also the metaphysical theories of the mind-body relation, mental causation, and intentional action that Michelle Maiese and I developed in *Embodied Minds in Action*. The Kantian part of the theory also directly draws on *Kant and the Foundations of Analytic Philosophy* and *Kant, Science, and Human Nature*. So this book represents the convergence of several of my basic philosophical concerns.

From the outset, I must fully acknowledge and most warmly thank two anonymous reviewers for OUP, for their encouragement and for their rigorous and highly constructive criticism, both of which greatly helped me in preparing the final version of the manuscript. Above all, they made me more critically aware of the philosophical unusualness of this project, about which I should say a few words here.

My goal in this book is nothing more and nothing less than to provide an intelligible and defensible unified contemporary Kantian theory of rational human cognition and knowledge. In so doing, I am trying to cover a lot of philosophical ground. As its title suggests, *Cognition, Content, and the A Priori* cuts across several existing sub-disciplinary boundaries—especially philosophy of mind and epistemology, but also philosophy of logic and philosophy of mathematics. And there is some serious metaphysics and meta-philosophy in the background, too. Moreover, I am addressing two very different audiences: contemporary Analytic philosophers of mind and knowledge, on the one hand, and contemporary Kantian philosophers or Kant-scholars, on the other. Both of these groups, it must be frankly said, mostly stay pretty much within their own well-defended theoretical domains and do not usually attempt either to cross borders or to learn each other's languages. Correspondingly, however, I have done my very best to satisfy simultaneously the methodological demands of contemporary Analytic philosophy in those sub-disciplines and also those of Kant-scholarship/contemporary Kantian philosophy. What I ask of my readers is only that they entertain the possible real value of such a big-scope, border-crossing, bilingual project.

Otherwise put, I am trying to do something here that is slightly out of the ordinary and also slightly ahead of the conventional wisdom of contemporary philosophy. At the same time, however, I also strongly emphasize the *slightly*. For I do think that

Cognition, Content, and the A Prori is riding the crest of a wave of extremely exciting and even revolutionary emerging new trends and new work in the philosophy of mind and epistemology, with a special concentration on the philosophy of perception, especially by young philosophers like Susanna Schellenberg and Susanna Siegel, but also fully including the recent work of longstanding seminal figures like Tyler Burge and Hubert Dreyfus. What is revolutionary in this new wave are the strong emphases on action, on cognitive phenomenology, on disjunctivist direct realism, on embodiment, on perception as the inherently non-conceptual fundamental capacity of minded animals for cognizing the world, and on non-conceptual content. So it is my deepest hope that *Cognition, Content, and the A Priori* can make a real contribution to this philosophical revolution by giving the new wave a specifically contemporary Kantian twist, and by pushing these new lines of investigation even harder and further than has already been done.

Andrew Chapman, Jonathan Shaheen, and Kelly Vincent each read and made detailed critical comments on earlier complete drafts of this book, and Catherine Legg did the same for an early version of chapter 8. In the last phases of revising the manuscript for publication, Robert Abele and David Landy sent me very helpful critical comments on and/or questions about the penultimate draft, which led to many clarifications or reformulations in the ultimate version. In addition, Martha Hanna read several chapters of the penultimate draft, making apt editorial suggestions on almost every page. I'm extremely fortunate to have had such careful, close readers.

Over the past decade, I have had the good fortune to present various parts of this project to scholarly audiences in Europe, Australia, Israel, South America, and North America. I thank everyone who invited me to present my work at conferences and workshops they organized. I am particularly grateful to Monima Chadha and her colleagues at the University of Monash; to the faculty at the University of Tampere, Finland; and especially to Dietmar Heidemann and his philosophical colleagues and students at the University of Luxembourg, whose generous support of this project in 2013–2014, funded by the Fonds Nationale de Recherche Luxembourg, made it possible to work on the final drafts of the manuscript and at the same time to engage with an international community of scholars through a series of philosophical workshops.

I am also especially grateful to the Faculty of Philosophy at Cambridge University for the opportunity to visit there as a full-time temporary lecturer during 2008–2009, and teach Kant's metaphysics, the philosophy of perception, the theory of meaning, and the philosophy of mathematics, and also to participate in the weekly Philosophy of Logic and Maths discussion group run by Michael Potter and Peter Smith; to Jane Heal and Jim Russell, for thought-provoking pub-supper chats about cognition and non-conceptual content; to the members of my Foundations of Analytic Philosophy Group in the Faculty, for good discussions on the philosophy of logic and mathematics; to Nick Treanor, for fruitful conversations on the philosophy of mind and action; to the Kant Reading Group at HPS (especially Angela Breitenbach and Sacha Golob), for equally fruitful conversations on Kant's metaphysics; to Fitzwilliam College, for providing me with a Bye-Fellowship during 2008–2009 and a lovely scholarly home away from home; and to Alex Oliver and Michael Potter, for arranging it all.

Finally, *Cognition, Content, and the A Priori* is dedicated to the people I love. You know who you are.

A Note on References

For convenience, throughout *Cognition, Content, and the A Priori* I cite Kant's works in parentheses. The citations include both an abbreviation of the English title and the corresponding volume and page numbers in the standard "Akademie" edition of Kant's works: *Kants gesammelte Schriften*, edited by the Königlich Preussischen (now Deutschen) Akademie der Wissenschaften (Berlin: G. Reimer [now de Gruyter], 1902). For references to the first *Critique*, I follow the common practice of giving page numbers from the A (1781) and B (1787) German editions only. Because the Akademie edition contains only the B edition of the first *Critique*, I have also consulted the following German composite edition: *Kritik der reinen Vernunft*, ed. W. Weischedel, Immanuel Kant Werkausgabe III (Frankfurt: Suhrkamp, 1968). For references to Kant's *Reflexionen*, in effect, entries in *Kants handschriftliche Nachlaß*—which I abbreviate as 'R'—I give the entry number in addition to the Akademie volume and page numbers. The translations from the *Reflexionen* are my own. I generally follow the standard English translations of Kant's works, but have occasionally modified them where appropriate. Here is a list of the relevant abbreviations and English translations:

BL   "The Blomberg Logic." In *Immanuel Kant: Lectures on Logic*. Trans. J. M. Young. Cambridge: Cambridge Univ. Press, 1992. Pp. 5–246.

CPJ   *Critique of the Power of Judgment*. Trans. P. Guyer and E. Matthews. Cambridge: Cambridge Univ. Press, 2000.

CPR   *Critique of Pure Reason*. Trans. P. Guyer and A. Wood. Cambridge: Cambridge Univ. Press, 1997.

CPrR   *Critique of Practical Reason*. Trans. M. Gregor. In *Immanuel Kant: Practical Philosophy*. Cambridge: Cambridge Univ. Press, 1996. Pp. 133–272.

DiS   "Concerning the Ultimate Ground of the Differentiation of Directions in Space." Trans. D. Walford and R. Meerbote. In *Immanuel Kant: Theoretical Philosophy: 1755–1770*. Cambridge: Cambridge Univ. Press, 1992. Pp. 365–372.

GMM   *Groundwork of the Metaphysics of Morals*. Trans. M. Gregor. In *Immanuel Kant: Practical Philosophy*. Pp. 37–108.

ID   "On the Form and Principles of the Sensible and the Intelligible World (Inaugural Dissertation)." In *Immanuel Kant: Theoretical Philosophy: 1755–1770*. Pp. 373–416.

JL   "The Jäsche Logic," in *Immanuel Kant: Lectures on Logic*. Pp. 519–640.

OT   "What Does It Mean to Orientation Oneself in Thinking?" Trans. A. Wood. In A. Wood and G. di Giovanni, *Immanuel Kant: Religion and Rational Theology*. Cambridge: Cambridge Univ. Press, 1996. Pp. 7–18.

PC   *Immanuel Kant: Correspondence.* Trans. A. Zweig. Cambridge: Cambridge
         Univ. Press, 1999.
Prol   *Prolegomena to Any Future Metaphysics.* Trans. G. Hatfield. Cambridge:
         Cambridge Univ. Press, 2004.
VL   "The Vienna Logic," In *Immanuel Kant: Lectures on Logic.* Pp. 251–377.

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Introduction
Cognition, Content, and Knowledge Revisited

What representation (*Vorstellung*) is cannot really be explained. It is one of the simple concepts that we necessarily have. Every human being knows immediately what representation is. Cognitions (*Erkenntnisse*) and representations are of the same sort. Concepts (*Begriffe*) are somewhat different from them, as we shall see in what follows.... Every representation is something in us, which, however, is related to something else, which is the object. Certain things represent something, but we represent things. Logic does not teach us how we ought to represent something by means of consciousness (*Bewußtsein*), but rather it presupposes the consciousness of something as a psychological matter.

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(*BL* 24: 40)

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In the end everything comes down to the *practical*, and the practical worth of our cognition consists in this tendency of everything theoretical ... in regards to its use. This worth is *unconditioned*, however, only if the *end* toward which the practical use of the cognition is directed is an *unconditioned* end. The sole, unconditioned, and final end (ultimate end) to which all practical use of our cognition must finally relate is *morality*, which on this account we may also call the practical *without qualification or the absolutely practical*.

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(*JL* 9: 87)

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The position [of this book] is that intentionality is grounded in external natural relations, Normal and/or proper relations, between representations and represented, the notions "Normal" and "proper" being defined in terms of evolutionary *history*—of either the species or the evolving individual or both. Hence nothing that is either merely in consciousness or merely "in the head" displays intentionality *as such*.

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—R. Millikan[1]

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The purpose of these lectures is to promote a naturalistic theory of mind—something I call the Representational Thesis. This thesis, in two parts, is that ... (1) All mental facts are representational facts, and (2) All representational facts are facts about informational functions. The reason I am interested in this thesis is that, as far as I can tell, it is the only approach to the topic of consciousness that has much to say about the baffling problems of phenomenal experience.

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—F. Dretske[2]

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[1] Millikan, *Language, Thought, and Other Biological Categories*, p. 93.
[2] Dretske, *Naturalizing the Mind*, p. xiii.

1.0 Taking Intentionality Very Seriously

According to a classical view in the philosophy of mind, both human and non-human minded animals inherently or innately possess a capacity to produce mental representations of objects (whether those objects are actual or merely possible, existing or non-existing), locations, events, actions or performances, other minded animals, and themselves. This classical view runs from the "faculty psychology" of the early 18th century up through Kant's "transcendental psychology," and then forward again through the phenomenological, introspectivist, Gestalt, and Chomskyan/cognitivist movements in 19th- and 20th-century psychology, and right into mainstream contemporary cognitive science and philosophical psychology. Whatever its particular incarnation, the classical view holds that minded animals inherently or innately possess a capacity to be *directed* to targets of all kinds; that is, they have the capacity for *intentionality*. In turn, mental representations have mental content, also known as "intentional content," where such content is (i) the cognitive or practical information that is internally carried by or contained in a mental representation, (ii) what individuates the mental act, state, or process that has this content, and (iii) what normatively guides this mental act, state, or process by providing its truth-conditions, its accuracy-of-reference conditions, and its intentional performance success-conditions.

Mental or intentional content is shareable across minded animals, but also directly grasped on particular occasions and in particular contexts by individual minded animals. So, at least implicitly, according to the classical view, mental contents are *mental representation-types*. This means they are information-structures tokened in space and time possessing the following qualities: they are multiply realizable or repeatable (e.g., the same information structure "my favorite blue coffee cup" is repeated each time I represent some real-world item as such, say in sense-perception, memory, or imagination), consciously accessible, individuating, and normatively guiding (e.g., I represent various real-world items correctly or incorrectly as my favorite blue coffee cup, and track it more or less accurately in space and time under varying contextual conditions as I reach out for it). Correspondingly, the inherent psychological function of mental contents, insofar as they occur as *mental representation-tokens* directly grasped by individual minded animals on particular occasions and in particular contexts, is to individuate the very mental acts, states, or processes in which those tokens occur, to provide normative guidance for the cognition and practical agency that occurs via those self-same mental acts, states, or processes, and to provide the information that mediates their directedness to their intentional targets.

Of course, intentionality also has some neurobiological implications in human or non-human minded animals. Consider the following highly plausible thesis:

Necessarily, every intentional act, state, or process really plays some or another causal and/or mental-processing role in minded human or non-human animals, as characterized by a correct cognitive psychology or cognitive neuroscience.

In view of this thesis, which I call *Superweak Metaphysical Psychofunctionalism*, the real playing of this causal and/or information-processing role in minded human or non-human living organisms is not in any way all there is to intentionality. Nor

indeed does this thesis entail that intentionality is necessarily determined by its real neurobiological role-players, which is why the thesis is not merely weak but super-weak. Nevertheless, according to it, intentionality necessarily has at least some real neurobiological role-players, which in turn guarantees a minimal naturalism.

I accept this classical and also minimally naturalistic view of intentionality and mental content, and much more, including the very idea of what I call a *cognitive semantics*, that is, a theory of meaning that is grounded in essential facts about rational human animal minds. In short, in this book I want to take intentionality very seriously indeed. As we can see in the first epigraph of this chapter, Kant's way of stating this claim is that our mental representational capacity cannot be reductively explained in terms of anything else more basic—it is just a primitive fact about us:

What representation (*Vorstellung*) is cannot really be explained. It is one of the simple concepts that we necessarily have. Every human being knows immediately what representation is. Cognitions (*Erkenntnisse*) and representations are of the same sort. . . . Every representation is something in us, which, however, is related to something else, which is the object. Certain things represent something, but we represent things. (*BL* 24: 40)

In a very similar way, Tyler Burge has recently argued that *representation* (along with *perception*) is an irreducible psychological kind that is presupposed by, and also guides, cognitive science.[3] So Kant, Burge, and I are all "primitivists" about mental representation and intentionality.

What confers primitiveness upon mental representation and intentionality? For me, it is consciousness and normativity, and even more precisely, what I call *essentially embodied* consciousness and *categorical* normativity. I will come back to this crucial point in sections 1.1 to 1.4.

In earlier work I traced the very idea of a cognitive semantics back to Kant, and then related this to the classic or "old school" approach to cognitive semantics, which is perhaps best exemplified by the work of Jerry Fodor, but also includes the naturalizing trend evident in the work of Fred Dretske and Ruth Millikan.[4] Undoubtedly, however, the most important recent development in the philosophy of mind in this connection has been the dual emergence of *philosophy of perception* and *cognitive phenomenology* (that is, the study of subjectively experiential characters and states that are associated with beliefs, judgments, and other propositional cognitions, and the attempt to connect the former constitutively with the latter) as the primary sites for basic discussions of the nature of intentionality and mental content, and fundamental debates about representationalism vs. relationism, representationalism vs. anti-representationalism, conceptualism vs. non-conceptualism, disjunctivism vs.

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[3] Burge, *Origins of Objectivity*, chs. 8–11.

[4] For contemporary surveys of theories of intentionality and content, see Crane (ed.), *The Contents of Experience*; and esp. Siegel, "The Contents of Perception." See, also, e.g., Fodor, *The Language of Thought*; Fodor, *RePresentations: Philosophical Essays on the Foundations of Cognitive Science*; Fodor, *The Modularity of Mind*; Fodor, *Psychosemantics*; Fodor, *A Theory of Content and Other Essays*; Fodor, *The Elm and the Expert*; Fodor, *Concepts*; Fodor, *The Mind Doesn't Work That Way*; Dretske, *Naturalizing the Mind*; and Millikan, *Language, Thought, and other Biological Categories*.

anti-disjunctivism, separatism vs. anti-separatism, and the more-or-less tight relations between phenomenology and knowledge.[5]

Indeed, until very recently, with few exceptions, contemporary work in the philosophy of mind (which of course contains the philosophy of perception as a proper part) and contemporary work in epistemology (which has, again until very recently, largely ignored cognitive phenomenology) proceeded in almost complete independence of one another. But all of a sudden, this is changing. The emerging work in the philosophy of perception and cognitive phenomenology, combined with new Kant-inspired work in the philosophy of cognition,[6] has begun to loosen up subdisciplinary boundaries, and make possible a much more comprehensive, open-textured, and philosophically productive view of the relevant philosophical terrain.

Two things make *Cognition, Content, and the A Priori* unique. **First**, it fully fuses philosophical issues, problems, topics, and methods in this exciting emerging work, builds directly on them and it, and thereby helps to launch a new philosophical subdiscipline, *the philosophy of mind and knowledge*. And **second**, it brings to these issues, problems, topics, and methods a specifically *contemporary Kantian* philosophical standpoint.

In this first chapter, I provide an introductory account of my Kant-inflected approach to the philosophy of mind and knowledge, *categorical epistemology*. In chapter 2, I work out a general theory of non-conceptual content and conceptual content. In chapter 3, I use this theory of non-conceptual content as the basis of a new theory of direct or naïve realism about sense perception. In chapter 4, I deploy the accounts of conceptual content and non-conceptual content in order to provide a full explanation and vindication of the analytic-synthetic distinction, including a theory of synthetic a priori truth. In chapter 5, I work out an explicit argument for the categorical normativity of logic and its intrinsic role in rational mental representation or intentionality per se, including all modes of rational human cognition and intentional action. In chapter 6, I re-present the famous Benacerraf Dilemma, now extended from its original version in the context of mathematical truth and knowledge, to logical truth and knowledge, and then generalized to all kinds of a priori knowledge. In chapter 7, in the context of working out solutions to the three versions of The Benacerraf Dilemma, I discuss the nature and epistemic status of intuitions, with special reference to *rational* intuitions, and offer a corresponding critique of the contemporary critique of intuitions by Experimental Philosophy, aka X-Phi. And finally, in chapter 8, I present solutions to all three versions of The Benacerraf Dilemma.

Throughout *Cognition, Content, and the A Priori*, I deploy a certain method of philosophical argumentation that is most accurately described as *inference-to-the-best-philosophical-explanation*. According to this method, I start with "candidate"

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[5] See, e.g., Bayne and Montague (eds.), *Cognitive Phenomenology*; Burge, *Origins of Objectivity*; Gendler and Hawthorne (eds.), *Perceptual Experience*; Kriegel (ed.), *Phenomenal Intentionality*; Nanay (ed.), *Perceiving the World*; Schellenberg, "The Epistemic Force of Perceptual Experience"; Schellenberg, "Experience and Evidence"; Smithies, "The Nature of Cognitive Phenomenology"; Smithies, "The Significance of Cognitive Phenomenology"; and Smithies and Stoljar (eds.), *Introspection and Consciousness*.
[6] See, e.g., Heidemann (ed.), *Kant and Non-Conceptual Content*; and, Schear (ed.), *Mind, Reason, and Being in the World*, esp. parts II, III, and IV.

rationally intuitive premises, unpack their implications along with the relevant natural scientific data and phenomenological data, and then critically compare and contrast the implications and explanatory power of the theory I am offering with the most important opposing theories. In the end, depending on the results of the overall critical dialectic, the initial candidate rationally intuitive premises are then evaluated according to the three following criteria: are they (i) basic intuitive ("essentially reliable"), (ii) constructively intuitive ("fairly reliable"), or merely (iii) prima facie intuitive ("fairly unreliable")? In chapter 4, I spell out and defend the cognitive semantics lying behind this theory of philosophical argumentation, which in turn is part of the general theory of the synthetic a priori; in chapters 6 and 7, I spell out and defend the epistemological and metaphysical theory of rational intuitions that is being applied; and then in chapter 8, I apply inference-to-the-best-philosophical-explanation directly to the Benacerraf problem and other issues in the philosophy of mathematics. Then at the end of all that critical argumentation, in chapter 8, I conclude that the philosophical theory I have presented is better than the relevant good alternatives, and that it is also a direct exemplification of the very method I am using. Thus, given the nature of the inference-to-the-best-philosophical-explanation method, the critical argumentation does not typically precede the presentation of the premises, according to what might be called *the pre-emptive strike method*, as in many contemporary philosophical articles and books; rather, the premises are presented as candidates for being rationally intuitive, and then the critical argumentation naturally flows from those premises, along the way, as the other alternatives are considered in turn.

1.1 Intentionality and Essential Embodiment

In his excellent and influential introductory book *Philosophy of Mind*, Jaegwon Kim asks the following hard philosophical question:

Should the sciences of human behavior and cognition make use of content-carrying states like belief and desire, or their more refined and precise scientific analogues, in formulating their laws and explanations? Or should they, or could they, transcend the intentional idiom by couching their theories and explanations in purely non-intentional (perhaps ultimately neuro-biological) terms?[7]

In formulating the latter option, Kim is talking about the doctrine of *reductive physicalism about intentionality*, which says that all facts about intentionality, cognition, mental content, and knowledge are *logically strongly supervenient* on fundamentally physical facts and natural mechanisms.

At this point, we should pause briefly for some slightly technical terminology and definitions. Strong supervenience[8] is a strict determination-relation between sets of properties of different ontological "levels," a relation that is weaker than strict property-identity, and is usually taken to be asymmetric, although two-way or

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[7] Kim, *Philosophy of Mind*, pp. 257–58.
[8] See, e.g., Kim, *Supervenience and Mind*, esp. part 1; Chalmers, *The Conscious Mind*, chs. 2–3; and Horgan, "From Supervenience to Superdupervenience: Meeting the Demands of a Material World."

bilateral strong supervenience is also possible. But assuming for the purposes of simpler exposition that strong supervenience is asymmetric, then, more precisely, *B*-properties (= the higher level properties) strongly supervene on *A*-properties (= the lower-level properties) if and only if

  (i) for any property *F* among the *A*-properties possessed by something *X*, *F* necessitates *X*'s also having property *G* among the *B*-properties (upwards necessitation), and
 (ii) there cannot be a change in any of *X*'s *B*-properties without a corresponding change in *X*'s *A*-properties (necessary co-variation).

It follows from strong supervenience that any two things *X* and *Y* share all their *A*-properties in common only if they share all their *B*-properties in common (indiscriminability). For example, if heat strongly supervenes on mean molecular motion, then two things have the same kinetic molecular properties in common only if they have the same temperature properties in common.

Facts are just actual or possible instantiations of properties. Hence strong supervenience for properties entails strong supervenience for facts, and failures of strong supervenience for properties correspondingly entail failures of strong supervenience for facts.

Now, *logical* strong supervenience is strong supervenience that also obtains with logical, analytic, or conceptual a priori necessity. The strict "downwards identity" of higher-level properties with corresponding lower-level properties entails logical strong supervenience; but logical strong supervenience is also consistent with the multiple instantiability or realizability of the same higher-level properties across different lower-level properties, hence consistent with "downwards non-identity." For example, even if human body heat logically strongly supervenes on mean molecular motion inside the human body, it remains conceivable and possible that the very same temperature properties are instantiated or realized in humanoids made out of quite different kinds of stuff that nevertheless plays the same mean-molecular-motion role—for instance, the "replicants" imagined in Philip K. Dick's classic science fiction novel, *Do Androids Dream of Electric Sheep?* and in Ridley Scott's equally classic sci-fi movie *Blade Runner*. Hence logical strong supervenience is the most inclusive reductive metaphysical relation.

Finally, given the notion of strong supervenience, I will also understand the relation of *necessary determination* to be equivalent to strong supervenience in the following way:

X necessarily determines *Y* if and only if the *Y*-facts strongly supervene on the *X*-facts.

The necessary determination relation can also be strengthened to a *constitutive* dependence relation insofar as not only the existence and specific character of the *Y*-facts, but also the essences or natures of the *Y*-facts, are metaphysically controlled by the existence and specific character of the *X*-facts:

Y-facts constitutively depend on *X*-facts if and only if *X*-facts necessitate *Y*-facts and there cannot be a change in anything's *Y*-facts without a corresponding change in its *X*-facts, and the essence or nature of anything's *Y*-facts presuppose the essence or nature of its *X*-facts.

Then we can also say that the *Y*-facts are *grounded by* the *X*-facts.[9]

Now back to Kim. My working answer to his hard question is this: we should pursue the former rather than the latter of his two options. In other words, "the sciences of human behavior and cognition" should "make use of content-carrying states like belief and desire, or their more refined and precise scientific analogues, in formulating their laws and explanations." And this, in turn, is precisely because the reductive physicalists' attempts to "transcend the intentional idiom by couching their theories and explanations in purely non-intentional (perhaps ultimately neurobiological) terms" is directly falsified by well-supported non-reductive arguments in the philosophy of mind.[10] I will also provide another argument against reductive physicalism about intentionality and mental content a few paragraphs below.

In the present context, however, my basic reason for rejecting reductive physicalism about intentional content, cognition, and knowledge is the necessary presence of the primitive fact of what I call *categorical normativity* in all rational human intentionality whatsoever—including all rational human consciousness, mental content, belief, and knowledge.

What is this primitive fact? Normativity, as I am understanding it, consists in the fact that all minded animals, whether merely sentient (conscious minimal agents) or also sapient (self-consciously conscious, rational agents), have desires, aims, commitments, ends, goals, ideals, and/or values. Now insofar as sapient or rational minded animals naturally treat these aims, commitments, ends, goals, ideals, and/or values as rules or principles for guiding theoretical inquiry and practical enterprises, as reasons for justifying beliefs and intentional actions, and also as standards for critical evaluation and judgment, then at least some of those rules, principles, reasons, and standards are non-instrumental, unconditional, desired for their own sake as an end-in-themselves, non-pragmatic, non-prudential, and obtain no-matter-what-the-consequences. These are *categorical norms*, and my claim is that they necessarily inhere in all rational human *caring*. Categorical norms are perfectly consistent with norms that are instrumental, conditional, desired for the sake of other ends, pragmatic, prudential, or obtain only in virtue of good consequences. Nevertheless, categorical norms are necessarily underdetermined by all other sorts of norms—that is, categorical norms do not strongly supervene on any other sorts of norms—and therefore they cannot be assimilated to or replaced by those other sorts of norms. Correspondingly, categorical norms provide overriding reasons for belief and intentional action.

If a norm really is categorical, then it cannot be reduced to contingent physical facts or natural causal laws. This is shown by the following *reductio* argument.

(1) Suppose that categorical norms are reducible to contingent physical facts or natural causal laws.

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[9] My approach to grounding thus combines strong supervenience and essence. But there are many different approaches to grounding in the recent and contemporary literature. See, e.g., the essays collected in Correia and Schnieder (eds.), *Metaphysical Grounding: Understanding the Structure of Reality*. And for related discussions, see also MacBride, "Truthmakers," section 1.6; and McLaughlin and Bennett, "Supervenience."

[10] See Hanna and Maiese, *Embodied Minds in Action*, section 6.3.

(2) Contingent physical facts and natural causal laws are inherently conditioned by, and conditional upon, the actual spatiotemporal locations of those facts and the actual constitution and distribution of matter and forces in the physical world, whereas categorical norms are inherently unconditioned and unconditional.

(3) But the explanatory reduction of X to Y entails showing that X is, at the very least, logically strongly supervenient on Y,

(4) So by the initial supposition made in (1), categorical norms would then be logically strongly supervenient on inherently conditioned, conditional facts.

(5) But then categorical norms are both inherently unconditioned and unconditional and also strictly dependent on what is inherently conditioned and conditional, which is a contradiction.

(6) Therefore, categorical norms cannot be reduced to contingent physical facts or natural causal laws, by *reductio ad absurdum* as applied to the initial supposition made in (1).[11]

In this way, assuming the necessary presence of the primitive fact of categorical normativity in all rational human intentionality, including all rational human consciousness, mental content, belief, cognition, and knowledge, then reductive physicalism about intentionality, cognition, and mental content is false. Hence it is not the irreducibility of human consciousness as such that decisively undermines reductive physicalism, but instead the irreducibility of rational human conscious caring under categorically normative principles.

One important line of critical reply to my argument would be this one:

(1) It is a standard and widely accepted claim in contemporary meta-ethics, that ethical facts strongly supervene on natural facts,[12] and,

(2) since statements of categorical norms have the same modal propositional content as logical or conceptual truths, and,

(3) since logical or conceptual truths logically strongly supervene on *everything*, then

(4) categorical norms must logically strongly supervene on everything too, hence

(5) categorical norms are reducible to natural facts.

But I want to counter that challenge in this way: **First**, I grant it is a standard and widely accepted claim in contemporary meta-ethics that ethical facts strongly supervene on natural facts. But for all that, I think the claim is false, since no matter what the world-state of all the natural facts might be, together with some further ethical fact, there is—as Wittgenstein observed in the *Tractatus*—still a conceivably possible world with exactly the same physical laws, in which the natural facts all stay exactly the same but the ethical fact changes in its specific character:

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[11] For an analogous argument against the very idea of Scientific Naturalism and reductive physicalism as applied to logic (aka Logical Psychologism), see Hanna, *Rationality and Logic*, ch. 1.

[12] See, e.g., Sayre-McCord, "Metaethics," sections 3 and 4; and Shafer-Landau (ed.), *Metaethics*, vols. 2 and 3.

If good or bad willing changes the world, it can only change the limits of the world, not the facts; not the things that can be expressed in language. In brief, the world must thereby become quite another. It must so to speak wax or wane as a whole. The world of the happy is quite another than that of the unhappy.[13]

Let us think of this as a "radical Wittgensteinian change in the ethical subject." Along with early Wittgenstein, I think it is true that any rational human subject can *freely choose* her moral attitude toward her own natural life in the world. Or in other words, by means of our free will, the ethical facts can radically change in their specific character without a corresponding change in the natural facts. Therefore, ethical facts do not strongly supervene on natural facts. For the purposes of this counter-reply, I am assuming that all facts, including ethical facts, are in some real sense mind-dependent or "response-dependent" facts, that is, I am assuming the truth of a certain kind of metaphysical *idealism*, for which I will argue explicitly in section 7.3. **Second**, I think that premise (3) of the critical reply is also false, and that logical or conceptual truths do *not* logically strongly supervene on everything, for reasons I spell out in section 7.1.

But the critical reply to my original argument is correct in this one regard: the nature and status of categorical norms do indeed turn on the nature and status of logic. On my view, the necessary presence of the primitive and physically irreducible fact of categorical normativity in all rational human intentionality is derived precisely from the intrinsic role of logic in all rational human intentionality. In chapter 5, I work out an explicit argument for the categorical normativity of logic and its intrinsic role in human rationality.[14] In the lead-up chapters 1 to 4, and in the follow-up chapters 6 to 8, I work out a general theory of rational human cognition, content, and a priori knowledge that presupposes this deep feature of logic, but without explicitly arguing for it. So in that way, the arguments in chapters 1 to 4 and chapters 6 to 8 ultimately rest on the soundness of the argument in chapter 5.

That is the thumbnail outline of my positive or constructive argument in the book. But on the negative or critical side of my argument, it is also worth noting right from the start that there is a strongly self-refuting character to the very idea, entertained by Kim, that the cognitive sciences could somehow "transcend the intentional idiom" by "couching their theories and explanations in non-intentional terms." This is because the very idea of "couching a theory" or "couching an explanation" in any terms whatsoever, whether reductive or non-reductive, is obviously itself a thoroughly intentional, content-laden notion. So at best, "transcending the intentional idiom" would move untranscended intentionality to the level of theory and explanation in cognitive science. But unless it could be shown that a further meta-theory or meta-explanation could convert that untranscended intentionality at the level of first-order theory or first-order explanation into something wholly non-intentional, without thereby reinstating more untranscended intentionality at the meta-theoretical or meta-explanatory level, then the very idea of "transcending the intentional idiom" is caught in a self-stultifying explanatory regress. Or, to put the same point even more

[13] Wittgenstein, *Tractatus Logico-Philosophicus*, prop. 6.43, p. 185.
[14] For an earlier version of that argument, see Hanna, *Rationality and Logic*, ch. 7.

plainly, you cannot make intentionality and mental content go away by scientifically intending to make them go away—at best, you can only temporarily hide them inside your scientific theories and explanations themselves.

Here I am simply combining two argument-strategies famously deployed by W. V. O. Quine, into a single two-step argument. **First**, take Quine's well-known, and I think, entirely correct, observations about intentional vocabulary in *Word and Object*:

There remains a thesis of Brentano's, illuminatingly developed of late by Chisholm, that is directly relevant to our emerging doubts over the propositional attitudes and other intentional locutions. It is roughly that there is no breaking out of the intentional vocabulary by explaining its members in other terms. Our present reflections are favorable to this thesis.[15]

And then **second**, add Quine's equally well-known regress-argument strategy against The Conventionalist Theory of Logical Truth in "Truth by Convention":

In a word, the difficulty is that if logic is to proceed *mediately* from conventions, logic is needed for inferring logic from the conventions. Alternatively, the difficulty which appears thus as a self-presupposition of doctrine can be framed as turning upon a self-presupposition of primitives. It is supposed that the *if*-idiom, the *not*-idiom, the *every*-idiom, and so on, mean nothing to us initially, and that we adopt the conventions...by way of circumscribing their meaning; and the difficulty is that communication of [the conventions] themselves depends on free use of those very idioms which we are attempting to circumscribe, and can succeed only if we are already conversant with the idioms.[16]

Then, extend it to reductive physicalism about intentionality and mental content by substituting the notion of *the intentionality idiom* for the notion of *the logic idiom*. So reductive physicalism about intentionality and mental content, in effect, commits cognitive suicide by means of a self-stultifying regress of explanatory idioms, which clearly opens up a place in logical space for legitimately non-reductive, non-suicidal theorizing about the nature of cognition, content, and knowledge. Therefore, rational human minded animals or real human persons necessarily possess an irreducible or primitive capacity for intentionality and the production of mental content, cognition, and knowledge.

Primitiveness, as I am understanding it, does not imply *featurelessness*, or the lack of structure. On the contrary, something's being primitive is perfectly consistent with its having a complex internal structure—its manifest essence—and when this complex internal structure or manifest essence is described and unpacked, the primitive fact is thereby non-reductively explained. Given my non-reductive starting point, therefore, we can still ask: (i) what is the manifest essential structure or nature of rational human cognition, content, and knowledge, both perceptual and a priori? and (ii) how can rational human cognition, content, and knowledge, both perceptual and a priori, be non-reductively explained? Those are my two leading questions in this book. Its immediate purpose is to give a robustly intentional-agency-oriented general theory of rational human cognition, content, and knowledge, from a contemporary

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[15] Quine, *Word and Object*, p. 221.   [16] Quine, "Truth by Convention," p. 104.

Kantian point of view, fully taking on board the exciting emerging work in the philosophy of perception and cognitive phenomenology. This consists of sub-theories of non-conceptual content and conceptual content, of sense perception and perceptual knowledge, including perceptual self-knowledge, of the nature of logic, of the analytic-synthetic distinction, and of a priori truth and knowledge in logic, mathematics, and philosophy. Correspondingly, the larger purpose of this book is to provide adequate answers to my two leading questions.

What links all of the sub-theories together is the notion of *essential embodiment*. Given The Essential Embodiment Theory, as a rational human minded animal or real human person, I am not a detached Cartesian ego, a thinking thing—indeed, for familiar Kantian reasons having to do with the inherent restriction of our innately specified capacity for cognition to "the bounds of sense," it is strictly unknowable whether there is any such essentially distinct ego-thing or not. Hence we can leave Cartesian egos out of our substantive mind-body metaphysics altogether. As Wittgenstein very aptly puts it:

If what[ever] consciousness [there is] spreads all over human bodies, then there won't be any temptation to use the [Cartesian] word "ego."[17]

As against Cartesian Dualism, The Essential Embodiment Theory says that I am nothing more and nothing less than a necessarily and completely biologically/neurobiologically incarnated conscious, intentional, caring, rational human animal: a real human person; and thus just a certain special kind of self-organizing complex thermodynamic system. Essentially embodied rational human animal minds, their innately specified capacities, their activities, and their products, including mental content, cognition, and knowledge, are just irreducible immanent structures of certain suitably complex physical systems—that is, they are nothing more and nothing less than *forms of life*. So each one of us is fully embedded in the natural world, but without any sort of downward assimilation or reduction to something that is alien to the kind of creature she is essentially. We are essentially rational human forms of life.

The Essential Embodiment view of intentionality, cognition, mental content, and knowledge can be sharply contrasted with "Individualist" or "Internalist" approaches to cognitive semantics and epistemology on the one hand, whether in the classical Cartesian mode or in the recent and contemporary computational-functionalist mode, and also with recent and contemporary "Anti-Individualist" or Externalist approaches to cognitive semantics and epistemology on the other hand. As I am construing the Individualism vs. Externalism distinction, Individualism says that mental content is necessarily or constitutively determined by factors *endogenous to* or inside an organism, whereas Externalism says that mental content is necessarily or constitutively determined by factors *exogenous to* or outside an organism.

Perhaps the clearest way of bringing out the defining pair of sharp contrasts that I have in mind is to consider a famous Externalist thought-experiment described by Ruth Millikan:

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[17] Wittgenstein, "Notes for Lectures on Private Experience and Sense Data," p. 225.

Suppose that by some cosmic accident a collection of molecules formerly in random motion were to coalesce to form your exact physical double. Though possibly that being would be and even would *have* to be in a state of consciousness exactly like yours, that being would have no ideas, no beliefs, no intentions, no aspirations, no fears, and no hopes. (His *non*-intentional states, like being in pain or itching, may of course be another matter.) This is because the evolutionary *history* of the being would be wrong. For only in virtue of one's evolutionary history do one's intentional mental states have proper functions, hence does one mean or intend at all, let alone mean anything determinate.... That being would also have *no liver, no heart, no eyes, no brain*, etc. This, again, because the history of the being would be wrong. For the categories "heart," "liver," "eyes," "brain," and also "idea," "belief," and "intention" are proper function categories, defined in the end by reference to long-term and short-term evolutionary history, not present constitution or disposition.[18]

Three years later Donald Davidson also described the same Externalist thought-experiment, but added the usefully evocative detail that the cosmic accident happens by means of a lightning-strike in a swamp, which also simultaneously destroys you, so that your adventitiously created exact physical double can be dubbed *Swamp-man*.[19] The issue on the table, then, is whether Swampman would be alive, conscious, and have intentionality, or not?

Now according to the Essential Embodiment view, Millikan is absolutely right that Swampman would not have intentional states, and also absolutely right that Swampman would not have any vital organs. By detaching a creature from its actual thermodynamic and biological/neurobiological history, you thereby detach it from its minded animal cognitive life.

But, in light of the Essential Embodiment view, I also think that Millikan is wrong that Swampman could somehow have consciousness—and this is because consciousness and intentionality are necessarily connected in both directions. In other words, I think that "anti-separatism" (where "separatism" is the logical independence of consciousness and intentionality in both directions) is true, as I and others before me have argued elsewhere.[20] If so, then necessarily Swampman lacks intentionality like ours if and only if he lacks consciousness like ours. I fully grant that these are controversial theses, and also that many philosophers of mind of an Individualist bent will find it intuitively obvious that Swampman not only has intentional states but also is conscious. In this context, however, I am not attempting to re-argue the basic theses of the Essential Embodiment theory, but instead am only pointing up some interesting parallels and sharp contrasts between the Essential Embodiment view on the one hand, and either Individualism or Millikan-style Externalism on the other.

Beyond anti-separatism, moreover, I cannot accept Millikan's claim that Swampman has—or is able to have—consciousness, precisely because I think that both our consciousness and our intentionality are nothing more and nothing less than

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[18] Millikan, *Language, Thought, and Other Biological Categories*, p. 93.
[19] See Davidson, "Knowing One's Own Mind."
[20] See Hanna and Maiese, *Embodied Minds in Action*, pp. 43–45 and 91–93; see also Horgan and Tienson, "The Intentionality of Phenomenology and the Phenomenology of Intentionality."

irreducible immanent structures of our living organismic bodies—nothing more and nothing less than forms of life. Forms of life in this actual natural world do indeed require evolutionary history and evolutionary mechanisms, because they are immanent structural properties of organisms that actually emerge and develop only in the context of evolutionary processes. But if the non-reductive immanent structuralist view of the mind-body relation and dynamic emergence that Maiese and I spelled out in *Embodied Minds in Action* is correct, then evolutionary history and evolutionary mechanisms on their own are insufficient to determine either our consciousness or our intentionality. More, and essentially richer, dynamic structure is also necessary.

So according to the Kant-inflected Essential Embodiment view that I am developing, Millikan is absolutely right about the necessarily biological and historical nature of intentionality, but for the wrong reasons. You do not have to be a reductive physicalist, or indeed any sort of physicalist, whether reductive or non-reductive, in order to be a serious naturalist. That is the sound-bite version of the philosophical message of the liberal or inclusive naturalism that I have formulated and defended elsewhere,[21] which says that mental properties are as basic in nature as biological properties and are also metaphysically continuous with biological properties in the dual sense that (i) necessarily all mental facts are also biological facts, and (ii) although not every living complex thermodynamic system is itself sentient or sapient, nevertheless biological life always contains all the basic properties constitutive of mental properties, even if their instances are not always organized in the right way for embodied mentality to occur at just that time and place—hence not every biological fact is also a mental fact. My liberal or inclusive naturalism is every bit as much a rejection of *non*-reductive physicalism as it is of reductive physicalism. I will work out that point explicitly in section 1.3.

But for the moment, we should note another central feature of the theory of cognition, content, and knowledge offered by my view, which is that, in common with Millikan's theory, it also explicitly locates the theory of knowledge or epistemology within the philosophy of mind, which in this case means within my specifically contemporary Kantian and Essential Embodiment-oriented view of the nature of human cognition and mental content. Correspondingly, here is a preliminary sketch of my conception of the nature of knowledge.

1.2 Categorical Epistemology

In what follows, by *a conscious-evidence-based reason*, I mean a reason that is based on evidence provided by a conscious act, state, or process. And by *a conscious act, state, or process* I mean a subjectively experienced, intentionally directed mental act, state, or process. Thus reasons that are based on our capacities for sense perception, memory, imagination, apperception or self-consciousness, judgment (including the reception of testimony), deductive inference, inductive inference, abductive

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[21] See Hanna, *Kant, Science, and Human Nature*, pp. 16–17 and 310–11; and Hanna and Maiese, *Embodied Minds in Action*, esp. chs. 1–2 and 6–8. See also Nagel, *Mind and Cosmos*; and Hanna, "Nagel & Me: Beyond the Scientific Conception of the World."

inference, mathematical intuition, logical intuition, or philosophical intuition, are all conscious-evidence-based reasons.

My account of the nature of knowledge, categorical epistemology, is robustly normative in character, and it also flows naturally from the widely known and almost universally accepted "Gettier counterexamples" to the classical analysis of knowledge, according to which knowledge is the same as justified true belief.[22] Duncan Pritchard and others have correctly pointed out that the Gettier cases show that the classical analysis of knowledge leaves justified true belief open to *luck*, that is, to merely accidental or contingent connections between justifying evidence and the truth-makers of beliefs. Hence, in addition to justified true belief, authentic knowledge further requires the satisfaction of an *anti-luck*, or *externalist*, condition. Pritchard and others have also correctly pointed out that the classical analysis of knowledge fails to require that cognitive subjects acquire their justifying evidence via properly functioning cognitive capacities or mechanisms. Thus, authentic knowledge also requires the satisfaction of a *cognitive virtues*, or *virtue epistemology*, condition.[23] What I will call *High-Bar knowledge* includes maximally strong versions of both the anti-luck condition and the cognitive virtues condition alike, as well as requiring the satisfaction of an *evidential-phenomenological*, or *internalist*, condition, and in this way it also rules out global or radical skepticism.

Here is what I mean by all that. The simplest kind of Gettier counterexample goes like this. I look at my iPhone, and it says that it is 7:00 a.m. I know by experience that my iPhone has been working fine for months. So I have a conscious-evidence-based reason for asserting that it is 7:00 a.m. And, as it happens, it really is 7:00 a.m. But, unbeknownst to me, my iPhone has been broken since 7:00 p.m. last evening, when, by a malfunction of the digital mechanism, it started reading 7:00 a.m. and froze at that setting; and I have not looked at it since then. So even though I have a conscious-evidence-based reason for asserting that it is 7:00 a.m., and it is true that it is 7:00 a.m., and I believe that it is 7:00 a.m., I do not know that it is 7:00 a.m. Thus, it would seem that knowledge is not justified true belief.

How should we understand this result? My own take on the Gettier counterexamples is that although knowledge really is justified true belief, the counterexamples initially suggest the opposite, by trading on a special internal normative feature of the concepts and facts of epistemic justification and knowledge: epistemic justification and knowledge are *normatively two-dimensional*, in the sense that by their very nature they are either *Low-Bar* or *High-Bar*. Let me now, in turn, explain what I mean by this.

Low-Bar. The "Low-Bar" dimension of epistemic justification allows for justification to be more or less detached from truth, and means: "whatever provides a conscious-evidence-based reason for the believer to assert her belief-claim, even if that belief turns out false," in which case that belief obviously is not knowledge in the normatively highest sense. But most importantly for the Gettier counterexamples, what I will call *Low-Bar justification* is also consistent with cases (like the broken

[22] For the locus classicus, see Gettier, "Is Justified True Belief Knowledge?" More generally, see Shope, *The Analysis of Knowing*; and Steup, "The Analysis of Knowledge."
[23] See, e.g., Pritchard, "Anti-Luck Virtue Epistemology."

iPhone case) in which the believer's claim is actually true, yet that actual truth is neither inherently or intrinsically connected to the believer's conscious-evidence-based reason for asserting her belief-claim, nor even in a context-sensitive way causally reliably connected to the believer's conscious-evidence-based reason for asserting her belief-claim. Otherwise put, the truth of the claim in these cases is only accidentally or contingently connected to the believer's conscious-evidence-based reason for asserting her belief-claim. That is Low-Bar justification.

Now this clearly and distinctly points up the fact that knowledge in the normatively highest sense, or what I will call *High-Bar knowledge*, requires an inherent or intrinsic connection—a non-accidental or necessary connection—between the truth of a believer's belief-claim and a believer's sufficient conscious-evidence-based reason for asserting her belief-claim, as delivered by her properly functioning cognitive capacities or mechanisms. That is, it requires what I call *High-Bar justified true belief*. This is because in the cases in which there is only an accidental or contingent connection, the believer's belief-claim could just as easily have been false with no change whatsoever in the believer's conscious-evidence-based reason for asserting her belief-claim. So knowledge in the normatively highest sense, that is, High-Bar justified true belief, is *not* the same as Low-Bar knowledge, which involves justified true belief in the Low-Bar sense only. In that sense, High-Bar knowledge is not Low-Bar justified true belief, although High-Bar knowledge still is and always will be High-Bar justified true belief. Correspondingly, Low-Bar knowledge still is and always will be Low-Bar justified true belief. Hence, provided that we keep our bar-levels straight, knowledge really is justified true belief.

High-Bar. By sharp contrast, then, the "High-Bar" dimension of knowledge and justification requires that belief be inherently or intrinsically connected to truth, via the properly functioning cognitive capacities or mechanisms of the cognitive subject, and means: "whatever provides a sufficient conscious-evidence-based reason for the believer to assert her belief-claim, via her properly functioning cognitive capacities or mechanisms, and also is inherently or intrinsically connected to the truth of that belief-claim." Otherwise put, High-Bar knowledge has the following three fundamental features. **First**, belief is self-evident—intrinsically compelling, thereby satisfying an evidential-phenomenological or internalist condition on authentic knowledge. **Second**, this self-evidence is informationally delivered to belief by a properly functioning cognitive capacity or mechanism, thereby satisfying a cognitive virtues condition on authentic knowledge. And **third**, belief provides a non-accidental or necessary tie to the truth-makers of belief, thereby satisfying an anti-luck or externalist condition on authentic knowledge.

An example of High-Bar knowledge would be a case that is radically different from any sort of Gettier case, and also radically different from any other sort of "bad" epistemic case involving falsity or failed justification. In this all-around good epistemic case—which will be discussed in detail and at length in chapters 6 through 8, as a paradigm—and indefinitely many others relevantly like it, I objectively know, via basic authoritative a priori objectively necessarily true mathematical rational intuition, that

$$3 + 4 = 7, \text{i.e.,} \; ||| + |||| = |||||||$$

and thereby achieve High-Bar a priori knowledge. Now, by *an essentially reliable cognitive capacity or mechanism*, I mean a cognitive capacity or mechanism that tracks truth counterfactually and in a context-sensitive way across all relevantly similar metaphysically possible worlds. So High-Bar justified true belief is the same as High-Bar knowledge, precisely because justification occurs by means of an essentially reliable cognitive capacity or mechanism, in this case, basic authoritative mathematical rational intuition.

This paradigmatically good epistemic case should also be distinguished from another variant case in which my iPhone says it is 7:00 a.m., and my iPhone is still working fine, and it is actually 7:00 a.m., and I believe that it is 7:00 a.m., and it is also the case that (i) whenever, in relevantly similar cases, it were to be such-and-such a time, call it *T*, and I looked at my iPhone and it read "*T*," then I would believe that it is *T*, and (ii) whenever, in relevantly similar cases, it were, by some salient difference, not to be *T* and I looked at my iPhone, yet my iPhone still read "*T*," then I would not believe that it is *T* and would instead believe that my iPhone was malfunctioning. So I know that it is 7:00 a.m., because my conscious evidence for asserting my belief is connected to the truth of that belief-claim with context-sensitive causal reliability. Now, by *a context-sensitive causally reliable cognitive capacity or mechanism* I mean a cognitive capacity or mechanism that tracks truth in the actual world, and also counterfactually and in a context-sensitive way across all relevantly similar nomologically possible worlds. In this "pretty good" case, then, the context-sensitive causally reliable cognitive capacity or mechanism is my capacity for veridical, direct sense perception (for a defense of this claim, see chapter 3), together with a further online—that is, currently properly functioning—capacity of mine for detecting salient breakdowns of my iPhone whenever they occur.

But context-sensitive causally reliable knowledge, "pretty good" though it is, is not the normatively best or highest kind of knowledge, precisely because the connection between my conscious-evidence-based reason and the truth-maker of my belief is not inherent or intrinsic. On the one hand, context-sensitive causally reliable knowledge is open to global skeptical worries: in at least some introspectively indistinguishable, conceivably possible worlds containing the very same conscious-evidence-based reason, that belief is instead connected to a falsity-maker, not a truth-maker.[24] On the other hand, even given context-sensitive causally reliable knowledge, it is not as if my capacity for veridical, direct sense perception, together with my capacity to detect salient iPhone breakdowns, completely convincingly, intrinsically compellingly, or self-evidently "locks onto" the context-sensitive causal sequence that ties my well-functioning iPhone to the US standard atomic clock (or whatever) that grounds it. That is, even given context-sensitive causally reliable knowledge, it is not as if I have rational insight into the underlying structure of what connects my conscious-evidence-based reason for believing to the truth-maker of my belief. Indeed, my conscious-evidence-based reason for believing could be epistemically flawed in various ways, including greater or lesser irrelevance to the situation at hand, greater

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[24] See, e.g., Cohen, "Justification and Truth." This is also called "new evil demon" skepticism, to distinguish it from classical Cartesian evil demon skepticism, which of course postulates the conceivable possibility of falsity-makers in *the actual world* for any and all seemingly true beliefs.

or lesser superficiality, greater or lesser triviality, or more or less obvious formal inconsistency with other beliefs I hold.

This point is also brought out clearly, although in a sense unintentionally, by Keith Lehrer's well-known "Truetemp" thought-experiment, whose explicit aim is to show that context-sensitive causally reliable true belief is not the same as knowledge.[25] Lehrer's example describes a context-sensitive causally reliable temperature-reading device connected (unbeknownst to Mr. Truetemp himself) to Mr. Truetemp's brain, that together with his brain yields a context-sensitive causally reliable cognitive capacity or mechanism for his beliefs about temperature. This example, in turn, is supposed to trigger our judgment that Mr. Truetemp's context-sensitive causally reliable true beliefs about temperature are *not* knowledge. But in fact, what the Truetemp case shows, just like my iPhone case, is simply that context-sensitive, causally reliable Low-Bar knowledge, even though it is pretty good, is *not* the same as High-Bar knowledge. Otherwise put, my context-sensitive causally reliable perceptual knowledge that it is 7:00 a.m. by looking at my iPhone is not *essentially reliable*, as it is in the paradigmatically good epistemic case where I know that

$$3 + 4 = 7, \text{i.e.,} \, ||| + |||| = |||||||$$

via basic authoritative mathematical rational intuition.

In this way, what the Gettier counterexamples and their variant cases show us are four distinct synthetic a priori philosophical truths about knowledge. **First**, High-Bar knowledge is not the same as Low-Bar knowledge, that is, High-Bar knowledge is not the same as Low-Bar justified true belief. **Second**, High-Bar knowledge is also not the same as context-sensitive causally reliable Low-Bar knowledge, that is, High-Bar knowledge is not the same as context-sensitive causally reliable Low-Bar justified true belief, which in turn is distinct from mere Low-Bar knowledge, or Low-Bar justified true belief. **Third**, High-Bar knowledge is the same as High-Bar justified true belief, or essentially reliable justified true belief. **Fourth** and finally, Low-Bar knowledge is the same as Low-Bar justified true belief; context-sensitive causally reliable Low-Bar knowledge is the same as context-sensitive causally reliable true belief; and High-Bar knowledge is the same as High-Bar justified true belief. Therefore, provided we keep our bar-levels straight, knowledge really is justified true belief.

The leading notion of categorical epistemology is what I am calling *High-Bar knowledge*. Any theory of knowledge that adequately establishes an inherent or intrinsic connection between the sufficient conscious-evidence-based reason for a believer's assertion of her belief-claim, via her properly functioning cognitive capacities or mechanisms, and the truth of her belief, also shows that this is an essentially reliable belief. This theory thereby constitutes an adequate philosophical explanation of the highest kind of knowledge, which in turn counts as the highest good, or *summum bonum*, of epistemology. And that is High-Bar knowledge.

Furthermore, the categorical epistemology conception of a philosophical explanation of the normatively best and highest kind of knowledge—that it adequately establishes an inherent or intrinsic connection between the sufficient

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[25] Lehrer, *Theory of Knowledge*, pp. 163–64.

conscious-evidence-based reason for a believer's assertion of her belief-claim, via her properly functioning cognitive capacities or mechanisms, and the truth of her belief—is (perhaps surprisingly) largely compatible with Timothy Williamson's highly plausible "knowledge first" approach to epistemology in *Knowledge and Its Limits*.[26] There are three reasons for this large measure of compatibility, all of which flow directly from my Kant-inflected and Essential Embodiment-oriented conception of the theory of knowledge, categorical epistemology.

First, High-Bar knowledge—intrinsically compelling, cognitively virtuous, essentially reliable justified true belief—which is the normatively highest kind of knowledge, is the primitive, non-analyzable, irreducible, immanently structured, and categorically normative highest good and ideal standard of rational human cognition with which epistemology is fundamentally concerned. **Second**, High-Bar justification contains the three basic elements of (i) intrinsically compelling, cognitively virtuous, essentially reliable justification, (ii) truth, and (iii) belief, and these are the metaphysically non-detachable, essentially related elements of High-Bar knowledge. And **third**, a priori knowledge via basic authoritative objectively necessarily true rational intuition is the perfection of our capacities for rational human cognition, and therefore counts as the normative paradigm of High-Bar knowledge.

Or, in other words, categorical epistemology is a perfectionist Kantian morality of essentially embodied rational human cognition. No doubt, Williamson would sharply disagree with me about the robust rational normativity of authentic a priori knowledge. But at the same time, we do both hold that knowledge as such is a primitive, non-analyzable, irreducible cognitive phenomenon with which all serious explanatory epistemology must begin, even though I would contend, contra Williamson, that the non-analyzability of the proper parts of the cognitive phenomenon of knowledge is explained by their being connected *synthetically a priori*. Furthermore, we do agree that knowledge is inherently mentalistic and factive. So there is significant philosophical common ground shared between us, alongside some important differences.

More generally, categorical epistemology is both non-trivially similar to and also non-trivially dissimilar to other contemporary approaches to epistemology. On the one hand, categorical epistemology shares with virtue epistemology[27] and other recent or contemporary practically oriented approaches to epistemology[28] the basic idea that both the ascription and also the actual occurrence of human knowledge have the following characteristics: they are inherently sensitive to our properly functioning cognitive capacities or mechanisms; inherently motivated by rational human interests; inherently governed by rational human ideals, values, and reasons (i.e., norms); and ultimately grounded on the real fact of (or in at least the non-eliminable conception of ourselves as having) free agency. But on the other hand, categorical epistemology sharply differs from other practically oriented approaches to human knowledge in the following respect. According to categorical epistemology,

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[26] Williamson, *Knowledge and its Limits*, p. v.
[27] See, e.g., Brady and Pritchard (eds.), *Moral and Epistemic Virtues*; Fairweather and Zagzebski (eds.), *Virtue Epistemology*; and Sosa, *A Virtue Epistemology*.
[28] See, e.g., Stanley, *Knowledge and Practical Interests*.

the principles of rational human animal knowledge are grounded on categorically normative principles, which in turn are all ultimately subsumable under the Categorical Imperative. Hence the governing norms of knowledge are explicitly and irreducibly categorical—unconditional, strictly universal, non-instrumental, and a priori—and also ultimately constrained by the Categorical Imperative.

Correspondingly, it should also be fully noted that the fundamental distinction in categorical epistemology between High-Bar justification and knowledge, and Low-Bar justification and knowledge, is itself only a specification of a more general and necessary structure of human rationality, which I call *Two-Dimensional rational normativity*. Two-Dimensional rational normativity is the fact that the conditions on normative evaluations of rationality fall into two importantly different kinds:

(1) **Low-Bar rational normativity:** the necessary and sufficient conditions for minimal or nonideal rationality, which include the possession of online, uncompromised versions of all the cognitive and practical capacities constitutive of intentional agency, and

(2) **High-Bar rational normativity:** the necessary and sufficient conditions for maximal or ideal rationality, which include all the necessary and sufficient conditions for Low-Bar rational normativity as individually necessary but not jointly sufficient conditions, and also include the perfection, or correct and full self-realization, of all the cognitive and practical capacities constitutive of intentional agency, as individually necessary and jointly sufficient conditions.

Non-satisfaction of the conditions for *Low*-Bar rational normativity entails non-rationality and non-agency. As we shall see later in this section, in a certain special range of cases of the non-satisfaction of the conditions for Low-Bar knowledge, Low-Bar rational normativity further allows for the possibility of what, following Frank Hofmann,[29] I will call *Non-Conceptual Knowledge*, in non-human animals such as cats or horses, and also in non-rational human animals such as infants or unfortunate adult victims of various pathological cognitive conditions. Nevertheless, by sharp contrast, it is not the case that non-satisfaction of the conditions of *High*-Bar rational normativity entails either non-rationality or non-agency.

This point, in turn, makes it possible to see very clearly the fundamental flaw in *One-Dimensional* theories of rational normativity, no matter how plausible and sophisticated these theories might otherwise be.[30] According to a One-Dimensional theory, any failure to meet the ideal standards of rational normativity entails non-rationality, non-agency, and non-responsibility. To be sure, on a sophisticated One-Dimensional theory, there can be a continuum of degrees of rationality with a variety of significant thresholds along the way. But the basic fact remains that in a One-Dimensional framework, any degree of rationality short of the ideal standards is to that extent *non*-rational. Or in other words, if you are not ideally or perfectly rational,

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[29] See Hofmann, "Non-Conceptual Knowledge." Hofmann compellingly argues that non-conceptual perception not only is regularly called "knowledge" by cognitive scientists, and furthermore satisfies four basic conditions on any cognitive activity that plays the "knowledge role," but also grounds conceptual/doxastic perceptual knowledge and justification *by putting the cognitive subject in a position to have them.*

[30] See, e.g., Korsgaard, *Self-Constitution: Agency, Identity, and Integrity.*

then you are a rationally defective or irrational animal, and off the hook. For example, if you fail to know in the highest sense (i.e., if you fail to have High-Bar justified true belief), then you are not in any sense a rational or responsible cognitive agent, although you may approach that epistemically blessed state to a greater or lesser degree. Or if you fail to act in the practically or morally highest way (i.e., if you fail to have a *good will* in Kant's sense [*GMM* 4: 393]), then you are not in any sense a rational or responsible practical or moral agent, although you may approach that morally blessed state to a greater or lesser degree.

Disastrously, these results of One-Dimensionalism play directly into the hands of radical cognitive, practical, and moral skeptics, since as a matter of fact no actual rational human animal ever manages to meet *all* or even *most* of the High-Bar standards of rational normativity, but instead is doing extremely well indeed if she ever manages to meet *some* of them—for instance, successfully performing some basic authoritative a priori objectively necessarily true rational intuitions in mathematics, logic, or philosophy. How convenient for the radical skeptic, then, that most or all of us, most or all of the time, turn out to be irrational animals. Perhaps even more disastrously, these results also play directly into the hands of "human, all too human" intentional agents looking for a fast track out of their everyday cognitive and practical difficulties in a thoroughly nonideal actual natural world. How convenient for them that falling short of rational perfection should entail the suspension of responsibility: If rationality—like God—is dead, then everything is permitted, and they can take the nihilist's way out, like the pathetically wicked character Smerdyakov in *The Brothers Karamazov*:

"Take that money away with you, sir," Smerdyakov said with a sigh.

"Of course, I'll take it! But why are you giving it to me if you committed a murder to get it?" Ivan asked, looking at him with intense surprise.

"I don't want it at all," Smerdyakov said in a shaking voice, with a wave of the hand. "I did have an idea of starting a new life in Moscow, but that was just a dream, sir, and mostly because "everything is permitted." This you did teach me, sir, for you talked to me a lot about such things: for if there's no everlasting God, there's no such thing as virtue, and there's no need of it at all.

Yes, sir, you were right about that. That's the way I reasoned."[31]

For these reasons, then, it is clear that One-Dimensional theories of rational normativity are false.

On The Two-Dimensional theory, however, things are very different. Satisfaction of the conditions for Low-Bar rational normativity is a necessary and sufficient condition of the cognitive, practical, and moral *responsibility* of intentional agents, but it does not guarantee that any of the further conditions of High-Bar rational normativity are actually satisfied. In other words, it is fully possible for an intentional agent to be minimally and nonideally rational, but in a bad or wrong way, to any degree of badness or wrongness, all the way down to the lowest limiting case of cognitive or practical monstrosity within its kind. For example, at any point short of the limiting case of an utter disregard for, and a complete inability to heed, any and all canons of reasonable

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[31] Dostoyevsky, *The Brothers Karamazov*, vol. 2, p. 743.

belief, truth, and validity/consistency in logical reasoning—at any point short of sheer madness—the intentional agent remains cognitively responsible to some degree. So, too, at any point short of the limiting case of an utter disregard for, and a complete inability to heed, any and all moral principles grounded on the dignity of persons, and any and all canons of validity/consistency in practical reasoning—at any point short of sheer sociopathy or the complete disintegration of agentive coherence—the intentional agent remains morally and practically responsible to some degree.

Correspondingly, it is also fully possible for an intentional agent to be minimally and nonideally rational in a good or right way, to any degree of goodness or rightness, all the way up to the highest limiting case of cognitive or practical perfection within its kind—for instance, successfully performing some basic authoritative a priori objectively necessarily true rational intuitions in mathematics, logic, or philosophy—for all of which, again, the intentional agent is also fully cognitively and practically responsible.

As my discussion so far implies, explicitly situating categorical epistemology within the framework of Two-Dimensional rational normativity yields a fourfold classification of different, basic, normatively graded kinds of cognition. This fourfold classification comes clearly into view when we recognize the notion of context-sensitive causal reliability, together with the fact that certain kinds of cognitive acts or states in non-human animals, and in non-rational human animals, fall short of Low-Bar knowledge, yet still include what in chapters 2 and 3 I will call *essentially non-conceptual content* and *direct sense perception*, and also a context-sensitive causally reliable cognitive mechanism for evidentially connecting sense perception with its worldly objects. So non-human animals, non-rational human animals, and rational human animals share the minimally basic epistemic capacities, and by exercising those capacities well, they thereby can all achieve Non-Conceptual Knowledge.

In a nutshell, my rationale for this claim is grounded on the following three points. **First,** direct sense perception based on essentially non-conceptual content is perceptual knowledge by acquaintance. **Second**, perceptual knowledge by acquaintance is genuine *knowledge* in at least three important senses, namely (i) that it guarantees an essentially reliable, non-accidental connection between cognition and the world, (ii) that it involves the successful exercise of the minimally basic epistemic capacities, and (iii) that its cognitive phenomenology is maximally evidential in that context. **Third**, therefore direct sense perception based on essentially non-conceptual content is also genuine knowledge in at least three important senses, even though it fails the belief condition and the truth-condition on Low-Bar knowledge and High-Bar Knowledge.

More explicitly, then, the larger Two-Dimensional framework that comprehends categorical epistemology provides for a non-conceptual, non-doxastic, non-alethic, and distinctively different fourth kind of minimally basic epistemic activity, namely Non-Conceptual Knowledge, to go along with mere Low-Bar knowledge, with context-sensitive causally reliable Low-Bar knowledge, and with High-Bar knowledge.

Non-Conceptual Knowledge is similar in several important ways to what Ernest Sosa calls "animal knowledge,"[32] but with two crucial additions: **first,**

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[32] See, e.g., Sosa, "Human Knowledge, Animal and Reflective."

Non-Conceptual Knowledge is cognitively driven by essentially non-conceptual content, and **second**, it both occurs and also makes sense only within the larger four-leveled, Two-Dimensional explanatory framework of categorical epistemology, whereas Sosa's explanatory framework utilizes a more compact binary contrast between animal knowledge and *reflective* knowledge.[33] As such, some classes of cases of Sosa's animal knowledge fall under Non-Conceptual Knowledge, and some of them fall under one or another of the kinds of Low-Bar knowledge. Correspondingly, some classes of cases of Sosa's reflective knowledge fall under the more Internalistically sophisticated kinds of Low-Bar knowledge, and some of them fall under High-Bar knowledge. All things considered, I do think that Sosa's "virtue reliabilist" account is in many ways fundamentally correct, but also that the more complex structure of categorical epistemology, embedded within a cognitive-semantic theory of essentially non-conceptual content and conceptual content, ultimately does more explanatory work, and also characterizes the highest kind of knowledge more completely.

In what follows, by *a contingently reliable cognitive capacity or mechanism* I mean a cognitive capacity or mechanism that tracks truth in the actual world. The notion of a contingently reliable cognitive capacity or mechanism can then be put alongside the two notions of a context-sensitive causally reliable cognitive capacity or mechanism and an essentially reliable cognitive capacity or mechanism, that I previously formulated. Granting all that, then, here are contextual-definition-style formulations of the four basic kinds of knowledge recognized by categorical epistemology:

   (i) **Non-Conceptual Knowledge:** Perception P in an animal subject S is Non-Conceptual Knowledge if and only if (ia) P is based on essentially non-conceptual content, and (ib) S possesses a properly functioning and context-sensitive causally reliable cognitive capacity or mechanism that yields S's conscious evidence E for P.

  (ii) **Low-Bar Knowledge:** Belief B in an animal subject S is Low-Bar Knowledge if and only if (iia) B is true, (iib) S possesses a properly functioning and at least contingently reliable cognitive capacity or mechanism that yields S's conscious evidence E for B, and (iic) S has a reason for asserting B based on E—in other words, S has a Low-Bar justification for B.

 (iii) **Context-Sensitive Causally Reliable Low-Bar Knowledge:** Belief B in an animal subject S is context-sensitive causally reliable Low-Bar Knowledge if and only if (iiia) B is true, (iiib) S possesses a properly functioning and context-sensitive causally reliable cognitive capacity or mechanism that yields S's conscious evidence E for B, and (iiic) S has a reason for asserting B based on E—in other words, S has a Low-Bar justification for B.

  (iv) **High-Bar Knowledge:** Belief B in an animal subject S is High-Bar Knowledge if and only if (iva) B is true, (ivb) S possesses a properly functioning and essentially reliable cognitive capacity or mechanism that yields S's intrinsically compelling conscious evidence E for B, and (ivc) S has a sufficient reason for asserting B based on E—in other words, S has a High-Bar justification for B.

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[33] See Sosa, *A Virtue Epistemology*; and Sosa, *Reflective Knowledge*.

This fourfold classification of kinds of cognition combines elements of epistemic internalism, epistemic externalism, virtue epistemology, and contextualism[34] within the progressively larger frameworks of categorical epistemology and Two-Dimensional rational normativity, while also sustaining the classical thesis that (conceptual, doxastic, rational) knowledge is justified true belief. In this connection, it should be specifically noted that although Non-Conceptual Knowledge is not in any way subject to Gettier considerations—that is, not subject to the possibility of a *merely* accidental or contingent connection between conscious evidence and the world—nevertheless Non-Conceptual Knowledge is not conceptual and not doxastic, and therefore not "in the logical space of reasons,"[35] or directly subject to the constraints of even Low-Bar rational normativity. So Non-Conceptual Knowledge flows from the successful exercise of minimally basic epistemic capacities, and is knowledge in a genuine sense—namely, the sense in which "knowledge by acquaintance" is genuine knowledge. Moreover, Non-Conceptual Knowledge constitutes a kind of essentially and also context-sensitively causally reliable animal cognition that grounds all the other kinds of knowledge. Furthermore, Non-Conceptual Knowledge anticipates some of the necessary features of rational human knowledge in the normatively highest sense. Nevertheless, Non-Conceptual Knowledge is at most pre-rational and proto-rational. Therefore, strictly speaking, it is neither Low-Bar knowledge nor High-Bar knowledge.

At the same time, however, although Low-Bar knowledge is indeed "in the logical space of reasons," and thereby subject to the constraints of rational normativity, it is open both to Gettier considerations, and also to global skeptical worries. More specifically, in some introspectively indistinguishable conceivably possible worlds the very same conscious-evidence-based reason for S's belief is connected to a falsity-maker, not a truth-maker.[36] Thus, Low-Bar knowledge falls well short of knowledge in the normatively highest sense. By sharp contrast to both Non-Conceptual knowledge and Low-Bar knowledge, however, High-Bar knowledge is not only "in the logical space of reasons," and thereby subject to the constraints of rational normativity, and both contingently and causally reliable. It is also essentially reliable, as well as sufficiently justified by a conscious-evidence-based reason, via a properly functioning cognitive capacity or mechanism. High-Bar knowledge is thereby impervious to Gettier worries and to global or radical skepticism alike. Hence, again, High-Bar knowledge is the highest good or *summum bonum* of epistemology.

Now what about context-sensitive causally reliable Low-Bar knowledge? If *S* possesses knowledge in this sense, then *S* possesses context-sensitive causally reliable Low-Bar *a posteriori knowledge*, which is a pretty good kind of knowledge to have—say, via trustworthy testimony—but at the same time context-sensitive causally reliable Low-Bar knowledge is without complete conviction, intrinsic compellingness, or self-evidence, and also without essential reliability. For one thing, just as with Low-Bar knowledge, so, too, with context-sensitive causally reliable Low-Bar knowledge, in some introspectively indistinguishable conceivably possible worlds the very

[34] See, e.g., Steup, "Epistemology."
[35] See Sellars, "Empiricism and the Philosophy of Mind," p. 169, and more generally, §17 and §36.
[36] See, e.g., Cohen, "Justification and Truth."

same conscious-evidence-based reason for S's belief is connected to a falsity-maker, not a truth-maker. This possibility leaves context-sensitive causally reliable Low-Bar knowledge wide open to radical or global skepticism. And for another thing, as I pointed out earlier in this section, because context-sensitive causally reliable Low-Bar knowledge does not necessarily include rational insight into the underlying structure of what connects S's conscious-evidence-based reason for believing to the truth-maker of her belief, her conscious-evidence-based reason for believing could be epistemically flawed in various ways, including greater or lesser irrelevance to the situation at hand, greater or lesser superficiality, greater or less triviality, or more or less obvious formal inconsistency with other beliefs she holds. However, by sharp contrast, when I look carefully at the following sequence of strokes

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and thereby come to believe that there are seven strokes on the page, then I possess *High-Bar a posteriori knowledge*. This is because my evidence-based reason for believing that there are seven strokes on the page is inherently or intrinsically connected to the truth-maker for that belief, via veridical, direct sense perception. This in turn constitutes an epistemically appropriate, properly functioning cognitive capacity or mechanism. And the cognitive phenomenology—the subjectively experiential specific characters[37]—of my perceptual belief is also intrinsically compelling or self-evident.

By another important contrast, when a normal, healthy, minimally linguistically competent three-year old child comes to believe that 3+4=7 by counting aloud on her fingers, which for her is at best a semi-reliable cognitive process and clearly not mathematical rational intuition, then she possesses *Low-Bar a priori knowledge*.

And by a final important contrast, in the now-familiar case in which I know that

$$3 + 4 = 7, \text{or}, ||| + |||| = |||||||$$

via mathematical authoritative rational intuition, then I possess *High-Bar a priori knowledge*, which is the very best and highest of all kinds of knowledge, even better than High-Bar a posteriori knowledge. In so doing, I have thereby achieved membership in the indefinitely large class of cases of knowing that collectively constitute the jewel in the crown of the *summum bonum* of epistemology.

1.3 The Proto-Rationality of the Body

In what follows, by a *minded animal*, I mean any living organism with inherent capacities for *consciousness*—a capacity for embodied subjective experience; for *intentionality*, a capacity for conscious mental representation and mental directedness to objects, events, facts, actions or performances, other animals, or the subject herself (so in general, a capacity for mental directedness to intentional targets); and

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[37]   See, e.g., Bayne and Montague (eds.), *Cognitive Phenomenology*; Smithies, "The Nature of Cognitive Phenomenology"; Smithies, "The Significance of Cognitive Phenomenology."

for *caring*, a capacity for conscious affect, desiring, and emotion, whether directed to objects, events, facts, acts, other animals, or the subject herself.

Over and above consciousness, intentionality, and caring, in some but not all minded animals, there is also a further inherent capacity for *rationality*—a capacity for self-conscious thinking according to principles, responsiveness to reasons, and reasons-seeking. Hence the rational capacity in so-minded animals is fully poised for yielding conscious, intentional, caring-motivated acts or processes of justification, whether via logical thinking, including inference and theory construction, or via practical thinking, including deliberation and decision making.

The theory of rational human cognition, content, and knowledge that I am proposing in this book is, in part, a "bottom-up" theory about the nature of minded animals that anchors conceptual content in the primitive fact of essentially non-conceptual content. Essentially non-conceptual content, in turn, is a kind of mental content that is categorically different from conceptual content, in the sense that both its underlying semantic structure and also its characteristic psychological function or role are inherently distinct from those of conceptual content. Furthermore, essentially non-conceptual content is a kind of mental content that rational human animals or real human persons share with non-rational minded animals, whether non-human (e.g., cats) or human (e.g., infants), who, it seems, do not possess conceptual capacities. So essentially non-conceptual content epitomizes the specifically non-intellectual or *sensible*, embodied, perception-based, phenomenally conscious side of human mindedness, whereas conceptual content epitomizes the specifically *intellectual* or discursive, reflective, judgment-based, self-conscious side of human mindedness. I will explicitly work out and critically defend the theory of essentially non-conceptual content in chapter 2. But for now, just by way of a preliminary or working characterization to have in front of us, I will say that essentially non-conceptual content is mental content that necessarily includes essentially indexical formal spatiotemporal and dynamic representations that are fully sensitive to complex thermodynamic asymmetries in perceptually manifest natural objects and processes, and also that the primary psychological function or role of essentially non-conceptual content is to account for directly referential cognition, and to guide and mediate the sensorimotor processes constitutive of fine-grained intentional body movements in rational minded animals or real persons.

The bottom-up theory I am proposing, then, is that essentially non-conceptual content and non-conceptual cognition are not only presupposed by all conceptual content and concept-driven cognition, but also that the former grounds the latter in the strong metaphysical sense that the essentially non-conceptual partially constitutes the conceptual. Otherwise put, my claim is that the conceptual side of human mindedness cannot secure directly referential veridicality or world-connectedness and world-situatedness on its own, so the essentially non-conceptual independently and autonomously does this for it. Moreover, the essentially non-conceptual also structurally anticipates and provides a foundation for the most important feature of the conceptual, namely its intellectual normativity. In this way, the cognitively sophisticated discursive intellectual normativity of logical consistency/validity, propositional truth, epistemic justification, and Low-Bar or High-Bar knowledge all grow naturally out of the more cognitively primitive, non-intellectual, sensible,

perception-based, embodied, phenomenally conscious normativity of accurate direct reference, location, and tracking. Direct reference, location, and tracking, in turn, can grow naturally only within the active, vital lives of minded animals who care, desire, choose, and act, and who therefore have capacities for willing and intentional agency. The biological metaphor of natural growth is not accidental, for there is also a teleology here: accurate, action-guiding direct reference rationally realizes itself by becoming a proper part of consequence, truth, and discursive knowledge. So although the essentially non-conceptual and the conceptual are categorically distinct, and mutually irreducible, they are far from being mutually exclusive, whether contrary or contradictory, or even merely non-exclusively disjunctively related to one another. On the contrary, they are necessarily complementary to one another, and symbiotically related: each supplies what the other inherently needs most in order to sustain and realize its own distinctive nature. Above all, the conceptual side of our rational human nature gains its rational but also specifically *human* significance only by being anchored in the essentially non-conceptual side of our nature.

This means that the primitive facts of essentially non-conceptual content and non-conceptual cognition comprise the fundamentally proto-rational aspect of rational minded animals or real persons, insofar as they individually and collectively live, cognize, and intentionally act in the natural world. To be sure, conceptual content and concept-driven cognition also account for minded animal activity involving identifying descriptions of real individuals. And, via the categorical logical norms of all conceptual activity, conceptual content also guides and mediates logical inference, practical inference, and the specifically rational intentional agency of real persons. But all these are possible only in already-enabled ways that semantically presuppose and already psychofunctionally implement essentially non-conceptual content and cognition, and our proto-rational capacities.

I will also call this proto-rational primacy of essentially non-conceptual content and cognition in directly referential perceptual acts or states, in sensible cognition and sensible action generally, and more specifically in the cognitive and practical intentional agency of essentially embodied rational animals or real persons, *the proto-rationality of the body*. So according to this theory of mental content and knowledge, the *super*structural primitive fact of what Wilfrid Sellars aptly calls "the logical space of reasons"—

The essential point is that in characterizing an episode or a state as that of knowing, we are not giving an empirical description of that episode or state, we are placing it in the logical space of reasons, of justifying and being able to justify what one says.[38]

—semantically presupposes and psychofunctionally grows out of the deeper *sub*structural primitive fact of the proto-rationality of the body. Or in other words, the proto-rationality of the body inherently enables and is a natural matrix for the categorically normative *super*structural fact of "the logical space of reasons." As I will argue later in chapters 2 to 8, not only direct perceptual realism, and human cognition more generally, but also human a priori rational epistemic and practical

[38] Sellars, "Empiricism and the Philosophy of Mind," p. 169.

categorical normativity themselves, are strongly metaphysically impossible without essentially non-conceptual content and the proto-rationality of the body.

It may seem absurd or paradoxical for me to say that a minded animal's living organismic body is in any sense inherently rational. Correspondingly, it may seem absurd or paradoxical for me to say that there could be a coherent fusion on the one hand of a seriously naturalistic "philosophy of life," and on the other a contemporary Kantian *neo*-rationalism, by which I mean a new, Kant-inflected version of rationalism that rejects the classical infallibilism and the classical platonism of the old rationalism, and is also committed to the inherent presence of categorical normativity in all cognition and intentional action, via absolutely universal a priori logical and moral principles. But it seems to me that such a critically dismissive attitude would be largely the result of a certain Cartesian philosophical picture that deeply grips most work in recent and contemporary philosophy of mind and cognition. According to this neo-Cartesian view, the mind and the body are fundamentally different sorts of things, events, facts, or properties, and the relation between our rational cognitive processes and the causally efficacious vital processes of the human animal are analogous to radically different trains running alongside one another on parallel and mutually isolated tracks. So one *Ghost*-Train exists in mentalistic time but not in physical space (epiphenomenal pure rationality), and one *Real*-Train exists in causal-dynamical physical spacetime (mechanical pure animality). Of course in identifying this *Cartesian Two Trains Picture*, I am only elaborating Gilbert Ryle's justly famous description of the "ghost in the machine" picture that is characteristic of Cartesian dualist metaphysics and epistemology.[39] It seems to me, just as it did to Ryle, that the very idea of pure immaterial epiphenomenal rational cognitive processes and pure material mechanical animal processes running alongside one another on essentially separate, causally "closed," and mutually isolated world-tracks is *itself* absurd and paradoxical.

Physicalists about mental content would no doubt want to eschew the suggestion that they are still in the grip of an absurd and paradoxical Cartesian Two Trains Picture. Nevertheless it is entirely possible to reject the top half of The Two Trains Picture, which contains nothing but a pure immaterial epiphenomenal rational cognitive process running on its own causally closed track, and yet also retain the bottom half of The Two Trains Picture, which contains nothing but a pure material mechanical animal process running on its own causally closed track. Indeed, that is precisely what reductive physicalism says about minded animal biology. In this way, if I am correct, then the bony dead hand of the old infallibilist, platonist rationalism, in the grip of The Cartesian Two Trains Picture, still implicitly guides recent or contemporary externalist reductive physicalists/natural mechanists like Dretske and Millikan; and it also still implicitly guides recent or contemporary reductive functionalists/natural mechanists like David Armstrong, Jaegwon Kim, David Lewis, and Frank Jackson,[40] who argue that only if rational cognition is itself inherently

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[39] Ryle, *The Concept of Mind*, ch. 1.
[40] See, e.g., Armstrong, *A Materialist Theory of the Mind*; Block, "Troubles with Functionalism"; Braddon-Mitchell and Jackson, *Philosophy of Mind and Cognition*, esp. chs. 3, 5, 7, and 15; Kim, *Philosophy*

mechanical, just like mechanical animality, could rationality then be properly caus-ally efficacious in the production of intentional action by human animals.

But the bottom half of an absurd and paradoxical philosophical picture is *still* an absurd and paradoxical philosophical picture. So whether the inherently material mechanical animal process is historical-evolutionary in surface structure, or whether it has a surface structure that is more like the kinds of electronic digital computation we are most familiar with, is a distinction that makes no real philosophical difference. Fleshy Turing machines entering into natural selection processes, just like fleshless Turing machines with many different realizations in the actual world, are still ultimately nothing but physical Turing machines or natural automata.

In order to begin the process of liberating ourselves intellectually from The Cartesian Two Trains Picture that I think is shared by dualists and physicalists—whether reductive or non-reductive—alike, and in order to begin to move toward a seriously naturalistic *Lebensphilosophie* that is also a contemporary Kantian neo-rationalism, we need to acknowledge the following phenomenon. It seems to me arguable that the so-called "instinctual behaviors" of the normal, healthy living human body are pre-reflectively and implicitly constrained by the self-same innately specified categorical norms that constrain cognitive or epistemic rationality and practical rationality.

By this I mean that even when rational human animals are normal, healthy infants and too young to study logic, know arithmetic, or to deliberate about moral rights and wrongs, nevertheless they never do or think anything that *violates* a universal law of grammar, a universal law of logic, a universal law of mathematics, or a universal law of morality. To be sure, they do not self-consciously or reflectively know the universal laws of grammar, logic, mathematics, or morality, but at the same time their cognition and intentional action appear to be minimally in line with these laws.

It also seems to me that the babbling of normal, healthy human infants is innately and pre-reflectively conformed to and biologically/neurobiologically pre-formatted for universal grammar, which we can observe in their naturally and spontaneously babbling in units that formally match those of their own natural language.[41]

So, too, it seems to me that infant thinking and infant reasoning is innately and pre-reflectively conformed to and biologically/neurobiologically pre-formatted for minimal classical logic, which we can observe in their naturally and spontaneously exemplifying simple reasoning patterns such as those tracked by Piaget and other developmental psychologists.[42]

Moreover, it also seems to me that normal, healthy infant calculating is innately and pre-reflectively conformed to and biologically/neurobiologically pre-formatted for minimal classical mathematics, which we can observe in their naturally and spontaneously "subitizing" natural number quantities, and noticing simple addition and subtraction operations.[43]

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of Mind, chs. 5–6; Lewis, "An Argument for the Identity Theory"; Lewis, "Psychophysical and Theoretical Identifications"; Lewis, "Reduction of Mind."

[41] See, e.g., Pinker, *The Language Instinct.*   [42] See, e.g., Hanna, *Rationality and Logic*, ch. 5.
[43] See, e.g., Wynn, "Addition and Subtraction by Human Infants."

And finally, again it seems to me that normal, healthy infant choosing and acting is innately and pre-reflectively conformed to and biologically/neurobiologically pre-formatted for minimal non-consequentialist morality, which we can observe in their naturally and spontaneously engaging in simple altruistic cooperative transactions with care-givers.[44]

In all these ways, then, it seems to me that human ontogeny empirically recapitulates non-empirically rational human phylogeny. This, in turn, if true, implies an objective version of rationalist-idealist teleology; as Nagel rightly puts it:

> The view that rational intelligibility is at the root of the natural order makes [one], in a broad sense, an idealist—not a subjective idealist, since it doesn't amount to the claim that all reality is ultimately appearance, but an objective idealist.[45]

Of course, that is a highly controversial view. But my basic point here is only that if that view were true, then The Cartesian Two Trains Picture would be incompatible with it. Or, more precisely and contrapositively put, if The Cartesian Two Trains Picture were true, then human cognitive rationality could not possibly be a causally efficacious a priori immanent structural part of individual human biological and neurobiological development.

On my contemporary Kantian view, mental representations are just the biologically/neurobiologically anchored, irreducible, primitive means by which essentially embodied minds, or minded living organisms, are directed in specific ways to intentional targets for the purposes of cognitive and practical agency alike. Indeed, I think of rational minded animal cognition as essentially *cognitive action*, because such cognition always actually is, or else is dispositionally poised to be, purposive, freely willed, justified by reasons, inherently constrained by categorically normative principles, and responsible.

More precisely, however, I think that rational minded animal cognition is freely willed intentional body movement that intrinsically has as its governing categorical values and highest standards, **first**, accuracy of reference; **second**, the truth of statements; **third**, High-Bar justified true belief—High-Bar knowledge, especially High-Bar a priori knowledge; and **fourth**, valid consequence together with formal consistency in logical reasoning.

In turn, I think that practical agency in rational animals or real persons is freely willed intentional body movement that intrinsically has as *its* governing categorical values and highest standards, **first**, effectiveness of performance; **second**, goodness of means or ends; **third**, High-Bar practical justification by overriding reasons—practical justification by self-consciously experienced autonomous willing in accordance with and for the sake of the Categorical Imperative in its several versions, through respect for the dignity of real persons (i.e., the good will), poised for taking responsibility; and **fourth**, coherent motivation together with formal consistency in practical reasoning.

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[44] See, e.g., Tomasello, *Why We Cooperate*.

[45] See Nagel, *Mind and Cosmos*, p. 17; see also Hanna and Maiese, *Embodied Minds in Action*, esp. chs. 1–2 and 6–8; Hanna, *Kant, Science, and Human Nature*; and Hanna, "Nagel & Me: Beyond the Scientific Conception of the World."

The real presence of mental representations in minded animals of any kind implies the existence of cognitive or practical intentionality directed at intentional targets; and necessarily all conscious, intentional, caring, rational animals are also cognizers and practical agents. Like Kant, then, I want to start by situating the primitive fact and notion of a mental representation and its associated conscious intentionality within the larger context of rational animal free agency, and then proceed to an explanation of mental content in terms of that package of primitive facts and notions, with due deference paid to the recognition that not all minded animals are either human or rational, and that not all rational minded animals, whether human or non-human, are rational in the higher-level or Kantian sense.

This is not, however, to say that even the very ideas of "mental representation" and "mental content" are universally accepted in contemporary cognitive science and the philosophy of perception. On the contrary, they have been explicitly challenged, frequently under the rubric of *relationism*, which holds that mental acts, states, or processes are at least partially constituted by real objects. But as Susanna Siegel, Susanna Schellenberg, John McDowell, and Heather Logue have all recently pointed out, representationalism (aka "the Content view") and relationism (aka "direct realism" or "naïve realism") are mutually consistent in this sense: mental acts, states, or processes can have irreducible, primitive intentional or mental content and *also* be partially constituted by the real objects they represent.[46] Indeed, that is precisely the view I shall develop in chapters 2 and 3. Moreover, it seems clear to me that much of the critical impetus for rejecting the very ideas of mental representation and mental content derives from the explicit or implicit thought that the notions of mental representation and mental content must presuppose one or both halves of The Cartesian Two Trains Picture. But that is not so: it is perfectly consistent and coherent to accept the very ideas of mental representation and mental content and also reject The Two Trains Picture.

In any case, the notions of mental representation and mental content, and the closely corresponding notion of intentionality, all play strictly ineliminable roles in the larger notion of our own rational mindedness, which in turn plays a strictly ineliminable role in our self-defining notions of our own cognitive capacities and our own categorical norm-governed practical agency alike. Even Quine, the great 20th-century enemy of the very idea of content (whether mental or semantic), would explicitly agree with this thesis of the notional ineliminability of intentionality, as we have already seen:

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[46] See Siegel, "Do Visual Experiences Have Contents?"; Schellenberg, "Perceptual Content Defended"; McDowell, "Perceptual Experience: Both Relational and Contentful": and Logue, "Experiential Content and Naïve Realism: A Reconciliation." For other good surveys of the representationalist vs. relationist debate, see Crane, "Is There a Perceptual Relation?"; and Pautz, "Why Explain Visual Experience in Terms of Content?" On the anti-representationalist/anti-Content view side, see, e.g., Ramsey, *Representation Reconsidered*; and Wheeler, *Reconstructing the Cognitive World*. And for various versions of relationism, see, e.g., Fish, *Perception, Hallucination, and Illusion*; Hellie, "Factive Phenomenal Characters"; Martin, "The Limits of Self-Awareness"; Martin, "On Being Alienated"; Snowdon, "The Objects of Perceptual Experience"; and Travis, "The Silence of the Senses."

There remains a thesis of Brentano's, illuminatingly developed of late by Chisholm, that is directly relevant to our emerging doubts over the propositional attitudes and other intentional locutions. It is roughly that there is no breaking out of the intentional vocabulary by explaining its members in other terms. Our present reflections are favorable to this thesis.[47]

Now if anything is central to the self-defining self-conception we have of ourselves as rational human animals or real human persons, surely it is our cognitive and our practical agency, understood as the basic kinds of intentionality. This core of our self-defining self-conception therefore also contains the very ideas of a mental representation and its mental content. As I mentioned earlier, my proposal is then that as a working philosophical hypothesis we should, without any apologies or embarrassment, simply liberally or inclusively naturalize this self-defining self-conception of intentionality, by axiomatically installing it in physical nature as an irreducible, primitive fact of biological/neurobiological life, nothing more and nothing less—and then see where this liberal naturalist theory (i.e., that "rational intelligibility is at the root of the natural order") philosophically leads us.

It follows directly from the above characterizations of mental representation, mental content, cognition, and intentionality that necessarily all mental content is normative, precisely because mental content inherently guides and mediates minded animal cognition and practical intentional agency either successfully or unsuccessfully toward its targets, and because animal cognizers and practical agents inherently care whether their cognitions and practical actions are successful or unsuccessful. Now some of these cognizers and practical agents are also rational minded animals, including of course all rational human minded animals or real human persons. It follows that the necessary normativity of mental content that is associated with the intentionality of cognizers and practical agents who are also rational human minded animals or real human persons is also an inherently *categorical* normativity, whether of epistemic rationality or of moral rationality.

For me, then, from a contemporary Kantian point of view, an adequate philosophical theory of cognition, content, and knowledge must ultimately be a biologically/neurobiologically anchored, liberal-or-inclusive-naturalistic cognitive semantics of mental representation or conscious intentionality that is embedded in the larger context of categorical norm-guided free agency. In short, I am proposing a *categorically normative liberal or inclusive naturalism* about rational human content, cognition, and knowledge. So my response to the prospect of eliminating or reducing the very idea of a mental representation or intentionality is in effect the same as Jerry Fodor's, emphatically refracted through Michael Curtiz's classic 1942 film, *Casablanca*:

Realism, nativism, intentionality, and mental representation; the fundamental things apply. Play it again, Sam.[48]

As Humphrey Bogart's character so memorably says: "You played it for her, Sam, so you can play it for me too." What I mean is that we do not need to become

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[47] Quine, *Word and Object*, p. 221.
[48] Fodor, "Three Cheers for Propositional Attitudes," p. 123.

deflationists, nihilists, radical skeptics, or reductionists about the very ideas of mental representation and mental content just because some classical theories of mental representation and mental content—in particular, theories of "ideas" in the classical Rationalist and Empiricist traditions—have serious problems, and just because reductive physicalism about intentionality, cognition, and knowledge has been centrally important ever since Quine rejected the analytic-synthetic distinction, and especially since his equally influential essay "Epistemology Naturalized."[49] Otherwise put, I think that it is much too early to give up on "the fundamental things." This, again, is because we can still be contemporary Kantian liberal or inclusive naturalists about the nature of mental content, cognition, and knowledge, and emphasize the irreducible, primitive guiding and mediating role of essentially non-conceptual or conceptual mental content and knowledge in rational human minded animal cognition and practical agency, inherently occurring under categorically normative logical and moral principles.

Looking further at the case of Fodor, who is a non-reductive physicalist about intentionality, raises in a very pointed way another closely related issue, which is the question of whether *non*-reductive physicalism about mental representation and mental content is a defensible alternative to *reductive* physicalism? Non-reductive physicalism, in turn, is usually formulated as containing the following individually necessary and jointly sufficient conditions: (i) the "downwards" token-token identity of mental events with physical events (or: the "upwards" token-token constitution of mental events by physical events), together with (ii) the non-identity of mental properties (often also taken to be functional properties where intentionality is concerned, and phenomenal qualia where consciousness is concerned) and first-order physical properties, together with (iii) the nomological or natural strong supervenience of mental properties on physical properties. In other words, according to non-reductive physicalism, mental representation and mental content are "something over and above" the physical world, even though they are necessarily determined according to natural causal laws by the physical world. Following the lead of Donald Davidson in his classic paper "Mental Events," Fodor's work is also a classic example of non-reductive physicalism about intentionality; and David Chalmers's *The Conscious Mind* and Jaegwon Kim's *Physicalism, Or Something Near Enough*, for all their superficial differences, are equally classic examples of combining reductive physicalism about intentionality with non-reductionism about consciousness, where consciousness is construed as the having of phenomenal qualia.

A standard objection to non-reductive physicalism is that it entails the existence of indefinitely many non-fundamental "psycho-physical" laws governing the natural strong supervenience of the mental, and that this set of laws is metaphysically superfluous and ontologically excessive. Correspondingly, the basic worry I have about any version of non-reductive physicalism is the one most famously developed by Kim, which is that non-reductive physicalism entails "the epiphenomenalism of the mental," namely, that mental properties (whether intentionality-properties or consciousness-properties) are necessarily determined according to fundamental

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[49] Quine, "Epistemology Naturalized."

natural causal laws by causally efficacious fundamental physical properties, yet because of the mediating non-fundamental psycho-physical laws, mental properties are themselves causally inert and have no real causal powers of their own. Or, even more specifically, if first-order physical properties are causally efficacious, and if irreducible mental properties strongly supervene on first-order physical properties, and thereby metaphysically "float above" those physical properties according to non-fundamental psycho-physical laws, then mental properties cannot have any independent real causal powers: they are metaphysically and also explanatorily excluded by the real causal powers of the fundamental physical world, together with strong supervenience.

This argument seems to me to be decisive against non-reductive physicalism, even despite the many attempts by non-reductive physicalists to refute it or resist it. By sharp contrast, however, contemporary Kantian liberal or inclusive naturalism installs irreducible mental properties of intentionality and consciousness alike *inside* causally efficacious fundamental physical nature. It does this via the mediation of causally efficacious biological and neurobiological properties (aka the strong continuity of mind and life) of human and other minded animals, so it fully metaphysically and explanatorily includes the independent real causal powers of the mental, but without any sort of reduction. Because biological and neurobiological properties are not epiphenomenal, then since mental properties are metaphysically continuous with biological and neurobiological properties, it follows that mental properties are not epiphenomenal either. Indeed, this is the central thesis of *Embodied Minds in Action*. An essential feature of this thesis is the rejection of the very idea of "phenomenal qualia," and its replacement by the thoroughly non-Cartesian doctrine that mental properties, whether of intentionality or of consciousness, are irreducible immanent structural properties of suitably neurobiologically complex dynamic systems. This doctrine, in turn, is very close in philosophical spirit to Aristotle's view in the *De Anima* that "the soul (*anima*) is the first actuality of a natural body which has life potentially" (II.i.412a22). Those are very strong and even radical metaphysical claims that are fully worked out and argued-for in *Embodied Minds in Action*. The main point here is that contemporary Kantian liberal or inclusive naturalism fully avoids the epiphenomenalism problem in a robustly non-reductive metaphysical framework.

As I mentioned in a preliminary way earlier, but can now re-state more explicitly, according to this contemporary Kantian liberal or inclusive naturalist account, the four basic governing categorical norms of rational human animal *cognition* are, **first**, accuracy of reference, which implies both the existence and individuality of the referential target of reference, even if not its descriptive uniqueness; **second**, the truth of statements, which in turn are the mental contents of beliefs, which in turn are assertoric propositional mental acts or states (aka, "propositional attitudes"); **third**, High-Bar justified true belief—High-Bar knowledge, especially High-Bar a priori knowledge; and **fourth**, valid consequence together with formal consistency in logical reasoning. And correspondingly, the four basic governing categorical norms of rational human animal *practical agency* are, **first**, effectiveness in intentional performance; **second**, goodness of means (extrinsic, instrumental goodness) or ends (intrinsic, non-instrumental goodness); **third**, High-Bar practical justification by

overriding reasons—practical justification by self-consciously experienced autonomous willing in accordance with and for the sake of the Categorical Imperative in its several versions, and through respect for the dignity of real persons (i.e., the good will), poised for taking responsibility; and **fourth**, coherent motivation together with formal consistency in practical reasoning.

According to categorical epistemology, then, the eight basic governing categorical norms of cognition and practical agency both converge on, and also fuse inseparably in, the categorical norms governing the overarching, unified, innately specified complex capacity for rational human personhood. In sum, the fundamental Kantian things apply. Play it again, Immanuel.

1.4 Concluding the Introduction: Two Challengeable Assumptions in Contemporary Theories of Cognition, Content, and Knowledge

Here is one last section now, by way of concluding the Introduction. It should be specifically noted that the categorically normative, liberal or inclusive naturalist, contemporary Kantian neo-rationalist theory of cognition, content, and knowledge that I am proposing bears a fairly novel and unorthodox relationship to the leading old-school theories, and also to some of the recent and contemporary theories, of cognition, content, and knowledge, to the extent that they recapitulate certain elements of the old-school theories.[50] The primary source of this novelty and unorthodoxy is the simple fact that the leading old-school theories of cognition, content, and knowledge (and, by virtue of recapitulation, also some of the new-school theories), in these areas have been dominated by two largely unchallenged and well-entrenched assumptions, both of which I want to challenge in this book.

The **first** well-entrenched assumption I want to challenge is physicalism about mental content, cognition, and knowledge, whether reductive physicalism or non-reductive physicalism, both of which I have already defined and argued against in a preliminary way. Millikan's theory of intentionality and knowledge in *Language, Thought, and Other Biological Categories*, and also Dretske's theory of intentionality and knowledge in *Naturalizing the Mind*,[51] would count as outstanding old-school examples of reductive physicalist cognitive semantics and epistemology within an explicitly externalist framework. And Fodor's theory of intentionality in his many books and articles would count as an outstanding old-school example of non-reductive physicalist cognitive semantics within an explicitly individualist framework, at least as regards its "methodological solipsism" and its "language-of-thought" hypothesis. According to physicalism about cognition, content, and knowledge, whether reductive or non-reductive, normativity of any sort plays no metaphysically robust role in the constitution of cognition, content, or knowledge, and is at best a

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[50] For surveys, see, e.g., Braddon-Mitchell and Jackson, *Philosophy of Mind and Cognition*, esp. chs. 10–13; Crane (ed.), *The Contents of Experience*; Kim, *Philosophy of Mind*, ch. 9; and Siegel, "The Contents of Perception."

[51] See also Dretske, *Knowledge and the Flow of Information*.

causally and metaphysically epiphenomenal feature of the phenomenal conscious-
ness or belief-based ideology that is strongly superveniently associated with content-
bearing states and belief-states.

The **second** well-entrenched assumption I want to challenge is *separatism* about
mental content. This says:

> Consciousness and intentionality are mutually logically distinct—i.e., there are actual or at
> least possible conscious acts or states that inherently lack intentionality, and there are actual or
> at least possible intentional acts or states that inherently lack consciousness.[52]

There is an obvious a priori conceptual connection between separatism on the one
hand, and reductive physicalism about mental content on the other. If separatism is
true, then even if consciousness is *ir*reducible, it would still be possible to give a
reductive physicalist theory of intentional content. Millikan explicitly defends sep-
aratism for just that reason:

> [T]he problem of understanding intentionality can and should be divorced from the problem
> of understanding consciousness. This is done by abandoning the traditional epistemic view of
> consciousness—by giving up the rationalist view of meaning and intentionality. Intentionality
> is not harbored within consciousness, nor can consciousness, in the guise of a priori reflection,
> provide an affidavit for the genuine intentionality of seeming thoughts.[53]

Now I think that Millikan is absolutely right that we should abandon "the traditional
epistemic view of consciousness," namely, the classical Cartesian conception of
consciousness. Indeed, that is a basic point Maiese and I make in *Embodied Minds
in Action*. More precisely, we explicitly reject and recommend eliminating the
classical Cartesian conception of consciousness, by replacing it with the *essentially
embodied* conception of consciousness.[54] But I do also think that Millikan is wrong
about separatism. Indeed, I think that she is wrong about separatism, in part because
she falsely assumes that the only intelligible and defensible conception of conscious-
ness *just is* the classical Cartesian conception of consciousness, together with
its metaphysical correlate and its alter ego, the equally false and mythical theory
of "qualia."[55]

But contrariwise, if separatism is false because anti-separatism is correct, and if
consciousness is ontologically and explanatorily irreducible and also liberally natur-
alistic because The Essential Embodiment Theory is correct, then a reductive phys-
icalist theory of intentionality cannot be correct, and mental content is irreducible,
too. Moreover, if the Essential Embodiment Theory is correct, then non-reductive
physicalism is also incorrect. Elsewhere I have already argued for both anti-
separatism and The Essential Embodiment Theory in detail and at some length.[56]

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[52] See, e.g., Block, "Concepts of Consciousness." For arguments against separatism, see note 15 above;
and also Kriegel (ed.), *Phenomenal Intentionality*.

[53] Millikan, *Language, Thought, and Other Biological Categories*, p. 12.

[54] See Hanna and Maiese, *Embodied Minds in Action*, chs. 1–2.

[55] See Hanna and Maiese, *Embodied Minds in Action*, section 2.3; for a sharply different way of rejecting
qualia and defending qualia-eliminativism, see Dennett, "Quining Qualia."

[56] See Hanna and Maiese, *Embodied Minds in Action*, esp. chs. 1–2 and 6–8.

Using those results as reasonable starting points for my argument here, in this book I am going to assume that reductive physicalism, non-reductive physicalism, and separatism about mental content, cognition, and knowledge are all arguably false, and correspondingly that a liberal naturalist non-reductionism about mental content, cognition, and knowledge and also anti-separatism are both arguably true. In other words, I think that there are sufficiently good philosophical reasons that I have fully worked out elsewhere, for at least challenging each of the two largely unchallenged assumptions of (reductive or non-reductive) physicalism and separatism. So in the rest of this book, I am going to develop my account without either having to assume the truth of (reductive or non-reductive) physicalism and separatism or needing to refute them explicitly.

2

The Grip of the Given
A Kantian Theory of Non-Conceptual Content

Because of its three dimensions, physical space can be thought of as having three planes, which all intersect each other at right angles. Considering the things which exist outside ourselves: it is only in so far as they stand in relation to ourselves that we have any cognition of them by means of the senses at all. It is not therefore surprising that the ultimate ground on the basis of which we form our concept of directions in space, derives from the relation of these intersecting planes to our bodies.

<div align="right">(DiS 2: 378–379)</div>

Appearances could after all be so constituted that the understanding would not find them in accord with the conditions of its unity.... Appearances would nonetheless offer objects to our intuition, for intuition by no means requires the functions of thinking.

<div align="right">(CPR A90/B123)</div>

Given that the existence of an information-link between subject and object is not by itself sufficient for identification, what makes it possible to have, in the standard cases of demonstrative identification, a mode of identification that is free of the conceptual element we have been considering? The answer is that in the standard cases, not only is there an information-link, but also the subject can, upon the basis of that link alone, *locate the object in space.*

<div align="right">—G. Evans[1]</div>

Perceptual knowledge involves sensibility: that is, a capacity for differential responsiveness to features of the environment, made possible by properly functioning sensory systems. But sensibility does not belong to reason. We share it with non-rational animals. According to Sellars's dictum, the rational faculty that distinguishes us from non-rational animals must also be operative in our being perceptually given things to know. This brings into view a way to fall into the Myth of the Given. Sellars's dictum implies that it is a form of the Myth to think sensibility by itself, without any involvement of capacities that belong to our rationality, can make things available for our cognition. That coincides with a basic doctrine of Kant.... The Myth, in the version I have introduced, is the idea that sensibility by itself could make things available for the sort of cognition that draws on the subject's rational powers.

<div align="right">—J. McDowell[2]</div>

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[1] Evans, *Varieties of Reference*, p. 150. [2] McDowell, "Avoiding the Myth of the Given," p. 257.

2.0 Introduction

The thesis of *Non-Conceptualism* about mental content says that not all mental contents in the intentional or representational acts or states of minded animals are necessarily or constitutively determined by their conceptual capacities, and that at least some mental contents are necessarily or constitutively determined by their non-conceptual capacities.[3] Non-Conceptualism is sometimes, but not always, combined with the further thesis that non-conceptual capacities and contents can be shared by rational human animals, non-rational human minded animals (and in particular, infants), and non-human minded animals alike. But in any case, Non-Conceptualism is directly opposed to the thesis of *Conceptualism* about mental content, which says that all mental contents are necessarily or constitutively determined by minded animals' conceptual capacities.[4] Conceptualism is also sometimes, but not always, combined with the further thesis that the psychological acts or states of infants and non-human minded animals lack mental content.

In a nutshell, Non-Conceptualism says that our cognitive access to the targets of our intentionality is neither always nor necessarily mediated by concepts, nor sufficiently determined or constituted by concepts, and therefore that our cognitive access to the targets of our intentionality is sometimes wholly *un*mediated by concepts, or altogether concept-free, which is the *autonomy* of non-conceptual content; by sharp contrast, Conceptualism says that our cognitive access to the targets of our intentionality is always and necessarily mediated by concepts, and indeed also sufficiently determined or constituted by concepts.

The cognitive capacities generating and supporting non-conceptual content are consciousness-based, perceptual, imaginational, and more generally characteristic of human *sensibility*. On the other hand, the cognitive capacities generating and supporting conceptual content are self-consciousness-based, judgmental or propositional, logical, and more generally characteristic of human *discursivity* (i.e., human linguistic and intellectual activity). Here, then, is the fundamental philosophical question that is being asked in the debate about non-conceptual content: Can we, do we, and must we, at least sometimes, and in a minimally basic way, cognitively encounter other things and ourselves directly and non-discursively, hence non-intellectually or sensibly (Non-Conceptualism), or must we always cognitively encounter them only within the framework of discursive rationality, hence only intellectually or discursively (Conceptualism)? Are we, as rational animals, essentially different from other kinds of animals (Conceptualism), or do we share at least some minimally basic mental capacities with all minded animals (Non-Conceptualism)? Or even more simply put: Is a thoroughly intellectualist and "discursivity first" view of the rational human mind (Conceptualism) correct; or by sharp contrast is a non-intellectualist and "sensibility first" view of the rational human mind

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[3] See, e.g., Bermúdez and Cahen, "Nonconceptual Mental Content"; Evans, *Varieties of Reference*, esp. chs. 4–6; and Gunther (ed.), *Essays on Nonconceptual Content*.

[4] See, e.g., McDowell, *Mind and World*; McDowell, *Having the World in View*; Sedivy, "Must Conceptually Informed Perceptual Experience Involve Non-Conceptual Content?"; and Brewer, *Perception and Reason*.

(Non-Conceptualism) correct? In this chapter and throughout the rest of the book, I want to argue that the "sensibility first" view is the correct one.

It is also important to note, for later purposes of discussion, that Conceptualism is of necessity a form of *content-monism*, which says there is one and only kind of intentional or representational content—namely, conceptual content—that is sometimes, however, combined with *capacity-dualism*, which says that there are two essentially different basic kinds of cognitive capacities. But by sharp contrast Non-Conceptualism can be, and usually is, a form of *content-dualism*, which says that there are two essentially different kinds of intentional or representational content, and if so, then it is always a form of capacity-dualism. Correspondingly, the version of Non-Conceptualism that I want to defend is both content-dualist and capacity-dualist.

Non-Conceptualism undeservedly suffers from bad press. This is because it is often confused with adherence to what Sellars aptly called "The Myth of the Given," whereby (what is supposedly) non-conceptual content is just the unstructured causal-sensory "given" input to the cognitive faculties, passively waiting to be actively carved up by concepts, propositions, and theories "in the logical space of reasons." John McDowell has also influentially asserted, most notably in *Mind and World*, but also repeatedly in his follow-up work, that Non-Conceptualism mistakenly buys into The Myth, by virtue of its commitment to "the idea that sensibility by itself could make things available for the sort of cognition that draws on the subject's rational powers."

Yet this "sensationist" conception of non-conceptual content is not really a thesis about *representational* content at all, but rather only a generally discredited thesis about how *phenomenal* content relates to conceptual content. In turn, this generally discredited sensationalist or phenomenalist conception of non-conceptual content has a strange history. It began with Hegel, who wrongly claimed that Kant is a subjective or phenomenal idealist.[5] Then Hegel's misinterpretation was re-transmitted via late 19th-century and early 20th-century Oxford neo-Hegelians and neo-Kantians, together with C. I. Lewis at Harvard, who subsequently passed it on to Wilfrid Sellars, who studied Kant at both Oxford and Harvard.[6] C. I. Lewis's influence on Kant studies in particular was directly and widely felt in North America in the second half of the 20th century via the teaching and writings of Lewis White Beck and Sellars. Beck and Sellars were both Lewis's PhD students at Harvard. On the other side of the Atlantic, in 1936, Lewis's *Mind and the World Order* was the first contemporary philosophical text to be taught at Oxford, in a seminar run by J. L. Austin and Isaiah Berlin.[7] Not altogether coincidentally, the second chapter of *Mind and the World Order* is entitled "The Given." Sellars in fact attended this Oxford seminar, started a D.Phil. dissertation on Kant with T. D. Weldon the same year, and later transferred to Harvard.[8] Then Hegel's

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[5] See, e.g., Guyer, "Thought and Being: Hegel's Critique of Kant's Theoretical Philosophy."
[6] See, e.g., Sellars, "Autobiographical Reflections."
[7] See Hacker, *Wittgenstein's Place in Twentieth-Century Philosophy*, p. 94.
[8] See Sellars, "Autobiographical Reflections."

misinterpretation of Kant was again re-transmitted at the University of Pittsburgh, where Sellars taught and was enormously influential.

At Pitt, the plot thickens. Here we find McDowell, the former Oxford philosopher who had been significantly influenced by the work of Gareth Evans and by Oxford neo-Kantianism—including, of course, his teacher Peter Strawson's *The Bounds of Sense*—explicitly rejecting the sensationist or phenomenalist notion of non-conceptual content in *Mind and World*. In *Mind and World*, McDowell also directly and explicitly connects the sensationist or phenomenalist notion of non-conceptual content to Evans's work on demonstrative perception and singular thought in *The Varieties of Reference*—a book that McDowell himself had edited. And then more recently, McDowell again rejects the sensationist conception of non-conceptual content in *Having the World in View*, where he finds vestiges of it in Sellars's writings. But in point of fact, what is being rejected by McDowell under the rubric of "non-conceptual content" is nothing more and nothing less than Hegel's misinterpretation of Kant's philosophy of cognition.

As I am understanding it, however, Non-Conceptualism is a thesis about representational content (and the cognitive capacities that generate and support this), and not about sensory or phenomenal content—even if Non-Conceptualism does indeed have some non-trivial implications for the nature of sensory or phenomenal content. So it is nothing but a philosophical illusion to think that The Myth of the Given actually applies to Non-Conceptualism. This illusion can therefore be aptly dubbed *The Myth of the Myth of the Given*, or "The Myth of the Myth" for short.

In order to go beyond The Myth of the Myth, then, in this chapter I want to argue that Non-Conceptualism is ultimately a thesis about the essentially embodied partial foundations of rationality in minded animals, or in other words, ultimately a thesis about the proto-rationality of the body. Non-Conceptualism, as I will present it, says that our non-discursive (non-intellectual, sensible) and essentially embodied encounters with the world, insofar as they are directly referential, and insofar as they are inherently guided and mediated by non-conceptual content, are inherently *proto*-rational cognitive and practical encounters, not *anti*-rational, *anti*-cognitive and *anti*-practical encounters with it. More precisely, autonomous essentially non-conceptual content provides bottom-up necessary conditions for the real possibility of epistemic rationality and practical rationality. Autonomous essentially non-conceptual content thus expresses the body's own reasons, or what in section 2.9 I will call *The Grip of the Given*,[9] and not some factor that is somehow alien to or outside of the rationality of rational animals or real persons.

In *Rationality and Logic*, I argued that a contemporary Kantian theory of the nature of logic, which I called *Logical Cognitivism*, describes a set of top-down logical

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[9] I recently discovered that Hubert Dreyfus has also used the term "grip" in a way that's essentially similar to the way I've been using it. See Dreyfus, "Intelligence without Representation: Merleau-Ponty's Critique of Mental Representation" On the face of it, since I'm a representationalist of a certain kind, Dreyfus and I disagree about how to think about mental representation or intentionality. But in fact, given the way I've spelled out the notion of essentially non-conceptual content in referentialist, embodiment-theoretic, and action-theoretic terms, I think that this apparent disagreement is quite superficial. Actually, we're on the same team.

and conceptual necessary conditions for the real possibility of rationality in minded animals, including, of course, human rationality. Compatibly with and complementary to that account, then, this chapter will show how a contemporary Kantian strategy for demonstrating and explaining the existence, semantic structure, and psychological function of autonomous essentially non-conceptual content can also provide an intelligible and defensible bottom-up theory of the partial foundations of rationality in minded animals, under precisely those top-down logical and conceptual conditions. Otherwise put, autonomous essentially non-conceptual content constitutes the semantic and psychological substructure, or matrix, out of which the categorically normative universal a priori logical and conceptual superstructure of epistemic rationality and practical rationality—Sellars's "logical space of reasons"—grows.

2.1 The Varieties of Non-Conceptualism, and Kant

There are two importantly different kinds of Non-Conceptualism.[10] What is nowadays rather unhelpfully called "state Non-Conceptualism" says that the representational content of a given mental state[11] is non-conceptual if and only if the subject of that state does not possess concepts for the specification of that state. So state Non-Conceptualism is based on theories of conceptual possession-conditions, and is fundamentally an epistemic approach to mental content. Hence "possession-theoretic Non-Conceptualism" or "epistemic Non-Conceptualism" would be much more informative labels than "state Non-Conceptualism." In any case, and by contrast, "content Non-Conceptualism" says that the content of a given mental state is non-conceptual if and only if the content of that state is of a different kind from the conceptual content of any mental act or state. So content Non-Conceptualism is based on theories of the composition, compositional stuff, or formal constitution of mental content, since these seem to be the three basic ways in which contents could differ in kind. Just as state Non-Conceptualism, by being about possession-conditions for content, is really a doctrine about the *epistemology* of content, correspondingly content Non-Conceptualism, by being about the composition, compositional stuff, or formal constitution of content, is really a doctrine about the *metaphysics* of content.

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[10] See, e.g., Heck, "Nonconceptual Content and the 'Space of Reasons'"; Heck, "Are There Different Kinds of Content?"; Byrne, "Perception and Conceptual Content"; Crowther, "Two Conceptions of Conceptualism and Nonconceptualism"; Laurier, "Nonconceptual Contents vs. Nonceptual States"; Speaks, "Is There a Problem about Nonconceptual Content?"; and Van Cleve, "Defining and Defending Nonconceptual Contents and States."

[11] I see no reason to think that content-bearing mental episodes or mental events must be mental *states* exclusively and cannot also be mental *acts* or mental *processes*. Indeed, given my emphasis on cognitive and practical intentional agency, and on essential embodiment, it seems to me that the primary bearers of content are equally intentional acts and also organismic processes of minded animals, and that intentional states derive their contents equally from minded animals' act-contents and process-contents. To keep things relatively simple, however, I will not argue for that thesis here, or tinker with standard formulations in the secondary literature; but it remains true, even where I have not already made this explicit in the text, that every occurrence of "states" should be understood to mean the same as "acts, states, or processes."

There are, I think, at least two very important reasons for being a defender of content Non-Conceptualism.

First, if our original cognitive encounter with the world is independent of concepts, and if it is also based on a different kind of content from conceptual content, then on the face of it, the prospects for a very robust (indeed, *disjunctivist*—and I will define the concept of "disjunctivism" in the next paragraph) version of direct or naïve perceptual realism look quite good. This is because, in that case, our original encounter with the world is not mediated by concepts, and therefore that encounter cannot fail to be direct and veridical due to any failures of conceptualization, belief, judgment, propositions, or theorizing, given the plausible assumption that belief, judgment, propositions, and theories always and necessarily involve concepts.

Here, very briefly, is a line of reasoning that supports this claim. *Direct or naïve realism* about perception, in general, makes two claims: (i) that rational and other minded animals stand in immediate, unmediated cognitive relations to external real objects that are consciously and correctly perceived by them, and (ii) that these external real objects partially constitute those veridical perceptual acts or states. *Disjunctivism* about perception, which is both an intensification and also a specification of direct or naïve perceptual realism, posits a categorical or essential and mutually exclusive (i.e, either-or, and not both) difference between direct, veridical perception, on the one hand, and non-veridical conscious experiences—for instance, complete or partial hallucinations—on the other hand. *Anti-disjunctivism* about perception, by an opposing contrast, claims that not only is there no categorical or essential difference between direct, veridical perception and hallucination, but also that there is something inherently shared in common between direct, veridical perception and hallucination, such that the two either actually always are, or at least can be, epistemically indiscriminable. The actual or possible epistemic indiscriminability of direct, veridical and hallucinatory states, in turn, not only requires concepts but also is a necessary condition of classical Cartesian skepticism about perceptual knowledge. Hence a content non-conceptualist approach to direct or naïve realism and disjunctivism is especially well-positioned to avoid classical Cartesian skepticism about perceptual knowledge.

Indeed, as a direct or naïve realist and also a disjunctivist, I want to hold the thesis that the categorical or essential difference between direct, veridical perception and hallucination can be both directly attributed to and also adequately explained by the difference between essentially non-conceptual content and conceptual content, together with the perhaps even more surprising thesis that necessarily, direct, veridical conscious experiences and non-veridical conscious experiences are always inherently *discriminable* from one another by suitably attentive conscious subjects under cognitively favorable conditions, although *not always actually discriminated* in context due to perfectly ordinary or perhaps pathological or otherwise unusual lapses in attentive self-awareness by those same "human, all too human," fallible conscious subjects. I will further unpack and justify all these strong claims in chapter 3.

Second, if content Non-Conceptualism is true, and if a disjunctivist direct or naïve perceptual realism based on content Non-Conceptualism is also true, then I think the prospects for a bottom-up theory of the partial foundations of human rationality look quite good, too. According to this bottom-up theory, our conceptual and other

intellectual capacities, or the discursive side of the human mind, and the full range of types of mental content—including those specifically associated with sense perception, perceptual knowledge, perception-based intentional action, perceptual self-knowledge, the analytic-synthetic distinction, a priori truth and knowledge in logic, and a priori truth and knowledge in mathematics, and also those capacities and types of mental content specifically associated with practical agency, right action, and practical reasoning—are all able to be partially explained in terms of the minimally basic, primitive, essentially embodied, sensible, action-oriented, and autonomous essentially non-conceptual psychological capacities shared with infants and non-human animals. This is what I have called, in section 1.3, "the proto-rationality of the body." Furthermore, this bottom-up partial explanation entails no deflation, narrowing, or reduction whatsoever in the epistemic scope, modal character, or categorically normative force of human epistemic and practical rationality as classically conceived by, for instance, Kant.

But at the same time, the scope, modal character, and categorically normative force of human epistemic and practical rationality according to this theory and its liberal naturalism about mental content and knowledge (fully informed by The Two-Dimensional conception of rational normativity) are not anywhere near as ambitious and inflationary as either classical platonism or classical Rationalism. Indeed, this theory is not only a fairly radical and unorthodox one, but also, in this regard, a thoroughly *moderate* theory of rational human cognition, content, and knowledge—neither deflationary nor inflationary, and as a consequence (it seems to me) far more likely to be true than either of the extremes, each of which has its own serious problems. I will further unpack and justify these claims in chapters 3 to 8.

In the recent and contemporary literature on mental content, one can identify at least eight different arguments for (mostly, state) Non-Conceptualism:[12]

(I) *From phenomenological richness:* Our normal human perceptual experience is so replete with phenomenal characters and qualities that we could not possibly possess a conceptual repertoire extensive enough to capture them. Therefore normal human perceptual experience is always to some extent non-conceptual and has non-conceptual content.

(II) *From perceptual discrimination:* It is possible for normal human cognizers to be capable of perceptual discriminations without also being capable of re-identifying the objects discriminated. But re-identification is a necessary condition of concept-possession. Therefore normal human cognizers are capable of non-conceptual cognitions with non-conceptual content.

(III) *From infant and non-human animal cognition:* Normal human infants and some non-human animals are capable of perceptual cognition, but lack possession of concepts. Therefore normal human infants and some non-humans are capable of non-conceptual cognition with non-conceptual content.

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[12] Most of these arguments are covered in Gunther (ed.), *Essays on Nonconceptual Content*; see also Bermúdez and Cahen, "Nonconceptual Mental Content," esp. section 4.

(IV) *From the distinction between perception (or experience) and judgment (or thought):* It is possible for normal human cognizers to perceive something without also making a judgment about it. But non-judgmental cognition is non-conceptual. Therefore normal human cognizers are capable of non-conceptual perceptions with non-conceptual content.

(V) *From the knowing-how vs. knowing-that (or knowing-what) distinction:* It is possible for normal human subjects to know *how* to do something without being able to know *that* one is doing it and also without knowing precisely *what* it is one is doing. But cognition which lacks knowing-that and knowing-what is non-conceptual. Therefore normal human subjects are capable of non-conceptual knowledge-how with non-conceptual content.

(VI) *From the theory of concept-acquisition:* The best overall theory of concept-acquisition includes the thesis that simple concepts are acquired by normal human cognizers on the basis of non-conceptual perceptions of the objects falling under these concepts. Therefore normal human cognizers are capable of non-conceptual perception with non-conceptual content.[13]

(VII) *From the theory of demonstratives:* The best overall theory of the demonstratives "this" and "that" includes the thesis that demonstrative reference is fixed perceptually, essentially indexically, and therefore non-descriptively by normal human speakers.[14] But essentially indexical, non-descriptive perception is non-conceptual. Therefore normal human speakers are capable of non-conceptual perception with non-conceptual content.

(VIII) *From the "cognitive impenetrability" of subpersonal or subdoxastic representations:* Some representational states, for instance, early vision, are not only subpersonal or sub-doxastic, but also "cognitively impenetrable," in the sense that the information represented by these states is not available to conscious or self-conscious mental processing. But non-conscious or non-self-conscious mental representation is non-conceptual. Therefore normal human cognizers are capable of non-conceptual perception with non-conceptual content.[15]

All that argumentation notwithstanding, however, in his important paper, "Is There a Problem about Nonconceptual Content?," Jeff Speaks argues that there is in fact *no* problem about non-conceptual content because (i) non-conceptualists have not established that the standard arguments they offer for the existence of non-conceptual content cannot be accommodated by suitably refined versions of

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[13] See, e.g., Peacocke, *A Study of Concepts*, ch. 3. For two interestingly different versions of this argument, see Roskies, "A New Argument for Nonconceptual Content"; and Van Cleve, "Defining and Defending Nonconceptual Contents and States."

[14] See also Hanna, "Direct Reference, Direct Perception, and the Cognitive Theory of Demonstratives."

[15] See, e.g., Bermùdez, "Nonconceptual Content: From Perceptual Experience to Subpersonal Computational States"; Chadha, "An Independent, Empirical Route to Nonconceptual Content"; Pylyshyn, *Seeing and Visualizing*; and Raftopoulos and Müller, "The Nonconceptual Content of Experience." My own view is that the empirical data used by non-conceptualist proponents of the argument from cognitive impenetrability actually support only the thesis that some representational states include information that is not available to *self-conscious* mental processing, and that in fact, all non-conceptual cognition and content whatsoever is saliently conscious in at least a first-order way. See section 2.8.

Conceptualism, and (ii) non-conceptualists have not established that perceptual acts or states have representational content whose semantic structure and psychological function are distinct from the semantic structure and psychological function of conceptual content.[16]

I both agree and disagree with Speaks's challenging claims. On the one hand, and on the side of agreement with his claim (i), I would want to make two even stronger claims, to the effect that (i*) it cannot be established that the standard arguments for state Non-Conceptualism cannot be accommodated by suitably refined versions of Conceptualism, and (ii*) most current versions of content Non-Conceptualism also cannot establish that perceptual acts or states have mental or representational content whose structure and function are any more than just accidentally or contingently distinct from the structure and function of conceptual content.

But on the other hand, I disagree with Speaks that as a consequence there is no problem for Conceptualists about non-conceptual content.

This is because I believe that there are in fact perceptual acts or states whose mental or representational contents cannot—even in principle—be conceptual, in the sense that those contents are necessarily or constitutively determined by our conceptual capacities. These are what I call *essentially non-conceptual* contents. It is crucial to note that I am not denying that all essentially non-conceptual contents can in some sense or another be conceptually grasped or conceptually specified. After all, here I am now writing various things about essentially non-conceptual contents, while obviously also using concepts in order to do this. Instead I am denying only that it is the capacity for conceptual grasping or specification alone which necessarily or constitutively determines the semantic structure and psychological function of essentially non-conceptual contents. I am denying only that the essence or nature of essentially non-conceptual mental contents is conceptual and also denying that the existence, specific character, or essence/nature of essentially non-conceptual contents are necessarily or constitutively determined by our conceptual capacities. But I am not denying that essentially non-conceptual mental contents can be conceptualized in some other non-essential, non-necessarily-or-constitutively determining sense.

If all this is correct, then at least some perceptual mental acts, states, or processes in minded animals (including, of course, rational human minded animals) have mental or representational contents whose semantic structure and psychological function are necessarily distinct from the structure and function of conceptual content, and are not necessarily or constitutively determined by the conceptual capacities (if any) of those minded animals. This doctrine is what I call *essentialist content Non-Conceptualism*.

Furthermore, I also believe that the special semantic and psychological character of these essentially embodied, essentially non-conceptually contentful perceptual acts, states, or processes entails that all mental acts, states, or processes in minded animals contain non-conceptual content in this essentially distinct sense. To be sure, the presence of this essentially non-conceptual content does not necessarily exhaust the

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[16] Speaks, "Is There a Problem about Nonconceptual Content?"

total content of such acts or states. The thesis of the ubiquity of essentially non-conceptual content is fully consistent with the thesis that essentially non-conceptual content is inherently combinable with conceptual content. What I mean is that both kinds of content can jointly compose complexes that are unified hybrid contents consisting of essentially non-conceptual and conceptual proper parts together with various immanent logical structures. Indeed, I believe that all essentially non-conceptual content not only *can* be combined with conceptual content, but also that it *must* be so combined in these immanently logically structured ways if perceptual judgments, perceptual knowledge and self-knowledge, analytic truths and synthetic truths of all kinds, and a priori knowledge in logic and mathematics in particular, and also logical and practical reasoning about the perceivable and manifestly real natural world more generally, are to be really possible. This, again, is the proto-rationality of essentially non-conceptual content and cognition, and of the living bodies of minded animals. It would then follow that the essentially non-conceptual content of a mental act, state, or process in a minded animal is necessarily and constitutively underdetermined by the conceptual content of that act, state, or process. That underdetermination is the necessary distinctness of essentially non-conceptual content. In turn, this modal fact about essentially non-conceptual content is perfectly consistent with the further modal fact that in the mental acts, states, and process of rational minded animals, essentially non-conceptual content must be presupposed by conceptual content and must also be complementary with conceptual content. That, again, is the proto-rationality of essentially non-conceptual content and of the body. In other words, what I am proposing is a version of content-dualism, along with a *complementarity-of-the-two-kinds-of-content* thesis. Both inherently different kinds of content receive a complex unification in the cognitive and practical lives of rational minded animal agents, as an intentional achievement of those agents. But in any case, the nature of the uncombined or combined essentially non-conceptual content of these perceptual acts or states needs to be explained.

The larger argument of this chapter also has another important element. The individual arguments I will offer for the real existence, specific character, nature, concept-independence, and concept-autonomy of essentially non-conceptual content all have a distinctively Kantian provenance. Therefore a second implication of my larger argument is that contemporary defenders of content Non-Conceptualism must in effect go "back to Kant" and adopt a Kantian version of essentialist content Non-Conceptualism, if they are to respond adequately to Speaks's important challenge. Defenders of state Non-Conceptualism, in turn, must either just concede defeat to Conceptualism, or else become defenders of Kantian essentialist content Non-Conceptualism—henceforth, for terminological convenience, "Kantian Non-Conceptualism." In other words, all rationally acceptable roads within Non-Conceptualism lead ultimately to Kantian Non-Conceptualism.

If I am correct about this deep historico-philosophical connection between essentialist Non-Conceptualism and Kant's theory of cognition, then it is also a deliciously ironic fact, because Kant is almost universally regarded as the founding father of Conceptualism and the nemesis of Non-Conceptualism. York Gunther articulates this view perfectly:

In his slogan, "Thoughts without content are empty, intuitions without concepts are blind," Kant sums up the doctrine of conceptualism.[17]

Nevertheless, I think that Kant is most accurately regarded as not only the founder of Conceptualism but also, and perhaps even more importantly, as the founder of Non-Conceptualism, of content Non-Conceptualism, and indeed also essentialist content Non-Conceptualism alike.[18] So I think that the best overall reading of Kant's philosophy of mind, metaphysics, and epistemology—and also of his practical and moral philosophy—is a "sensibility first" reading.[19]

In turn, Kant's double role as the founder of Conceptualism and Non-Conceptualism alike makes perfect sense when we also realize that he was the first content-dualist and capacity-dualist in modern philosophy, by postulating the fundamental difference between the human capacity for conceptualization and thinking, "understanding" or *Verstand*, on the one hand, and the human capacity for generating directly referential intuitions or *Anschauungen*, "sensibility" or *Sinnlichkeit*, on the other hand. In this way he significantly distinguishes himself from classical Rationalists and classical Empiricists alike, who were (and in a contemporary context, are) defenders of *capacity monism*, which says that there is one and only one basic kind of cognitive capacity, namely reason and sensory experience, respectively.

In addition to the second epigraph of this chapter, here are four other Kant-texts that also more-or-less strongly confirm the claim that Kant is the founder of Non-Conceptualism, of content Non-Conceptualism, and indeed also essentialist content Non-Conceptualism alike:

Objects can indeed appear to us without necessarily having to be related to the functions of the understanding. (*CPR* A89/B122, underlining added)

    That representation which can be given prior to all thinking is called **intuition**. (*CPR* B132, underlining added)

    The manifold for intuition must already be given prior to the synthesis of the understanding and independently from it. (*CPR* B145, underlining added)

    Concept differs from intuition by virtue of the fact that all intuition is singular. He who sees his first tree does not know what it is that he sees. (*VL* Ak 24: 905, underlining added)[20]

In my opinion, then, what Kant's famous slogan about blind intuitions and empty thoughts actually means is that intuitions and concepts must always be combined together *for the special purpose of making objectively valid "judgments of experience"* (*Erfahrungsurteile*). But outside that context, it is also perfectly possible to have directly referential intuitions without concepts ("blind intuitions," e.g., someone's first cognitive encounter with a tree), and also to have thinkable concepts without intuitions ("empty concepts," e.g., concepts of things-in-themselves or noumena).

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[17] Gunther, "Introduction to *Essays on Nonconceptual Content*," p. 1.
[18] Hanna, "Kant and Nonconceptual Content."
[19] See, e.g., Hanna, "Sensibility First: Kant, Non-Conceptualism, and Non-Intellectualism."
[20] Interpreting this text is somewhat tricky. On the one hand, it can be read as supporting *only* state Non-Conceptualism. But on the other hand, it is also perfectly *consistent* with content Non-Conceptualism.

Indeed, it is precisely the fact of blind intuitions, whose semantic structure and psychological function are essentially distinct from the semantic structure and psychological function of concepts, that drives Kant's need to argue in the first *Critique*'s B version of the Transcendental Deduction that all and only the objects of actual or possible human experience are necessarily conceptualized or conceptualizable under the pure concepts of the understanding or categories, and necessarily constrained by the transcendental laws of a pure science of nature. Otherwise, blind intuitions might pick out what I have called "rogue objects" of human experience that are either contingently or necessarily unconceptualizable, and nomologically intractable—causal deviants, and rude violators of the general deterministic (or, although Kant himself would not have recognized such things, general indeterministic) causal laws of nature.[21] Timothy Williamson calls these rogue objects "elusive objects," and makes essentially the same critical Kantian point I am making here—namely, that the scope of the Transcendental Deduction is inherently constrained by the possibility of rogue or elusive objects—although he does so in the context of criticizing McDowell's Conceptualism:

> For objects, McDowell's claim that the conceptual is unbounded amounts to the claim that any object can be thought of. Likewise for the sort of thing that can be the case: the claim is, for example, that whenever an object has a property, it can be thought, of the object and the property, that the former has the latter.... McDowell's argument in any case seems to require the premise that everything (object, property, relation, state of affairs, ...) is thinkable. That premise is highly contentious. What reason have we to assume that reality does not contain *elusive objects*, incapable in principle of being individually thought of? ... Although elusive objects belong to the very same ontological category of objects as those we can single out, their possibility still undermines McDowell's claim that we cannot make "interesting sense" of the idea of something outside the conceptual realm.... We do not know whether there are actually elusive objects. What would motivate the claim that there are none, if not some form of idealism very far from McDowell's intentions? We should adopt no conception of philosophy that on methodological grounds excludes elusive objects.[22]

In view of all that, then, my historico-philosophical thesis is that Kant's theory of concepts and judgment in the Transcendental Analytic, if correct, provides foundations for Conceptualism. But equally and oppositely, Kant's theory of intuition in the Transcendental Aesthetic, if correct, provides foundations for Kantian Non-Conceptualism, and also inherently constrains what Kant argues in the Transcendental Analytic.

I will not re-argue those historico-philosophical claims here. What I want to show is how a contemporary Kantian strategy for demonstrating and explaining the real existence, semantic structure, and psychological function of autonomous essentially non-conceptual content can also provide an intelligible and defensible bottom-up theory of essentially embodied rationality in minded animals, including essentially

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[21] See Hanna, "Kant's Non-Conceptualism, Rogue Objects, and the Gap in the B Deduction"; and Hanna, "Blind Intuitions, Rogue Objects, and Categorial Anarchy."

[22] Williamson, *The Philosophy of Philosophy*, pp. 16–17.

embodied *human* rationality, under top-down universal a priori categorically normative logical and moral constraints.

In this connection, I also want to emphasize that there are deep and important similarities between my Kantian Non-Conceptualist view and the view recently developed by Tyler Burge in his brilliant, massive study of the nature of sense perception, *The Origins of Objectivity*. Endre Begby neatly describes Burge's "core insights" in *Origins*, which are

that perceptual capacities, whether in humans or other species, are, first, *autonomous*, in the sense that they are constitutively independent of such higher cognitive capacities, and, second, *primitive*, in the sense that they are not preceded, developmentally or phylogenetically, by any other capacity for objectified representation (and certainly not preceded by any capacity for conceptual or linguistic representation).[23]

But Begby also correctly isolates the basic problem with Burge's account:

Burge evidently senses the need to define perceptual systems in neatly modular terms, as encapsulated both from each other as well as from higher cognitive processes. Allowing a fluid interface between perception and conceptual cognition would evidently put strain on any attempt to draw neat boundaries around each perceptual system. But in my view, such line-drawing efforts are misguided, or at any rate, extraneous to the line of thought that really ought to occupy Burge. Conceding that mature human cognition is marked by a significant integration of perceptual and conceptual capacities (a theme of central importance to the philosophical tradition that Burge is criticizing) would in no way force him to give up on what I take to be his core insights.[24]

One way of accurately glossing Kantian Non-Conceptualism is that it systematically combines Burge's "core insights" with the thesis "that mature human cognition is marked by a significant integration of perceptual and conceptual capacities." That latter thesis, yet again, is the proto-rationality of the body.

Comparing and contrasting *Cognition, Content, and the A Priori* and Burge's *Origins* is also philosophically ironic, for two reasons. **First,** Burge devotes an entire fifty-four-page chapter of *Origins* to criticizing what he calls the "Neo-Kantian Individual Representationalism" of Strawson and Evans. But in fact the Kantian theory Burge is criticizing is old-school Oxford-style neo-Kantian *Conceptualism*, not Kantian *Non*-Conceptualism. **Second**, and in a closely related way, Burge completely avoids the large and active recent and contemporary philosophical/psychological literature on non-conceptual content—indeed, there is not even an entry for "non-conceptual" in *Origins*'s thirty-three-page Subject Index. But why? My hypothesis is that Burge's old-school Oxford-style neo-Kantian reading of Kant unfortunately makes him all too open to The Myth of the Myth and correspondingly blind to the deeper truth that, despite superficial appearances to the contrary, the most natural ally of Burge's *own* account in contemporary philosophy is actually a *non*-old-school, *non*-Oxford-style version of contemporary Kantianism—namely, Kantian Non-Conceptualism.

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[23] Begby, "Review of Tyler Burge, *Origins of Objectivity*."
[24] Begby, "Review of Tyler Burge, *Origins of Objectivity*."

So Burge's account and Kantian Non-Conceptualism could and should have been philosophical comrades, but superficially are at odds with one another. Alas.

2.2 A Dialectical Critique of the Contemporary Debate about Non-Conceptual Content

Now I want to take a closer look at the dialectical structure of the contemporary debate about non-conceptual content, and critically consider some different types of Non-Conceptualism.

Most, or at least a great many, contemporary Non-Conceptualists define the thesis of Non-Conceptualism in the following way:

> The central idea behind the theory of nonconceptual mental content is that some mental states can represent the world even though the bearer of those states need not possess the concepts required to specify their content.[25]

This is a paradigmatic statement of *state* Non-Conceptualism, or as I would prefer to label it, "possession-theoretic Non-Conceptualism" or "epistemic Non-Conceptualism." Corresponding to state Non-Conceptualism, Conceptualism then says that no mental acts or states can represent the world unless the bearers of those acts or states—who or which Conceptualists sometimes, but not always, take to be rational and/or human cognizers exclusively (e.g., McDowell, following Donald Davidson and Sellars, takes this view)—possess the concepts required to specify the content of those states.

One salient issue in this connection that I will flag now for more careful discussion later is the question of precisely what is meant by the notion of *possessing a concept*. But as a preliminary proposal, it seems to me that there are at least three necessary and partially constitutive factors in concept-possession. The first factor is the ability to deploy and use a concept—for instance, with respect to the concept *horse*, the ability to recognize a horse when you perceive it, and being able to distinguish horses from other sorts of things. The second factor is the ability to be self-consciously aware of at least some of the intrinsic descriptive or intensional elements of the concept—for instance, with respect to the concept *horse*, the ability to know that the concept *animal* is necessarily contained in that concept. And following directly from this second capacity is the third factor, namely the ability to make analytically necessary and a priori logical inferences that pick out at least some of the intrinsic descriptive or intensional elements of the concept—for example, with respect to the concept *horse*, the ability to infer in an analytically necessary and a priori way that if *X* is a horse, then *X* is an animal.

Now, it is obvious that, for example, normal human toddlers and other young children are able to recognize a horse when they perceive it and distinguish it from other sorts of things—say, effectively telling horses apart from inanimate objects, rational human animals, and many other animals (say, birds), even though they are

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[25] Bermúdez and Cahen, "Nonconceptual Mental Content"; see also Crane, "The Nonconceptual Content of Experience."

incapable of becoming self-consciously aware of the descriptive or intensional elements of the concept *horse*, and therefore incapable of carrying out analytic a priori inferences involving *horse*. Also they may be a little shaky on recognizing the differences between horses and "big doggies," camels, or cows. So it is possible to have the ability to deploy and use a concept without also having possession of that concept. In other words, concept-possession requires more and richer abilities than the basic, minimal set of abilities required for concept-deployment and concept-use alone.

It is important to notice, however, that in the cases I am thinking about, normal human toddlers and other young children have already acquired enough linguistic knowledge to be able to express their concepts linguistically. What I mean is that they can correctly deploy and use the concept *horse*, to a large extent, only just insofar as they can correctly deploy and use the word "horse," or "cheval," or "Pferd," or whatever, depending on the natural language they are learning. But what about non-human minded animals—cats, camels, cows, dogs, horses, and so on—that lack at least some of the cognitive capacities that jointly constitute natural-linguistic competence? Can they deploy and use concepts? It seems clearly and distinctly true that a great many non-linguistic, non-human animals are conscious, can perceive, can remember episodically (that is, have memories with egocentric centering), can imagine episodically and anticipatorily, have desires and feelings, and can act intentionally. So they are *sentient* or *sensible* animals. But can they also judge, think, or reason in the cognitively high-powered senses of those notions? Are they also *sapient* or *discursive* animals? This is an extremely hard question, and a little later, in section 2.3, I will propose a tentative answer to it; but I am going to bracket it for the time being, and continue to unpack the contemporary debate about non-conceptual content.

The argument against Conceptualism most favored by contemporary state Non-Conceptualists is *The Fineness of Grain Argument*:[26]

(1) Perceptual content is so replete with content (say, color-content or shape-content) that there cannot possibly be enough concepts in our existing conceptual repertoire to capture all the different sorts.

(2) But we nevertheless frequently make effective fine-grained discriminations between the different sorts of perceptual content, even in the absence of possessing concepts for those sorts of content.

(3) Conceptualism is committed to the thesis that for every genuine discriminable difference in perceptual content, we must possess concepts that pick out the relevantly different kinds.

(4) Therefore Conceptualism is false, and state Non-Conceptualism is true.

Conceptualists, led by McDowell, have replied to this argument by using what is now called *The Demonstrative Strategy*.[27] The Demonstrative Strategy directly addresses step (2) of the argument and says that for every case of effective

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[26] See, e.g., Evans, *Varieties of Reference*, p. 229; Peacocke, "Does Perception Have a Nonconceptual Content?"; and Peacocke, "Nonconceptual Content Defended."

[27] See, e.g., McDowell, *Mind and World,* pp. 56–60, and 170–73. The Demonstrative Strategy is also endorsed by Brewer in *Perception and Reason*, and by Sedivy in "Must Conceptually Informed Perceptual Experience Involve Non-Conceptual Content?"

fine-grained discrimination in which corresponding concepts are apparently lacking, it is possible to construct a demonstrative concept of the form "THIS SHADE," "THAT SHAPE," and so on, that correctly picks out the relevant determinates under some determinable concept already possessed by the cognizer. If so, then step (2) is false and The Fineness of Grain Argument is unsound. In reply to that reply, state Non-Conceptualists have argued as follows:

(1) The possession of demonstrative concepts, in addition to satisfying both of what Gareth Evans called Russell's Principle (i.e., there is no singular thought about an object without the subject's possession of an identifying conception of it)[28] and The Generality Constraint (i.e., there is no singular thought about an object without the subject's possession of the conceptual resources sufficient for entertaining many different possible thoughts about the same object),[29] *also* requires the ability to re-identify instances of those concepts.

(2) But we frequently make fine-grained demonstrative perceptual discriminations between different sorts of perceptual content without any further ability to re-identify them.

(3) Therefore The Demonstrative Strategy fails, Conceptualism is false, and state Non-Conceptualism is true.[30]

But in criticism of that counter-reply, it has been plausibly argued by Philippe Chuard that demonstrative concepts can be applied in fine-grained demonstrative perceptual discriminations without any further ability to re-identify instances of those concepts.[31] So according to Chuard, concept-possession does not itself require the ability for re-identification. If this is correct, then The Demonstrative Strategy remains sound, and the Non-Conceptualists are back at square one.

In light of that very disappointing result for Non-Conceptualism, I want to propose the following critical diagnosis. From a Non-Conceptualist point of view, I think that it is a big mistake to define Non-Conceptualism in terms of failures of concept-possession, however we define "concept-possession," and therefore a correspondingly big mistake to defend *state* Non-Conceptualism. Instead, Non-Conceptualism should be defined as the thesis that there exist mental contents, and in particular perceptual mental contents, had by human and non-human animal cognizers alike, whose semantic structure and psychological function are distinct from the structure and function of conceptual content—or equivalently, that there exist what Speaks has aptly dubbed "absolutely non-conceptual" contents:

A mental state has *absolutely nonconceptual content* iff that mental state has a different kind of content than do beliefs, thoughts, etc.[32]

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[28] Evans, *Varieties of Reference*, p. 44 and 74. My own view is that Russell's Principle has some counterexamples, and is therefore false. See Hanna, "Direct Reference, Direct Perception, and the Cognitive Theory of Demonstratives."

[29] Evans, *Varieties of Reference*, pp. 100–05.

[30] See Kelly, "Demonstrative Concepts and Experience"; and Kelly, "The Nonconceptual Content of Perceptual Experience: Situation Dependence and Fineness of Grain."

[31] See Chuard, "Demonstrative Concepts without Re-Identification."

[32] Speaks, "Is There a Problem about Nonconceptual Content?," p. 360.

This, in turn, is a paradigmatic statement of *content* Non-Conceptualism.

It is extremely important to note, however, that there are at least three logically distinct versions of content Non-Conceptualism. Generally speaking, it seems clear and distinct that content Non-Conceptualism could variously be based on theories of (i) the *composition*, or construction, of mental content, (ii) the *compositional matter*, or stuff, of mental content, or (iii) the *formal constitution*, or structure, of mental content. This threefold distinction among (i) composition, (ii) compositional matter, and (iii) formal constitution is clearly a metaphysical distinction. And that in turn further highlights the fact that content Non-Conceptualism is a thesis about the metaphysics of content, and not, like state Non-Conceptualism, a thesis about the epistemology of content.

In this metaphysically oriented way, then, according to one content Non-Conceptualist theory of the composition or construction of mental content, the non-conceptual content of a mental act or state must fail some basic compositionality principle for propositional contents, such as Evans's Generality Constraint.[33] By contrast, according to a second content Non-Conceptualist theory of the compositional matter or stuff of mental content, the non-conceptual content of a mental act or state must contain only rough-grained non-Fregean propositional contents (i.e., objects, properties, and relations).[34] And by another contrast, according to a third content Non-Conceptualist theory of the formal constitution or structure of mental content, the non-conceptual content of a mental act or state must be formally constituted by egocentrically centered intrinsic spatiotemporal directional structure[35]—or to use Jenann Ismael's highly apt term, content that is inherently *situated*.[36]

What I want to argue in the rest of this chapter is, **first,** that only the third version of content Non-Conceptualism has all the decisive dialectical virtues, and thereby satisfies all the basic requirements, of essentialist content Non-Conceptualism, which as we will remember, says this—

At least some mental acts, states, or processes, and in particular, perceptual acts, states, or processes, enjoyed by human and non-human cognizers alike, have mental or representational content whose semantic structure and psychological function are essentially distinct from the structure and function of conceptual content, and the content of such perceptual acts, states, or processes is essentially non-conceptual content.

—and, **second**, that this third version of content Non-Conceptualism is distinctively Kantian in its provenance. But before I can do that, I want to show that neither the

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[33] See, e.g., Heck, "Nonconceptual Content and the 'Space of Reasons'"; and Heck, "Are There Different Kinds of Content?" For an interesting spin on this non-conceptualist argument, appealing to the existence of logically non-systematic "analogue magnitude" representations in human and non-human minded animals, see Beck, "The Generality Constraint and the Structure of Thought."

[34] This is Speaks's own proposal for content Non-Conceptualism. See also Tye, "Nonconceptual Content, Richness, and Fineness of Grain."

[35] See Hanna, "Kantian Non-Conceptualism."

[36] See Ismael, *The Situated Self.* "Analogue magnitude" representations are also inherently situated. See Beck, "The Generality Constraint and the Structure of Thought," pp. 567–69 and 589–93.

composition-based version nor the compositional matter-based version of content Non-Conceptualism is in fact capable of showing that Conceptualism is false.

First, consider the composition-based version of content Non-Conceptualism defended by Richard Heck, which says that mental content is non-conceptual if (and, presumably, only if) it fails Evans's Generality Constraint. Now The Generality Constraint, as I mentioned in passing earlier, says that there can be no singular thought about an object without the subject's possession of the conceptual resources sufficient for entertaining many different possible thoughts about the same object. Or in other words, The Generality Constraint is saying that in order to be sufficient for singular thought about an object, a mental content must be composed according to a rule for the construction of singular categorical—singular subject/monadic predicate or "S is P"—propositions, such as "Kant is a bachelor." So, in turn, Heck's version of content Non-Conceptualism is saying that a mental content is non-conceptual if (and, presumably, only if) it is not (or need not be) composed according to a rule for the construction of singular categorical propositions.

But suppose that a given mental content fails The Generality Constraint precisely because it is not (and thus, obviously, also need not be) composed according to a rule for the construction of singular categorical propositions. Nevertheless, that mental content could still be fully conceptual. Let us conceive of, for instance, a mental state whose content is the concept BACHELOR, and nothing else. Correspondingly, let us also conceive of a conscious and self-conscious subject of this mental state who satisfies conditions (ii) and (iii) on concept-possession, or the self-conscious concept-analysis condition and the analytic inference condition, but not condition (i) the deployment and use condition. In other words, the subject of this state is the contrapositive of the normal human toddler who has abilities for concept-use and concept-deployment, but lacks abilities for self-conscious concept-analysis and analytic inference. That is, the subject of this state has abilities for self-conscious concept-analysis and analytic inference, but lacks abilities for use and deployment. So she has, as it were, lost her concept-deploying and concept-using "inner child." More precisely, through an emotional or purely physical trauma of some sort, she now has an agnosia that has taken her capacity for concept-use and concept-deployment, with respect to that particular concept, temporarily or permanently offline. So in this sense she is very like Oliver Sacks's famous "man who mistook his wife for a hat."[37] Or otherwise put for those of us whose obsessions include reading, re-reading, and re-re-reading Dickens's novels, she is the Miss Havisham of the conceptualizing world. Miss Havisham is, of course, a famous character in *Great Expectations*, and the entry for "Havisham, Miss" in my *Dickens Index* says:

[W]eird elderly recluse, the daughter of a wealthy brewer, who, having been betrayed by Compeyson who had pretended to love her but jilted her on their wedding morning, seeks to arrest time at the very moment she learned of his desertion.[38]

So let us call our Havisham-like cognizer *The Oddly Detached Conceptualizer*.

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[37]   See Sacks, *The Man Who Mistook His Wife for a Hat*, ch. 1.
[38]   Bentley, Slater, and Burgis, *The Dickens Index*, p. 118.

In any case, assuming that BACHELOR is a determinate concept of the determinable concept UNMARRIED, then UNMARRIED is "intensionally contained" with respect to BACHELOR, both (i) in the sense that the concept UNMARRIED is inherently contained *within* the intensional microstructure of the complex concept BACHELOR, hence UNMARRIED is logically supervenient on BACHELOR, and also (ii) in the sense that the cross-possible-worlds extension of the concept BACHELOR is set-theoretically contained *under* the cross-possible-worlds extension of the concept UNMARRIED, hence the extension of BACHELOR is a proper part of the extension of UNMARRIED. Correspondingly, this two-part intensional containment relationship fully supports an a priori analytic inference from BACHELOR to UNMARRIED. But even if one does not favor the broadly Kantian notion of intensional containment I have just quickly sketched (see chapter 4 for more details),[39] it nevertheless remains the case, as Stephen Yablo has pointed out, that the property of UNMARRIEDNESS which directly corresponds to the concept UNMARRIED, logically strongly supervenes on the property of BACHELORHOOD which directly corresponds to the concept BACHELORHOOD, precisely *because* determinable properties always logically strongly supervene on their determinate properties, and this logical supervenience of corresponding properties fully supports my thesis that there is an analytic a priori inference from the concept BACHELOR to the concept UNMARRIED.[40] So, clearly, BACHELOR can be the conceptual content of a mental state of some possible analytic reasoner R.

But there is no reason whatsoever to think that the content of R's mental state must also satisfy The Generality Constraint. For suppose that R is The Oddly Detached Conceptualizer and therefore she is nowadays simply *incapable* of recognizing singular thoughts or singular categorical propositions about bachelors. This is because of the fact that, although she is perfectly capable of seeing analytic conceptual connections and making analytic a priori inferences of many different kinds, as a result of an emotional or purely physical trauma, nevertheless she now has an agnosia and lacks a cognitive capacity for self-consciously recognizing direct singular reference via concept-use and deployment where the concept BACHELOR is concerned. So in addition to having lost her conceptualizing "inner child" for bachelors, The Oddly Detached Conceptualizer, in effect, has direct reference "blindsight" for instances of the concept BACHELOR. Blindsight is the cognitive phenomenon according to which conscious subjects report blindness in some or all areas of their visual fields, yet effectively respond to visual stimuli in those areas at rates much higher than would be yielded by guessing (for more on blindsight, see section 2.8). Otherwise put, then, although The Oddly Detached Conceptualizer can rationally "see" pure conceptual generality, including being able rationally to "see" conceptual specificity down to any lower degree of conceptual determination, at the same time she is also rationally blind to all concrete individuality and particularity with respect to bachelors, even though she is appropriately pre-reflectively sensitive to them and to all sorts of other concrete individuals and situations—for how else could she ever

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[39] See also Hanna, *Kant and the Foundations of Analytic Philosophy*, ch. 3.
[40] See Yablo, "Mental Causation."

survive in this actual natural world? Otherwise put, The Oddly Detached Conceptualizer is now exclusively an a priori conceptual reasoner with respect to the concept BACHELOR, and also not a directly referential reasoner with respect to that concept. And although she might well deny she has this agnosia (which is itself an agnosia known as "anosognosia"), she also might even be aware of it and *oddly proud of it*, as it were, in the dual sense that she could reflectively come to know that she has "direct reference blindsight with respect to bachelors" and also freely come to accept herself being this way—although of course with a certain deep underlying Dickensian bitterness too.

The Oddly Detached Conceptualizer and her cognitively agnosic situation seem entirely richly conceivable and therefore really possible. Therefore, even if the content of a given mental act or state fails The Generality Constraint, it can still be thoroughly conceptual, in the dual sense that (i) it is fully accessible to higher-level conceptual abilities, and (ii) its content is at the very least inherently concept-like. Hence, failing The Generality Constraint is not a sufficient condition of non-conceptual content.[41]

Second, consider the compositional stuff-based version of content Non-Conceptualism defended by Michael Tye, which asserts the existence of what Tye calls "robustly non-conceptual content." According to Tye,

(i) a contentful non-conceptual state is a contentful state the tokening of which does not involve the exercise of concepts, and

(ii) experiences [with non-conceptual content] are non-conceptual states having coarse-grained contents (*robustly* nonconceptual contents, as I shall call them).[42]

In other words, the robustly non-conceptual content of a perceptual state is the content of a "Russellian" proposition literally composed of objects, properties, and relations, and not the content of a "Fregean" proposition logically composed of partial or complete "senses" (*Sinne*)—cognizable packages of attributive or descriptive information—that are also "modes-of-presentation" (*Arten des Gegebenseins*) of objects, properties, or relations. Or in still other words, the robustly non-conceptual contents of a perceptual state are just the worldly objects, properties, and relations represented by that state.

Given Tye's formulation (i), it is possible that he is still a *state* non-conceptualist. But let us also assume, for the purposes of argument, that Tye is in fact a *content* non-conceptualist, whose sufficient reason for thinking that there are "contentful state[s] the tokening of which [do] not involve the exercise of concepts" is that such states contain a different *kind* of content than conceptual states do. Then the obvious problem with Tye's conception of robustly non-conceptual content is that although the elements of this content are not specified by concepts in the actual perceptual

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[41] It remains true, however, that satisfying The Generality Constraint, as a necessary condition of conceptual content, entails logical systematicity; and also that necessarily, if a content fails logical systematicity, then it is non-conceptual. See Beck, "The Generality Constraint and the Structure of Thought," pp. 564–67.

[42] Tye, "Nonconceptual Content, Richness, and Fineness of Grain," pp. 507–08.

states in which they occur, there is no in-principle reason why they could not be conceptually specified in states other than those actual perceptual states. In other words, robustly non-conceptual content is at most accidentally or contingently non-conceptual, and not essentially non-conceptual. Now, Tye frankly admits as much in a very revealing footnote in the middle of a critical discussion of The Fineness of Grain Argument and The Demonstrative Strategy:

I want to stress that the above discussion of demonstratives does *not* undercut the view that fineness of grain in visual experiences can be presented conceptually in *demonstrative judgments or thoughts* made on the basis of experience. What I have argued is that the *visual experiences themselves* do not represent details *via* demonstrative concepts.[43]

But this gives the game away for the compositional stuff-based version of content Non-Conceptualism. For Tye has thereby explicitly admitted that his robustly non-conceptual content could still be conceptually presented. This means that any robustly non-conceptual content could also be a proper part of the content of a whole mental act or state that contains a set of corresponding Fregean senses for specifying just those Russellian contents. Here we need only posit a mental state containing a set of what McDowell (following Evans) has called "*de re* senses,"[44] which have the special semantic feature that they descriptively and rigidly pick out Russellian contents, but without also uniquely determining them in the modally super-powered Leibnizian sense of providing their "complete individual concepts." So robustly non-conceptual content is ultimately just more grist for the Conceptualist's mill, in that a given content could be robustly non-conceptual and *also* Fregean or sense-theoretic, and also satisfy The Generality Constraint, and therefore *also* be conceptual.

But perhaps I am being uncharitable to Tye. Perhaps Tye is actually a defender of state Non-Conceptualism, who also just happens to have a view about the nature of non-conceptual content. If that is so, then of course my criticism does not directly apply to him, but instead only to another content-conceptualist, call him "Tye*" or whatever, who does indeed defend a compositional stuff-based version of content Non-Conceptualism. Nevertheless, even charitably granting that Tye himself is a state non-conceptualist, and so not a target of the worry now directed at Tye*, the state non-conceptualist *Tye's* view will still fall under a general worry I have about state Non-Conceptualism, which I will articulate shortly.

In any case, what the essentialist content Non-Conceptualist is saying, by sharp contrast to both the composition-based and compositional stuff-based versions of content Non-Conceptualism, is that there are mental contents that cannot be conceptually presented because they are inherently non-conceptual in formal constitution or structure. Contents that fail The Generality Constraint, or contents that are rough-grained or Russellian, or even both of them together, just will not do. It has to be impossible to give an adequately individuating conceptual specification of an essentially non-conceptual content. Again, as I mentioned earlier, it is crucial to note that I am not denying that all essentially non-conceptual contents can in some

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[43] Tye, "Nonconceptual Content, Richness, and Fineness of Grain," p. 525.
[44] See McDowell, "*De Re* Senses."

sense or another be conceptually grasped or conceptually specified. Instead I am denying only that it is our capacity for their conceptual grasping or specification alone which necessarily determines the semantic structure and psychological function of essentially non-conceptual contents. That is, I am denying only that the nature of essentially non-conceptual mental contents is conceptual and also that the real existence and specific character of essentially non-conceptual contents are necessarily or constitutively determined by our conceptual capacities. But I am not denying that essentially non-conceptual mental contents can be conceptualized in some other non-essential, non-necessarily-or-non-constitutively determining sense.

Now, Speaks also very usefully distinguishes between absolutely non-conceptual content and "relatively non-conceptual content":

A mental state of an agent A (at time t) has *relatively nonconceptual content* iff the content of that mind includes contents not grasped (possessed) by A at t.[45]

In other words, mental content that is relatively non-conceptual differs from conceptual content only in that an agent does not at that time meet the conceptual grasping-conditions or possession-conditions for that content. So relatively non-conceptual content satisfies the conditions for state Non-Conceptualism. But the crucial point is that relatively non-conceptual mental content might still be conceptual content in a merely or at least partially ungrasped or unpossessed form, whereby it is unarticulated and non-unpacked. Therefore, state Non-Conceptualist premises do not, in and of themselves, entail content Non-Conceptualist conclusions.[46] Moreover, as we have just seen, the real possibility that so-called "non-conceptual content" is really just conceptual content framed in a non-standard format, is equally true of both the composition-based version of content Non-Conceptualism defended by Heck and also the compositional stuff-based version of content Non-Conceptualism defended by Tye*, even if not by Tye himself.

In any case, we can now see that it was a big mistake for Non-Conceptualists to have deployed The Fineness of Grain Argument against Conceptualism. This is because The Fineness of Grain Argument mistakenly sidetracks the debate into a discussion about perceptual experiences involving failures of concept-possession. But this not only deflects attention away from the real issue about non-conceptual content—the real existence or non-existence of essentially non-conceptual content—toward state Non-Conceptualism. It is also a discussion that the suitably sophisticated Conceptualist can always win, just by pointing out that a mental state involving a failure of concept-possession on the part of the subject of that state might still have content that is conceptual. Then she can strategically weaken and re-formulate the possession-based version of the Conceptualist thesis as follows:

No mental states can represent the world without *some possible* (i.e., not necessarily any contemporary or actual) cognizer's *dispositional* (i.e., not necessarily manifest or occurrent) possession of the concepts required *minimally* (i.e., not necessarily fully) to specify their content.

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[45] Speaks, "Is There a Problem about Nonconceptual Content?," p. 360.
[46] This crucial critical point is also made by: Byrne, "Perception and Conceptual Content"; Crowther, "Two Conceptions of Conceptualism and Nonconceptualism"; Speaks, "Is There a Problem about Nonconceptual Content?"; and Van Cleve, "Defining and Defending Nonconceptual Contents and States."

I will call this two-part strategically weakened and re-formulated version of concep-tualism, *Highly Refined Conceptualism*. Highly Refined Conceptualism entails, for instance, that even if it can be shown that some human or non-human cognizers do actually achieve demonstrative perceptual reference to some objects without possess-ing or even being capable of possessing a sortal term for the identification of those objects,[47] then Conceptualism is still not undermined. For according to Highly Refined Conceptualism, the content of that perceptual state could still be conceptual. This is because (i) the failure of conceptual possession-conditions for a given state does not in itself entail that the content of this mental state is not conceptual, and thus it still allows for the possibility that the content of this state is conceptual although in an unarticulated or non-unpacked way, and (ii) the truth of Conceptu-alism requires only that some possible non-contemporary or non-conspecific cogni-zer dispositionally possess the concepts needed minimally to specify the content of that mental state. Condition (ii) is obviously one that is *extremely* easy to satisfy. And as regards condition (i), in recent work McDowell has implicitly adopted a version of Highly Refined Conceptualism, by explicitly dropping his earlier stronger thesis that the content of rational human perception is always articulately and self-consciously propositional, and by asserting that the content of perception is "intuitional" in Kant's sense.[48] So nowadays, at least implicitly, the arch-Conceptualist McDowell is also a state Non-Conceptualist!

Given the non-entailment of content Non-Conceptualist conclusions by state Non-Conceptualist premises, given the real possibility of conceptual contents framed in non-standard formats, given the real possibility of Highly Refined Conceptualism, and given McDowell's recent move in this direction, in effect quietly taking onboard a version of state Non-Conceptualism, I do think that both state Non-Conceptualism and also the composition-based and the compositional stuff-based versions of content Non-Conceptualism are ultimately hopeless as versions of Non-Conceptualism.[49] This general worry, for example, applies to Tye as much as it applies to Tye*. So now it is possible to generalize over all versions of state Non-Conceptualism, taken together with both the composition-based and compositional stuff-based versions of content Non-Conceptualism, and derive a strategic moral-of-the-story for any would-be Non-Conceptualist. Instead of arguing *either* for the existence of mental representation without concept-possession *or* for the existence of mental content that is only contingently or non-inherently non-conceptual, we Non-Conceptualists should *on the contrary* argue directly against the Demonstrative Strategy and against Conceptualism—whether unrefined Conceptualism or Highly

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[47] See, e.g., Campbell, *Reference and Consciousness*, ch. 4.

[48] See McDowell, "Avoiding the Myth of the Given."

[49] Bermúdez, in "What Is at Stake in the Debate on Nonconceptual Content," and Toribio, in "State versus Content: The Unfair Trial of Perceptual Nonconceptualism," both reject state Non-Conceptualism; by contrast, Duhau, in "Perceptual Nonconceptualism: Disentangling the Debate Between State and Content Nonconceptualism," argues that state NCC-ism is defensible, provided that the type of content presupposed by the state NCC-ist account is sufficiently carefully chosen. My view is that Bermúdez and Toribio are right, although not for the reasons they give. Correspondingly, against Duhau, my claim is that if one chooses the type of content presupposed by *content* NCC-ism with sufficient care, then it is clear why state NCC-ism is ultimately hopeless as a defensible version of NCC-ism.

Refined Conceptualism—by developing an intelligible and defensible theory of essentially non-conceptual content. So that is what I am going to try to do.

2.3 The Nature of Concepts

In order to do that, however, I need to finish my dialectical critique of the contemporary debate about non-conceptual content. Another even more troubling, and for some strange reason often unnoticed, feature of the debate is the lack of any generally accepted theory of the nature of concepts and concept-possession;[50] indeed, some contemporary philosophers of mind are even skeptical about the very idea of a concept.[51] But how can we critically evaluate the claim that *non*-conceptual content exists, and, if we are to be essentialist content Non-Conceptualists, how are we to know that non-conceptual content has such-and-such a necessarily distinct semantic structure and psychological function from that of conceptual content, if we do not know what, or whether, *concepts* really are?

In order to face up to that problem, I am going to make a detailed positive working proposal about the nature of concepts, and postulate that concepts in this sense really exist.

Mental content in general, as I briefly spelled out in sections 1.0 and 2.1, is the individuating, normatively guiding, cognitive or practical information about objects, locations, events, actions or performances, other minded animals, or oneself, that is contained in a mental representation—aka an intentional act, state, or process—insofar as that representation is an intersubjectively shareable type that is also tokened in and directly cognitively accessible to individual minded animals on particular occasions and in particular contexts. But what is a concept? In a nutshell, the answer is that a concept is an essentially descriptive, more or less general, categorizing mental content with inherent linguistic and logical form. This nutshell can then be opened up into four basic proposals about the nature of concepts.

According to my first basic proposal, necessarily, X is a concept—or what is the same thing, X is a conceptual content—if and only if X is a mental content such that (i) X is either a *material* concept or a *formal* concept (**the conceptual dualism condition**).

In turn, (ii) X is a material concept if and only if (iia) X provides for the definite or indefinite categorization, classification, discrimination, identification, and cognitively significant presentation of some actual or possible individual things in the manifestly real natural world, or unordered or ordered n-tuples of individual things in the manifestly real natural world (which allows for monadic concepts like BACHELOR and also for relational concepts like TALLER THAN), and X is thereby inherently *descriptive* of those individual manifestly real natural things, which in turn "fall under" X (**the first-order descriptivity condition**), (iib) X is such that a conscious cognizer need not necessarily be directly acquainted with or confronted by whatever is represented by X right then and there in order to understand X, provided that those

[50] See also Bermúdez and Cahen, "Nonconceptual Mental Content," section 7.
[51] See, e.g., Machery, *Doing without Concepts*.

things, as represented by X, have already been encountered essentially non-conceptually in sense perception, and that the memory of that earlier essentially non-conceptual perceptual acquaintance is cognitively accessible (**the non-acquaintance condition**), (iic) X is such that within its complex descriptive intensional structure there is at least one concept Y (possibly identical to X), such that Y is basic and Y requires an essentially non-conceptual perceptual acquaintance with at least one of the things represented by X (**the acquaintance condition**), (iid) X fully supports the truth of some analytic propositions that are necessarily true in virtue of intensional containment (**the containment analyticity condition**), and finally (iie) the self-conscious cognition of X fully supports some sufficiently justified analytically necessarily true beliefs—a priori analytic knowledge (**the analytic a priori knowledge condition**).

On the other hand, (iii) X is a formal concept if and only if (iiia) X provides for the definite or indefinite categorization, classification, discrimination, identification, and cognitively significant presentation of some material concepts, and X is thereby inherently descriptive of those material concepts, which in turn are inherently descriptive of the individual manifest natural things that fall under them (**the higher-order descriptivity condition**), (iiib) X is such that a conscious cognizer need not necessarily be directly perceptually acquainted with or confronted by the individual manifest natural things, or unordered or ordered n-tuples of individual manifest natural things, that fall under any of the material concepts to which X applies (**the higher-order non-acquaintance condition**), (iiic) X partially or wholly provides for the logical consequence relation, logical constants, logical laws and/or logical inference rules of classical truth-functional logic, or classical first-order predicate logic plus identity (aka "elementary logic"), or some conservative or deviant extension of elementary logic (**the logical notions condition**), (iiid) X fully supports the truth of analytic propositions that are necessarily true in virtue of logic—logical truths (**the logical truth condition**)—and finally (iiie) the self-conscious cognition of X supports some sufficiently justified analytically necessarily true logical beliefs—a priori logical knowledge (**the logical a priori knowledge condition**).

According to my second basic proposal about the nature of concepts, necessarily, all concepts, whether material or formal, are related to natural language. More precisely, then, if X is a concept, then (iv) X is intersubjectively cognitively shareable and communicable by means of some or another natural language L, precisely because X is a linguistically and logically structured mental representation type that can be variously tokened in the minds of competent, rational speakers of L when they correctly use expressions (and more specifically, n-place predicative expressions like "__ is a bachelor" and "__ is married to __," sentential modifiers like negation, and sentential connectives like conjunction) of L that have X as their *linguistic meaning*, by virtue of the innate a priori cognitive capacities that all competent, rational speakers of L possess for generating linguistic and logical understanding (**the linguistic cognitivism condition**).[52]

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[52] See Hanna, *Rationality and Logic*, chs. 4–6.

Furthermore, according to my third basic proposal about the nature of concepts, necessarily, concepts can be possessed. More precisely, if X is a concept, then (v) X is possessible, which entails that (va) X is deployable and usable, which is to say that X makes it really possible for cognitive subjects to recognize X-type things when they perceive them, and also to distinguish X-type things from other types of things, (vb) it is really possible for higher-level rational cognitive subjects to be self-consciously aware of at least some of the intrinsic descriptive intensional elements of X, and (vc) it is really possible for higher-level rational cognitive subjects to make analytically necessary and a priori logical inferences that pick out at least some of the intrinsic descriptive intensional elements of X, but also (vd) it is really possible for (va) to be satisfied by *some* cognitive subjects (e.g., normal human toddlers and other young children) without their also satisfying either (vb) or (vc), and it is really possible for (vb) and (vc) to be satisfied by *other* cognitive subjects (e.g., The Oddly Detached Cognizer) without their also satisfying (va), and in all such cases there is no real possibility of concept-possession, and thus no conceptual contents in the strict sense, although inherently concept-like contents, aka proto-concepts, are still present in the mental acts or states of those cognitive subjects (**the concept-possession conditions**).

Finally, according to my fourth basic proposal about the nature of concepts, necessarily, concepts relate to the world via rational animal cognition. More precisely, (vi) if X is a material concept, then some actual or possible rational animal cognizer (via) actually or really possibly uses X to detect some essential or accidental *in rebus* manifest properties or relations of actual individual manifestly real natural objects, which are also their mereological structures[53] (**the world-detection condition**), and also (vib) accurately mirrors and records this information in the descriptive intensional microstructure of the content of X when the rational animal cognizer cognitively generates it (**the world-mirroring condition**); nevertheless (vic) this is *not* to say that no concepts pick out either *ante rem* properties/relations or uninstantiated manifest properties/relations. Indeed and precisely on the contrary, *all* the formal concepts pick out *ante rem* properties or relations; and *every* consistent set of material concepts picks out a manifest property or relation, whether or not it is actually instantiated. The fact remains, however, that every material concept picks out at least one *in rebus* manifest property or relation. So all conceptual content is firmly anchored in the actual manifestly real natural world (**the world-anchoring condition**).

Just to give this four-proposal, six-part theory of concepts a convenient label, and also because it directly reflects the theory of "Logical Cognitivism" that I defended in *Rationality and Logic*, I will call it *The Logical Cognitivist Theory of Concepts*.

There are four things that follow directly from The Logical Cognitivist Theory of Concepts, and are most certainly worth noticing right away.

First, it follows specifically from conditions (iib) and (iic) on being a material concept—**the non-acquaintance condition** and **the acquaintance condition**—that all material concepts are complex descriptive intensional items that are ultimately grounded, via their basic conceptual parts, by essentially non-conceptual perceptual

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[53] See, e.g., Koslicki, *The Structure of Objects*.

content, and are cognitively constructed on that basis alone. All material concepts thus metaphysically and cognitively bottom out in essentially non-conceptual content, but without their being in any way either reducible to essentially non-conceptual content or atomistically composed out of it.

Second, it follows specifically from the five conditions on being a material concept—conditions (iia) through (iie)—together with **the world-detection condition**, **the world-mirroring condition**, and **the world-anchoring condition**, that one of the specific semantic roles of an analytic truth is to express essential connections between various manifest properties/relations and structural proper parts of macroscopic material things, via essential connections between the corresponding material concepts/conceptual networks and structural proper parts of material concepts that intensionally mirror and record precisely those manifest essential connections in the world. In turn and by contrast, one of the specific semantic roles of a synthetic a posteriori truth—and, in particular, one of the specific semantic roles of an ordinary singular categorical perceptual judgment—is to express the contingency that is inherent in the brute facts "given" by things in the manifestly real world. I will come back to this crucial point in chapter 4.

But in any case, this general point about material concepts and manifest properties/relations needs to be specially re-emphasized—there is a one-to-one correlation between material concepts and manifest properties/relations. The only basic differences between material concepts and manifest properties/relations are that (a) all material concepts, as mental representation types, are either tokened in some actual rational animal mind or else tokenable in some possible rational animal mind, but when a material concept is tokened in an actual rational animal mind, it is not necessarily the case—indeed, it is normally *not* the case—that the corresponding manifest property/relation is also instantiated in that mind, and (b) when a manifest property/relation is instantiated in the world, it is not necessarily the case—indeed, it is very often *not* the case—that its corresponding material concept is also tokened in an actual rational animal mind.

Third, it follows specifically from condition (iv)—**the linguistic cognitivism condition**—that it must be possible to convey the content of a concept linguistically to someone else who is not actually directly acquainted with or confronted with the individual thing or many things represented by that conceptual content right then and there, provided that she has already been acquainted with them and that her memory of that earlier acquaintance is cognitively accessible. For example, it must be possible to convey that conceptual content linguistically to someone else over the telephone, in the actual then-and-there absence of the individual thing or many things represented by that concept, provided that she has already been acquainted with them and that her memory of that earlier acquaintance is cognitively accessible (and also provided, of course, that she is sufficiently capable of hearing, and that the other obvious ceteris paribus conditions are all met).[54]

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[54] Many thanks to Jane Heal for suggesting to me this informal "over-the-telephone test" for conceptuality.

Fourth, in view of the conjunction of **the linguistic cognitivism condition** and **the concept-possession conditions**, it must be strongly emphasized that The Logical Cognitivist Theory of Concepts does not entail that there cannot be non-linguistic concepts in any sense. On the contrary, it seems to me very plausible to hold that there are non-linguistic inherently concept-like contents, aka *proto-concepts*. This claim, in turn, is supported by the following four considerations.

(A) Many normal pre-linguistic human children—for instance, many young children between six months and one year of age, and in the pre-toddler stage, and also many non-human minded animals—can effectively deploy and use inherently concept-like contents as object-categorizing, object-classifying, object-discriminating, and object-identifying devices for the purposes of cognition and intentional action—for example, in the case of pre-linguistic children, effectively recognizing their primary care-givers and telling them apart from other things and people—even if they cannot, strictly speaking, possess these inherently concept-like contents,

(B) These inherently concept-like contents can also be effectively deployed and used in the absence of the objects represented by them—for example, in the case of pre-linguistic children, insofar as they demand the constant presence of their primary care givers, food, warmth, and so on,

(C) These inherently concept-like contents are intersubjectively shareable by other human minded animals and non-human minded animals alike.

(D) These inherently concept-like contents are present in their mental lives causally, phenomenologically, and semantically, but *not* by means of linguistic vehicles.

So according to The Logical Cognitivist Theory of Concepts, there are indeed some non-linguistic inherently concept-like contents, namely proto-concepts. This is shown by the fact that that the conscious, intentional, caring acts, states, or processes of some pre-linguistic humans or non-human minded animals do actually contain psychologically real inherently concept-like contents, as tokens of their corresponding mental representation types, that are effectively deployed and used by those animals in cognition, knowledge (this is what I called "non-conceptual knowledge" in section 1.2), and intentional action. But these proto-concepts inherently lack linguistic vehicles, and thus proto-concepts really cannot be possessed by those creatures, even according to the weakest theory of concept-possession, Highly Refined Conceptualism.[55]

The proto-concept corollary of The Logical Cognitivist Theory of Concepts, in turn, allows me to offer a tentative answer to the very hard question I raised earlier in section 2.2. This very hard question was whether sentient or sensible non-human animals are also in any cognitively high-powered sense also sapient or discursive animals—that is, are they also conceptualizers, judgers, or thinkers? My answer, as you have probably already anticipated, rejects the idea that there is a simple unqualified positive or unqualified negative answer to that question. More precisely, what I am saying is: "yes" in one sense, and "no" in another sense. My answer is "yes," in the sense that a great many non-human animals, for instance, cats, dogs, and horses,

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[55] See also Bermúdez, *Thinking without Words*.

can deploy and use proto-concepts. To that extent, they are proto-conceptualizers, proto-judgers, and proto-thinkers. But the answer is also "no," in the sense that proto-concepts are not concepts in the fullest, cognitively high-powered sense of that notion that is provided by The Logical Cognitivist Theory of Concepts. Hence those same non-human animals are also not conceptualizers, judgers, or thinkers in the fullest, cognitively high-powered sense of those notions.

The possibility of proto-concepts obviously does not in any way rule out the possibility of the sort of relatively weak but still quite substantive necessary connection between concepts and language[56] that The Logical Cognitivist Theory of Concepts provides. The Logical Cognitivist Theory of Concepts entails—again via its condition (iv), **the linguistic cognitivism condition**—that no concept is such that it cannot be conveyed by means of some possible natural language to someone else who is not actually directly acquainted with or confronted by the individual thing or things represented by that concept right then and there, provided that she has already been acquainted with them and that her memory of that earlier acquaintance is cognitively accessible.

Every concept is thereby possessible by some rational animal or another, including, of course, rational *human* animals. Thus the possible natural linguistic expressibility of every concept suffices to guarantee the inherently intersubjective and non-solipsistic character of concepts in the strict sense, as well as the inherently intersubjective and non-solipsistic character of all inherently concept-like contents, hence of all proto-concepts, even for pre-linguistic humans and non-linguistic non-human minded animals, whose proto-concept deployment and proto-concept use involves concept-like contents that lack linguistic vehicles, and thereby prevents their possessing any conceptual contents, even though they do effectively deploy and use proto-concepts in cognition and intentional action. But at least some of the proto-concept-deploying and proto-concept-using animals whose mental representations lack linguistic vehicles, lack them only contingently, not necessarily. For obviously, many or even most normal, healthy pre-linguistic children actually grow up to become linguistic animals.

And not only that. According to The Logical Cognitivist Theory of Concepts, the later Wittgenstein was mistaken when he famously remarked that "if a lion could talk, we could not understand him."[57] In opposition to this, what The Logical Cognitivist Theory of Concepts implies is that counterfactually, if a lion could talk, that is, if a lion were to possess the cognitive capacities jointly constitutive of linguistic competence, then we would indeed be able to understand that lion. Think, for example, of the fictional leonine Lord Aslan in C. S. Lewis's *The Lion, the Witch, and the Wardrobe*. Therefore, in these actual and counterfactual senses, all pre-linguistic human proto-conceptualizers and all non-linguistic non-human

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[56] See also Carruthers, *Language, Thought, and Consciousness*. Like Carruthers, I hold that there is a substantive connection between conceptual thought and language; but unlike Carruthers, who is a higher-order thought theorist about consciousness, I do not think that the substantive connection between conceptual thought and language inherently constrains the nature of consciousness, which has a non-conceptual basis in sensorimotor subjectivity.

[57] Wittgenstein, *Philosophical Investigations*, p. 223^e.

minded animal proto-conceptualizers are also proto-linguistic creatures. Or to play a riff on another famous Wittgensteinian remark:

Our language can be seen as an ancient city: a maze of little streets and squares, of old and new houses, and of houses with additions from various periods; and this surrounded by a multitude of new suburbs (*Vororte*) with straight regular streets and uniform houses.[58]

According to The Logical Cognitivist Theory of Concepts, pre-linguistic human proto-conceptualizers and non-linguistic non-human minded animal proto-conceptualizers do not live in the maze-like, cognitively complex center of The City of Language. But they *do* all live in the cognitively simpler suburbs.

In any case, and perhaps above all, the leading theoretical virtue of The Logical Cognitivist Theory of Concepts is that it permits me to map the contrast between essentially non-conceptual content and conceptual content directly onto the classical contrast between (i) *knowledge by acquaintance*, or epistemically minimally basic immediate subjective experience of the objects, locations, or events in the manifestly real world, one's own actions or performances, other minded animals, and oneself, and (ii) *knowledge by description*, or logico-linguistically mediated justified true belief and thought about the objects, locations, or events in the manifestly real world, one's own actions or performances, other minded animals, and oneself. Essentially non-conceptual content lines up with knowledge by acquaintance, and conceptual content lines up with knowledge by description.

Two things about the classical knowledge-by-acquaintance vs. knowledge-by-description distinction should be noted, however, before I get to the bottom line.

First, the notion of knowledge by description or conceptual cognition in my sense—specifically expressed in The Logical Cognitivist Theory of Concepts by conditions (iia) and (iiia), **the first-order descriptivity condition** and **the higher-order descriptivity** condition—basically captures everything that Frege means by cognition of things via a "mode of presentation" (*Art des Gegebenseins*), which in turn expresses a linguistic "sense" (*Sinn*), but also much more. Frege held (a) that modes of presentation based on senses account for differences in cognitive significance across co-referential expressions, (b) that sense-based modes of presentation uniquely determine (purely attributive or descriptive) reference, or at least they uniquely determine what *would be* the reference, if there *were* an actual referent or referents, and (c) that they help to explain why there are failures of intersubstitutivity salva veritate in opaque contexts by functioning as referents in such contexts.[59]

Knowledge by description, or conceptual cognition, according to The Logical Cognitivist Theory of Concepts, plays these three roles by satisfying the two descriptivity conditions. Nevertheless, it satisfies not *merely* those conditions, but also satisfies **the conceptual dualism condition, the non-acquaintance condition, the acquaintance condition, the analyticity condition, the logical-notions condition, the logical truth condition, the a priori knowledge condition,** and **the linguistic cognitivism condition.** At the same time, it is not at all clear whether Frege's notion

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[58] Wittgenstein, *Philosophical Investigations*, p. 8ᵉ, §18.
[59] See, e.g., Frege, "On Sense and Meaning."

of a sense-based mode of presentation, in and of itself or without theoretical supplementation, satisfies *any* of those eight conditions.

Second, although it is true that, in this way, I do generally support Russell's classical distinction between knowledge by acquaintance and knowledge by description, historically speaking, it is clear that Russell's distinction was originally an updated version of Kant's intuition (*Anschauung*) vs. *concept* (*Begriff*) distinction, whereby the Brentano-Meinong notion of a *presentation* was used to extend Kant's notion of intuition beyond perceptual contexts to cognitive acquaintance with universals, logical constants, and other platonically abstract objects.[60] Nevertheless, at the same time, I also want to jettison most of early Russell's epistemology, as formulated, for instance, in his *Problems of Philosophy*.

Contrary to Russell, and by way of **the acquaintance condition,** I hold that the primary objects of cognitive acquaintance are just individual manifestly real objects, that is, causally efficacious macroscopic material beings in the local or extended natural environment of the rational human animals and other kinds of conscious animals who can or actually do sense-perceive them, and *not* sense data, universals, logical constants, or other platonically abstract objects.

And again contrary to Russell, I hold that essentially non-conceptual perceptual acquaintance is always, necessarily, and paradigmatically also a matter of knowing how to move one's own living organismic body in response to the causal-dynamic powers of individual manifestly real objects in the natural environment. So "knowing X" is always, necessarily, and paradigmatically also "knowing how to move my body in response to X," where "X" ranges over the local and distal natural world of causally efficacious macroscopic material beings. This thesis holds true even for those whose limbs are temporarily paralyzed, permanently damaged, or severed, provided that they can minimally control any parts of their bodies and thereby engage in intentional body movements of the (e.g.) stomach muscles, lungs, throat and larynx, tongue, facial muscles, or eyes. A state of total paralysis, including the loss of intentional control of all of one's perceptual and sensorimotor systems—hence unconsciousness—would remove all possibility of cognitive acquaintance. But short of that, to be able to be acquainted with the manifest natural world is to be able, somehow or another, to move one's body intentionally in response to that world. Indeed, as I will argue in chapter 3, our dynamic, essentially embodied, pre-reflectively conscious perceptual acquaintance with individual manifest natural objects insofar as it is originally and inherently guided and mediated by autonomous essentially non-conceptual content, satisfies all the requirements of a very powerful version of disjunctivist direct or naïve perceptual realism, which I call *radically naïve realism*.

In these ways, Kantian Non-Conceptualism entails a Russell-style relationist/direct realist approach to perception and knowledge, and also an "action-first" approach to perception and knowledge, that, collectively, not only do not in any way undermine the Frege-style need for representational content or sense-based modes of

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[60] See, e.g., Russell, *The Problems of Philosophy*, chs. V–X.

presentation, but also fully incorporate that need.[61] Therefore, Kantian Non-Conceptualism coherently fuses relationism/direct or naïve realism, cognitive activism, and representationalism/the Content view in a *single* theoretical package.

But in any case, the crucial point right now is that I am proposing to identify conceptual contents, whether material concepts or formal concepts, with inherently descriptive or general representations. As such, one of the basic functions of first-order, material concepts is to categorize, classify, discriminate, identify, and provide cognitively significant presentations of individual manifest natural things, or unordered or ordered n-tuples of such things, under logical and linguistic constraints. And correspondingly, one of the basic functions of higher-order, formal concepts is to categorize, classify, discriminate, identify, and provide cognitively significant presentations of the first-order, material concepts that apply to those things.

But in either case, these conceptual functions are implemented without our having to be actually essentially non-conceptually perceptually acquainted with, or cognitively actually directly confronted by, those things. Conceptual understanding of things does not require direct cognitive contact with those things, *provided that* those things, as represented by those concepts, have either (i) already been perceptually encountered, and that the episodic memory of that earlier essentially non-conceptual perceptual acquaintance is cognitively accessible, or else (ii) the cognitive agent stands in direct essentially non-conceptual contact with some ongoing or occurrent directly referential spatiotemporally process, or technology—for instance, pointing at Barack Obama on a television set that is displaying the evening news, or pointing at some foreign place on a computer screen that is streaming live footage, or making a checkmark on a calendar, and so on, in order to refer to an upcoming event, that makes it really possible for the subject to encounter those distant or future things in an essentially non-conceptual way.[62]

Otherwise put, knowledge by description is always either "knowing X *as* F" (i.e., conceptual descriptive knowledge) or "knowing *that* X is F" (i.e., propositional descriptive knowledge), without having actually to encounter an F-typed X right then and there, provided that an F-typed X has already been, or really can be, essentially non-conceptually encountered. In this way, knowledge by description expresses an inherently context-insensitive, *allocentric* or *non-egocentric* (whether third-personal or wholly impersonal), shareable, communicable content.

By sharp contrast, knowledge by acquaintance expresses an inherently context-sensitive, egocentric or first-person-perspectival, intrinsically spatiotemporally structured content. This content is not ineffable, but instead is indeed shareable or communicable, although in a special way. More precisely, this special kind of

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[61] Siegel's "Affordances and the Content of Perception" shows that an "action-first" approach to perception can be smoothly combined with representationalism, aka the Content view. This point, in turn, is of-a-piece with the other important point being made by many contemporary philosophers of perception—for instance, Siegel herself, Schellenberg, McDowell, and Logue—to the effect that incorporating the basic ideas of relationism/direct or naïve realism is fully consistent with representationalism. See also Ch. 1, n. 46.

[62] See, e.g., Hanna, "Extending Direct Reference."

shareability or communicability obtains only to the extent that another ego or first-person is in a cognitive position to be actually directly perceptually confronted, or otherwise essentially non-conceptually confronted (say, in episodic memory or episodic imagination), by the selfsame individual causally efficacious macroscopic material being, existing in a spacetime possessing the same basic orientable and thermodynamically irreversible structure. By "orientable spacetime," I mean a global spacetime with intrinsic directions: up, down, right-handedness, left-handedness, top, bottom, over, under, inside, outside, backwards, forwards, and so on. And by "thermodynamic irreversibility," I mean time's asymmetric forward arrow in the actual causally efficacious natural world.

So given The Logical Cognitivist Theory of Concepts, the very idea of a conceptual content entails the possibility of mental-representation-without-actual-direct-confrontation—and if this is not always the possibility of a Nagel-like "view from nowhere," then at least it is the possibility of either a "view from later" or "a view from somewhere else." By contrast, the very idea of essentially non-conceptual content entails mental-representation-with-actual-direct-confrontation, embedded in an egocentrically centered orientable and thermodynamically irreversible space-time. Hence essentially non-conceptual content is mental representation that necessarily involves a view of that actual macroscopic material being right over there, from right here and right now, as directed toward my/our future.

2.4 A Working Analysis of the Essentially Non-Conceptual Content of Perception, and The Handwaving Argument

In light of The Logical Cognitivist Theory of Concepts, here is my Kantian Non-Conceptualist working analysis of the essentially non-conceptual content of sense perception. Later we will see that there are other varieties of essentially non-conceptual content as well—of the imagination, of consciousness, of memory, of anticipation, of "tacit knowledge," and so on—but all of these presuppose the essentially non-conceptual content of sense perception. In that sense, like material concepts, they are all also cognitively constructed on the basis of the essentially non-conceptual content of perception.

In any case, according to this working analysis, X is an essentially non-conceptual content of perception if and only if X is a mental content such that: (i) X is *not* a conceptual content, as defined by The Logical Cognitivist Theory of Concepts. (ii) X is included in a mental state, act, or process that directly refers to some or another causally efficacious, actual individual, macroscopic material being B in the local or distal natural environment of the minded animal subject of X. (iii) B can be identical to the minded animal whose mental state, act, or process includes X—that is, X can directly self-refer. (iv) X thereby both uniquely (if not always perfectly accurately) locates B in 3D Euclidean orientable space and also uniquely (if not always perfectly accurately) tracks B's thermodynamically asymmetric and temporally irreversible causal activities in time. (v) This location and tracking is undertaken in order to individuate, normatively guide, and informationally mediate the subject's conscious

intentional desire-driven body movements for the purposes of cognitive and practical intentional agency. And finally (vi) *X* is an inherently context-sensitive, egocentric or first-person-perspectival, spatiotemporally structured content that is not ineffable, but instead is shareable or communicable in a special way. More precisely, this special kind of shareability or communicability obtains only to the extent that another ego or first-person is in a cognitive position to be actually directly perceptually confronted, or otherwise essentially non-conceptually confronted (say, in episodic memory or episodic imagination), by the same causally efficacious actual individual macroscopic material being *B*, in a spacetime possessing the same basic three-dimensional Euclidean orientable, thermodynamically asymmetric, and temporally irreversible structure.

In view of condition (v), essentially non-conceptual content is inherently normatively governed by an ideal standard of accurate direct reference for the purposes of location and tracking, and can still be directly referential even when it is only more or less accurate. More accuracy means *better* location and tracking by the conscious subject, and less accuracy means *worse* location and tracking by the conscious subject. So in view of condition (v), it follows that essentially non-conceptual content fully includes what Hubert Dreyfus calls "the nonconceptual world of absorbed coping," including Heideggerian "concern" and "readiness-to-hand" (i.e., normatively engaged, skillful use of tools),[63] Wittgensteinian "blind" involvement in shared practices as "forms of life," and Husserlian "lifeworld" phenomena more generally.[64] This in turn must also be understood, as per the classical existential phenomenologists—especially Sartre and Merleau-Ponty—as normatively rich, pre-reflectively conscious content that is inherently poised for guiding the performance of basic intentional actions[65] by minded animals.[66] Thus essentially non-conceptual content is inherently *agentive* content.

Against the backdrop of that working analysis, here is a preliminary or "warm-up" argument for the real existence of essentially non-conceptual content.

The Handwaving Argument

(1) Suppose that I am standing right in front of you and saying "All bachelors are males, and all males are animals, so it is analytic that all bachelors are animals, right?" By hypothesis, you are concentrating your thoughts exclusively on what I am saying, and clearly understand it.

(2) Suppose also that as I am saying "All bachelors are males," my arms are held out straight toward you and I am also moving my right hand, rotated at the wrist, in a clockwise circular motion seen clearly from your point of view,

[63] See Hanna, "Review of M. Weatherston, *Heidegger's Interpretation of Kant*."

[64] See Hanna, "Husserl's *Crisis* and Our Crisis."

[65] Maiese and I have worked out the relevant corresponding analysis of basic intentional actions, and also the relevant corresponding metaphysics of mental causation, in *Embodied Minds in Action*, chs. 3–5 and 6–8.

[66] See, e.g., Dreyfus, "The Myth of the Pervasiveness of the Mental," p. 17; Crowell, *Normativity and Phenomenology in Husserl and Heidegger*; and this chapter, n. 9.

which is also a counterclockwise circular motion seen clearly from my point of view.

(3) By hypothesis, in this context, you are looking at this hand-movement, but not also thinking about it. It is quite true that in some *other* context you might be looking at it and also thinking about it. But, by hypothesis, that is not the case in *this* context. By hypothesis, in this context, you are seeing it but not thinking about it—just as, when you are driving a car and your mind is fully focused on some train of thought having nothing to do with driving, you can see all sorts of things passing by you, and you can even skillfully drive, without thinking at all about the things that you are seeing or doing.

(4) Suppose also that as I am saying, "…and all males are animals," I begin moving my left hand, again rotated at the wrist, in a counterclockwise circular motion seen clearly from your point of view, which is also a clockwise circular motion seen clearly from my point of view. As per (3), in this context, by hypothesis, you are looking at this hand-movement, but not thinking about it. The fact that in some other context you might be looking at it and also thinking about it is irrelevant to what you are doing in this context.

(5) Suppose, then, that as I am saying, "…so it is analytic that all bachelors are animals, right?" I am moving both hands simultaneously in front of you in the ways specified in (2), (3), and (4).

(6) Your conceptual capacities are being used by you to concentrate on what I am saying about bachelors, males, and animals, and to understand it clearly, which by hypothesis, in this context, you do.

(7) Insofar as, in this context, you are using those conceptual capacities exclusively to concentrate on and to understand clearly what I am saying, you are *not* using your conceptual capacities to see clearly what I am doing with my hands.

(8) Yet you *also* see clearly what I am doing with my hands. Your conscious attention in this context is *divided* into linguistic/conceptual understanding and lucid vision, but by hypothesis in this context your capacities for linguistic/conceptual understanding are neither distracted nor divided.

(9) Therefore, in this context, you are using your *non*-conceptual capacities to see clearly what I am doing with my hands.

(10) The kind of mental content that individuates, guides, and mediates the use of non-conceptual capacities is *essentially* non-conceptual content.

(11) Therefore essentially non-conceptual content really exists.

The Handwaving Argument is directly inspired by Kant's famous "argument from incongruent counterparts" for the truth of the thesis of *the transcendental ideality of space and time*. So it has Kantian historical roots. Nevertheless, although I do think that The Handwaving Argument is sound, it is *not* intended to be rationally decisive or *demonstrative*, because it leaves a lot of important information merely implicit for the reader. Instead, then, it is intended only to be rationally initially compelling or *suasive* in the sense that it clearly and quickly indicates where I am heading, and

starts us thinking about the line of argument I want to pursue more carefully and rigorously.[67]

Now, with this preliminary or warm-up argument in front of us, priming our capacity for philosophical rational intuition, I will work out this Kantian connection explicitly in the next section, along with a more carefully formulated and carefully-defended version of the argument for the real existence and autonomy of essentially non-conceptual content, including both (i) *material*, empirical, or a posteriori essentially non-conceptual content, and also (ii) *formal*, non-empirical, or a priori essentially non-conceptual content.

2.5 Incongruent Counterparts Revisited: The Two Hands Argument

As I mentioned at the end of the last section, The Handwaving Argument was not intended to be rationally decisive or demonstrative, but instead rationally suasive, and initially compelling, hence intended primarily to prepare the reader intellectually for what was coming up. By contrast, the argument presented in this section for the real existence of essentially non-conceptual content—which I will call "The Two Hands Argument"—is the real thing, under game conditions, and intended to be demonstrative.

The basic argument-strategy encoded in The Two Hands Argument is this:

(1) There are some directly and veridically perceived real material objects *O*, such that at least some of their directly and veridically perceived real properties are necessarily and constitutively underdetermined by, that is in effect, neither strongly supervenient on nor grounded by, all of their conceptually represented real properties.

(2) Therefore those directly and veridically perceived real properties are, not merely accidentally or contingently, but instead necessarily and constitutively, non-conceptually represented.

(3) Hence essentially non-conceptual content really exists.

From the real existence of essentially non-conceptual content, it is fairly easy to get to the truth of an important corollary thesis I call *The Autonomy of Essentially Non-Conceptual Content*:

Whether in the intentional states of non-human animals, human infants, or rational human cognizers, some essentially non-conceptual content that is altogether concept-free (where concepts are understood as per The Logical Cognitivist Theory of Concepts) really exists.

This can be done by supplementing the three-step argument-strategy of The Two Hands Argument as follows:

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[67] For the distinction between demonstrative and suasive arguments, see, e.g., Dummett, "The Justification of Deduction."

(4) At least some non-human animals and human infants directly and veridically perceive some *O*-type real material objects.

(5) The representational content of such perceptual states is altogether concept-free (where concepts are understood as per The Logical Cognitivist Theory of Concepts).

(6) Rational human cognizers who directly and veridically perceive *O*-type real material objects share essentially the same representational content that non-human animals and human infants have when they directly and veridically perceive those *O*-type real material objects, even if phenomenal characters differ importantly across species-differences, and even if rational human cognizers also have representational contents of a different kind in addition to that shared content.

(7) Therefore, whether in the intentional states of non-human animals, human infants, or rational human cognizers, some essentially non-conceptual content that is altogether concept-free (where concepts are understood as per The Logical Cognitivist Theory of Concepts) really exists.[68]

The Autonomy of Essentially Non-Conceptual Content corollary is philosophically required by Kantian Non-Conceptualism, because demonstrating that essentially non-conceptual content really exists by showing that some objective representational content is necessarily and constitutively underdetermined by all conceptual content (= roughly, that conceptual content is not sufficient for essentially non-conceptual content), does not, in and of itself, entail that there really exists essentially non-conceptual content that is altogether concept-free (= roughly, that conceptual content is neither necessary nor sufficient for essentially non-conceptual content).

There is a partial anticipation of at least the first three steps of The Two Hands Argument's argument-strategy in the phenomenological appeal to perceptions of classical "ambiguous" or "multi-stable" figures such as Jastrow's famous Duck-Rabbit figure, which perceptions are then claimed to have non-conceptual content.[69]

But one problem with such arguments is that they typically commit the now-familiar fallacy of invalidly arguing from state Non-Conceptualist premises to content Non-Conceptualist conclusions. Even supposing that it is true that satisfying the possession-conditions for the concept DUCK underdetermine spontaneous perceptual transitions, with respect to the same diagram, from perceiving a duck-head to perceiving a rabbit-head, it still does not follow that the content of the state is non-conceptual, since it could still be conceptual but relatively unarticulated in such a way as to permit the perceptual phenomenon of multistability.

A second problem for such arguments is that even if they do manage to distinguish correctly between arguments for state Non-Conceptualism and arguments for content Non-Conceptualism, nevertheless they still fail to demonstrate that the relevant perceptual content is not merely accidentally or contingently non-conceptual. That is because the multistability cases are consistent with, for example, the thesis that the

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[68] See Schellenberg, "A Trilemma about Mental Content," for an interestingly different and indirect argument to the same conclusion.

[69] See, e.g., Crane, "The Waterfall Illusion"; and Crane, "Concepts in Perception."

content of the states are Russellian propositions, not Fregean propositions. Therefore the cases do not exclude the possibility that the relevant perceptual content is merely conceptual content framed in a non-standard format, hence not essentially non-conceptual.

A third problem with such arguments is that at least prima facie, the figures perceived are "illusory." If so, then those merely apparent figures and their merely apparent properties are neither directly nor veridically perceived. Thus the illusory content fails two of the necessary conditions on the real existence of non-conceptual content—directness and veridicality. So even if the argument avoids the other two problems, it is still not a decisive proof of the *real* existence of essentially non-conceptual content.

Amongst these sorts of arguments from ambiguous or multi-stable figures, an even closer anticipation of at least the first three steps of the argument-strategy sketched earlier can be found in an appeal to the much-discussed and fascinating Necker Cube phenomenon, involving the two-dimensional or three-dimensional perceptual representation of a wire cube, whose spontaneously-changing consciously-perceived aspects are in fact "incongruent counterparts" of one another.[70] But all three problems afflicting the other arguments for the real existence of non-conceptual content from ambiguous or multi-stable figures also apply to any argument for the real existence of non-conceptual content from the Necker cube phenomenon.

A leading philosophical virtue of The Two Hands Argument (and also of the argument for its corollary thesis, The Autonomy of Essentially Non-Conceptual Content) is that it avoids all of these problems. In this connection, it is also a key feature of The Two Hands Argument that it is closely historically related to a famous argument used by Kant in both his pre-Critical and Critical periods, known as "the argument from incongruent counterparts."[71] He defines the notion of incongruent counterparts as follows:

I shall call a body which is exactly equal and similar to another, but which cannot be enclosed in the same limits as the other, its *incongruent counterpart*. Now, in order to demonstrate the possibility of such a thing, let a body be taken consisting, not of two halves which are symmetrically arranged relatively to a single intersecting plane, but rather, say, a *human hand*. From all the points on its surface let perpendicular lines be extended to a plane surface set up opposite to it; and let these lines be extended the same distance behind the plane surface, as the points on the surface of the hand are in front of it; the ends of the lines, thus extended, constitute, when connected together, the surface of a corporeal form. That form is the incongruent counterpart of the first. In other words, if the hand in question is a right hand, then its counterpart is a left hand. The reflection of an object in a mirror rests upon exactly the same principles. For the object always appears as far behind the mirror as it is in front of it. Hence, the image of a right hand in the mirror is always a left hand. If the object itself consists of two incongruent counterparts, as the human body does if it is divided by means of a vertical intersection running from front to back, then its image is congruent with that object. That this

[70] See, e.g., Hanna and Thompson, "Neurophenomenology and the Spontaneity of Consciousness."
[71] See, e.g., Buroker, *Space and Incongruence: The Origins of Kant's Idealism;* and Van Cleve and Frederick (eds.), *The Philosophy of Right and Left: Incongruent Counterparts and the Nature of Space.*

is the case can easily be recognized if one imagines the body making half a rotation; for the counterpart of the counterpart of an object is necessarily congruent with that object. (*DiS* 2: 382, underlining added).

More briefly put, incongruent counterparts are perceivable mirror-reflected spatial duplicates that share all the same monadic or qualitative properties, have exactly the same shape and size, and correspond point-for-point, but are in different places and cannot be made to coincide by rigid or non-rigid translation within the same global orientable space. And as I mentioned earlier, an orientable space is a space with intrinsic directions.

Even more briefly put, incongruent counterparts are *enantiomorphs*. Enantiomorphs are qualitatively identical but topologically non-identical. Topological identity is *homeomorphism*—topological isomorphism—or the fact that there is a continuous mapping function between two spaces that also has a continuous inverse mapping function. So a donut and a coffee mug can be topologically identical, and as the old joke goes, you can always tell a policeman from a topologist because at least the policeman knows the difference between his donut and his coffee mug. As regards enantiomorphy, however, you can always tell a topologist from a policeman because at least the topologist knows the difference between what his right hand is doing and what his left hand is doing. In any case, on Kant's view, the non-identity of incongruent counterparts, or enantiomorphs, is non-logically or synthetically necessary and a priori.

By contrast, *homomorphs* are pairs of perceivable objects that share all the same monadic or qualitative properties, have exactly the same shape and size, and correspond point-for-point, but are in different places and can be made to coincide by rigid translation within the surrounding space. So they are both qualitatively and topologically identical. Although Kant was not in a position to know this, homomorphism for mirror-reflected objects is in fact logically possible if the local Euclidean space in which the paired objects are embedded, like that of the Möbius strip or Klein bottle, is also *non-orientable* or without intrinsic directions. Roughly speaking, letting your fingers do the walking, you send out your right hand for a long walk along the surface of the Möbius strip, and it comes back as your left hand. Curiouser and curiouser!

But this logical possibility is no objection to Kant's thesis. This is because, for Kant, it is a required condition of a proposition's being synthetically necessary that its denial be logically consistent and thus that its falsity be logically possible.[72] Therefore his thesis is not that enantiomorphism can be correctly represented (or, equivalently, that mirror-reflected counterparts are incongruent, or topologically non-identical) in all logically possible spaces. For, as we have just seen, there are some logically possible spaces in which mirror-reflected counterparts are congruent. Rather, Kant's thesis is that enantiomorphism can be correctly represented in all and only humanly perceivable globally or locally Euclidean *orientable* spaces, and furthermore that if a single hand were to exist alone in any possible world framed by such a space, then

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[72] See Hanna, *Kant and the Foundations of Analytic Philosophy*, ch. 4. See also section 2.7.

necessarily it would be either a left hand or a right hand.[73] Indeed, as Kant formulates this point, even God could not create a hand in humanly perceivable spacetime without creating either a left hand or a right hand.[74]

Kantian arguments from the real existence or real possibility of incongruent counterparts are all based on the fact of our primitive subjective experience, as minded animals, of enantiomorphic topological features of the natural perceivable world and our own living organismic bodies.[75] As I will show later, however, it is also arguable that there are (i) precise temporal analogues of incongruent counterparts in our primitive subjective experience of spacetime events in the natural perceivable world, and also (ii) primitive subjective experience of complex thermodynamic processes occurring either inside or outside our own living bodies.

Interestingly, Kant uses the argument from incongruent counterparts in four different ways.

First, he uses it during his pre-Critical period, in 1768, in "Concerning the Ground of the Ultimate Differentiation of Directions in Space," to disprove the relational theory of space, which says that space is nothing but a set of extrinsic relations that are necessarily or constitutively determined by pre-existing things (e.g., Leibnizian monads) and their intrinsic non-relational properties. He also uses it to establish the existence of a "Newtonian" absolute space as a global, enframing space in which material bodies extended in space are intrinsically relationally embedded, and to demonstrate that the actual space of perceivable material bodies is intrinsically directional (i.e., orientable) and egocentrically centered.[76] I put "Newtonian" in shudder-quotes, because at this point in his philosophical development, Kant was not carefully distinguishing between two distinct meanings of the term "absolute space" that he was able to discriminate by 1770, the year of the publication of the Inaugural Dissertation, "On the Form and Principles of the Sensible and the Intelligible World": (i) absolute space as *global, enframing space*, and (ii) absolute space as *noumenal space*. By 1770, Kant was clearly aware that the incongruent counterparts argument entails that there is a space satisfying (i), but does not entail that there is a space satisfying (ii).[77] This insight, in turn, seems to have flowed from the fact that "the year '69 gave me great light" (R 5037, 18: 69).[78]

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[73] See, e.g., Nerlich, "On the One Hand: Reflections on Enantiomorphy."

[74] See (DiS 2: 383).

[75] One can also use the possibility of incongruent counterparts as a special kind of phenomenal inversion in order to argue for failures of reductive physicalist supervenience. See, e.g., Lee, "The Experience of Right and Left."

[76] See (DiS 2: 377–83); and Hanna, *Kant, Science, and Human Nature*, ch. 1.

[77] See Hanna, "Directions in Space, Non-Conceptual Form, and the Foundations of Transcendental Idealism."

[78] What was the "great light" that Kant experienced in 1769? Clearly, whatever it was had been significantly primed by the "Directions in Space" essay in 1768. More explicitly, I think that it was actually six different deep sub-insights that suddenly all coalesced into a single theory, transcendental idealism: (i) the cognitive-capacity dualism of sensibility and understanding, (ii) the cognitive-content dualism of intuition and concepts, (iii) the transcendental ideality of space and time, (iv) the phenomenon-noumenon distinction, (v) re-thinking Hume's skeptical analysis of causation together with Hume's inability to explain the nature of mathematical truth and knowledge (i.e., the problem of the synthetic a priori), and (vi) the discovery of the antinomies of pure reason. What an amazing year! The only thing that remained in order to complete the theory was (vii) extending transcendental idealism for sensibility/intuitions to

Second, he uses it at the very beginning of his Critical Period, in 1770, in the Inaugural Dissertation, to prove that the representation of space is essentially intuitional and not conceptual.[79]

Third, he uses it in the middle of his Critical period, in 1783, in the *Prolegomena to Any Future Metaphysics*, to prove that space and time are transcendentally ideal.[80]

And **fourth** and finally, three years later, but also still in the middle of his Critical period, in 1786, in "What Is Orientation in Thinking?," he uses it to establish the thesis that all rational thinking requires an intuition-based cognitive "orientation" in order to be adequately grounded.[81]

Kant's fourfold use of the argument from incongruent counterparts is not only philosophically interesting, it is also philosophically important. One conclusion we can draw from it is that since his pre-Critical version of the incongruent counterparts argument entails, on the ambiguous reading of "absolute space" in the "Directions in Space" essay, Newtonian *noumenal realism* about space, while his Critical version of the argument entails Kantian *transcendental idealism* about space, these two arguments actually cancel each other out. Taken together, they show us that the Kantian argument from incongruent counterparts is in fact *neutral* with respect to noumenal realism and transcendental idealism about space.[82] This is the clue I shall follow up directly in The Two Hands Argument. So while The Two Hands Argument has a distinctively Kantian provenance, via the argument(s) from incongruent counterparts, I think that The Argument is also defensible on grounds that are altogether logically independent of

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transcendental idealism for the understanding/concepts. But actually that initially took Kant twelve years, until 1781, when he published the Transcendental Deduction of the Categories in the A edition of the first *Critique*, and then yet *another* six years after that, to revise the Deduction for the 1787 or B edition—so eighteen years all told. And what is most amazing about all this work on step (vii) is the fact that the B Deduction is unsound. See Hanna, "Kant's Non-Conceptualism, Rogue Objects, and the Gap in the B Deduction"; and Hanna, "Blind Intuitions, Essentially Rogue Objects, and Categorial Anarchy."

[79] See (*ID* 2: 385–419).
[80] See (*Prol* 4: 285–6); and Hanna, *Kant, Science, and Human Nature*, ch. 6.
[81] See (*OT* 8: 131–47).
[82] This formulation needs some qualifications that do not directly affect the main line of argument in the text, and I think would also only muddy the waters there. Strictly speaking, however, the neutrality of the argument from incongruent counterparts (i.e., The Two Hands Argument) is as between Newtonian noumenal realism about space and Kantian *Strong* Transcendental Idealism about space, according to which space is identical to (or logically supervenient on—"nothing more than") the conscious representation of space. My own view is that Newtonian noumenal realism about space is demonstrably false, that the classical Two World theory of Kant's transcendental idealism is also demonstrably false, and that the neo-classical Two Standpoints theory version of transcendental idealism is also demonstrably false. More generally, in my opinion, Kantian strong transcendental idealism is false. Nevertheless, in addition to these philosophically unacceptable views, there is also, in my opinion, a fully intelligible and defensible version of transcendental idealism—Weak or Counterfactual Transcendental Idealism. See chapter 6, and also Hanna, *Kant, Science, and Human Nature*, chs. 1–5. So strictly speaking, The Two Hands Argument is neutral as between Newtonian noumenal realism about space and Kantian strong transcendental idealism about space *because both of them are false*, even though, in 1768, Kant mistakenly believed that The Two Hands Argument entails Newtonian noumenal realism about space, and in 1783, Kant also mistakenly believed that The Two Hands Argument entails strong transcendental idealism about space. There is, then, a further question as to whether The Two Hands Argument is neutral as between Newtonian noumenal realism about space and Weak or Counterfactual Transcendental Idealism about space. Here my answer would be *no*: on the contrary, The Two Hands Argument actually *entails* Weak or Counterfactual Transcendental Idealism about space. But that is another story for another day.

the much-controverted questions of precisely what Kant's own version of transcendental idealism really is, and whether it is objectively true or objectively false.

Here, then, is The Argument.

The Two Hands Argument

(1) Incongruent counterparts are logically and metaphysically possible. (Premise, supported by Kant's theory of incongruent counterparts and human geometrical intuition.)

(2) Incongruent counterparts, by definition, are enantiomorphs. This entails that they are perceivable mirror-reflected monadic-property-for-monadic-property spatial duplicates that have exactly the same shape and size, and correspond point-for-point. In short, incongruent counterparts are *qualitatively identical*. (From (1).)

(3) So by definition, there is no *descriptive* difference between incongruent counterparts. (From (2).)

(4) Either of my hands and its corresponding mirror-image are actual examples of incongruent counterparts, hence my own right and left hands are also, within an acceptable approximation, actual incongruent counterparts. (Premise, supported by Kant's theory of incongruent counterparts and human geometrical intuition.)

(5) Therefore there is no descriptive difference between either one of my hands and its incongruent counterpart. (From (3) and (4).)

(6) Therefore there is no material or formal conceptual difference (or, equivalently: there is no empirical or non-empirical conceptual difference) between either one of my hands and its incongruent counterpart. In particular, the exact and real difference between either one of my hands and its incongruent counterpart, and also my being able to pick out each one of them individually,[83] could never be conveyed to someone else who was not actually directly confronted with these objects. (From (5) and the LCTC.)

(7) But I can directly and veridically perceive the exact and real difference between either of my hands and its incongruent counterpart, and I can thereby directly and veridically perceive the exact and real difference between my *right* hand and my *left* hand, and thus pick out each of them individually. (Premise, supported by Kant's theory of incongruent counterparts and phenomenological introspection.)

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[83] I'm not denying that some or another sort of difference between my right and left hands could be conveyed to someone who was not directly confronted with these objects, or denying that it could somehow be described conceptually—after all, one of them is called "RH's right hand" and the other one is called "RH's left hand," so there is a difference that I can convey or describe conceptually, and perhaps in mathematically precise terms. But all such conceptual/descriptive differences are more-or-less philosophically irrelevant and trivial, since they presuppose what is at issue, namely which is how to tell my hands apart and also pick out each of them individually, when by hypothesis they are quality-for-quality counterparts. What I am denying, then, is that the essential difference between my two hands and also their essential individuation could be conveyed to someone who was not directly confronted with them. Many thanks to Jon Shaheen for pressing me to make this point clearer. See also Bernecker, "Kant on Spatial Orientation," for a number of similar points, although not explicitly in the context of the debate about non-conceptual content.

(8) In order to represent a complex state of affairs *as* complex, concepts are not generally required.[84] For example, the egocentrically centered primitive spatial difference between right and left, up and down, front and back, and so on, and also the egocentrically centered primitive temporal difference between earlier and later, now and then, and so on, are immediately given as structurally unified representations in pre-reflectively and non-self-consciously conscious experience. Hence these representations really can be given altogether without concepts. (Premise, supported by Kant's theories of spatiotemporal orientation, figurative imagination, and aesthetic vs. discursive cognition, phenomenological introspection, and empirical data in contemporary cognitive psychology.[85])

(9) Therefore essentially non-conceptual content really exists, and the autonomy of essentially non-conceptual content is, at least, really possible. (From (6), (7), (8), and my working analysis of essentially non-conceptual content.)

Now I will add to The Two Hands Argument a corresponding version of an argument for The Autonomy of Essentially Non-Conceptual Content thesis:

The Two Hands Argument + Autonomy

(10) At least some non-human animals and human infants directly and veridically perceive some real material objects that are incongruent counterparts, such as their right and left forepaws, right and left rear paws, right and left front hooves, right and left back hooves, right and left hands, and so on. (Premise)

(11) The representational content of such perceptual states is altogether concept-free (where concepts are understood as per The Logical Cognitivist Theory of Concepts). (From (10) and The Logical Cognitivist Theory of Concepts.)

(12) Rational human cognizers who directly and veridically perceive real material objects that are incongruent counterparts share essentially the same representational content that non-human animals and human infants

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[84] My earlier published formulations of The Two Hands Argument assumed this premise, but did not make it explicit. In "What Incongruent Counterparts Show," however, David Landy correctly points out that without this premise, The Two Hands Argument is invalid. For if, necessarily, every representation of a complex state of affairs *as* complex requires concepts, then even if representing the difference between my right and left hands requires a non-conceptual component, it does not follow that it is essentially non-conceptual. So it fills a logical (or at least expository) gap for me to include this premise and its justification explicitly as the new step (8). Correspondingly, Landy's thesis that necessarily, every representation of a complex state of affairs as complex requires concepts, makes the false assumption that all representation-as involves reflective or self-conscious consciousness, which in turn involves concepts. But on the contrary, imaginational representations of complexes can pre-reflectively and non-self-consciously present the complexity of those complexes, via the figurative synthesis of the imagination, without reflectively or self-consciously (even in a dispositional sense) predicating it of those complexes, via judgments, concepts, or inferences. This is what Kant calls the "aesthetic comprehension" or *comprehensio aesthetica* of the imagination, as opposed to the "apperceptive comprehension" or *apperceptio comprehensiva* of the imagination (R 5661, 18: 320) (*CPJ* 20: 220). (I am grateful to Hemmo Laiho for drawing my attention to these supporting texts from the *Reflexionen* and the First Introduction to the third *Critique*.) Correspondingly, there can be *aesthetic* or non-discursive clarity and distinctness in the cognitive phenomenology of intuitional representations that is not also *logical* or discursive clarity and distinctness in their cognitive phenomenology (*JL* 9: 33–39). So Landy's thesis is false, the new step (8) is true, and The Two Hands Argument is/remains sound.

[85] See Hanna and Maiese, *Embodied Minds in Action*, ch. 2.

have when they directly and veridically perceive those incongruent counterpart real material objects, even if phenomenal characters differ importantly across species-differences, and even if rational human cognizers also have representational content of a different kind in addition to that shared content. (From (11).)

(13)   Therefore, whether in the intentional states of non-human animals, human infants, or rational human cognizers, some essentially non-conceptual content that is altogether concept-free (where concepts are understood as per The Logical Cognitivist Theory of Concepts) really exists. (From (1) to (12).)

The essentially non-conceptual content of sense perception, whose real existence and autonomy I have just demonstrated in The Two Hands Argument + Autonomy argument is *material*, empirical, or a posteriori. This, of course, raises the exceedingly thorny issue of how correctly to construe the apriority vs. aposteriority distinction. I will present a detailed argument for the following construal of the a priori–a posteriori distinction in chapter 6, but for the present purposes I am simply going to state it, and then apply it to the autonomous essentially non-conceptual content of sense perception. For me, apriority, or experience-independence, is underdetermination of the semantic content, truth/falsity, and/or justification of a mental representation R, of a cognitive faculty, act, state, or process C, or of a statement S by any and all actual or possible empirical facts, that is, the necessary and constitutive underdetermination of the semantic content, truth/falsity, and/or justification of R, C, or S by any and all empirical facts, or what is the same thing: the semantic content, truth, and/or justification of R, C, or S is neither strongly supervenient on nor grounded by any and all empirical facts. Or, to formulate this conception of apriority as a series of necessarily equivalent labels or slogans:

1. **apriority** $\Leftrightarrow$
2. **experience-independence** $\Leftrightarrow$
3. **the necessary and constitutive underdetermination of the semantic content, truth/falsity, and/or justification of R, C, or S by any and all empirical facts** $\Leftrightarrow$
4. **that the semantic content, truth, and/or justification of R, C, or S is neither strongly supervenient on nor grounded by any and all empirical facts.**

Correspondingly, then, aposteriority is the determination of the semantic content, truth/falsity, and/or justification of a mental representation R, of a cognitive act, state, or process C, or of a statement S by any or all actual or possible empirical facts—the necessary or constitutive determination of the semantic content, truth/falsity, and/or justification of R, C, or S by any or all empirical facts, or what is the same thing: the semantic content, truth, and/or justification of R, C, or S is either strongly supervenient on or grounded by any or all empirical facts.

So, to formulate this conception of aposteriority as another series of necessarily equivalent labels or slogans:

1. **aposteriority** $\Leftrightarrow$
2. **experience-dependence** $\Leftrightarrow$
3. **the necessary or constitutive determination of the semantic content, truth/ falsity, and/or justification of *R*, *C*, or *S* by any or all empirical facts** $\Leftrightarrow$
4. **that the semantic content, truth, and/or justification of R, C, or S is either strongly supervenient on or grounded by any or all empirical facts.**

In this way, since both the real existence and specific character of the autonomous essentially non-conceptual content of perception is either strongly supervenient on or grounded by the total set of actual contingent causally efficacious macroscopic material sensory objects (including living body-parts) and actual contingent causally efficacious events, processes, and facts (including mental events, processes, and facts) in the natural world, then it follows that it is a posteriori. Contrastively, if there were to be autonomous essentially non-conceptual content that is *formal*, non-empirical, or a priori, then its nature would have to be such that fixing the total set of actual contingent causally efficacious macroscopic material sensory objects (including living body-parts) and actual contingent causally efficacious events, processes, and facts (including experiential mental events, processes, and facts) in the natural world did not thereby necessarily fix its existence, specific character, or nature.

It is particularly to be noted here that since the strong supervenience base for aposteriority already includes fundamental biological properties and fundamental mental properties, both of which I regard as fully non-reducible and causally efficacious kinds of properties, then it follows that the strong supervenience or grounding relation which constitutes aposteriority is not a reductive supervenience. Strong supervenience is reductive only if (i) the modal strength of the strong supervenience relation is logical, (ii) the supervenience base is, fundamentally, essentially and exclusively one kind of lower-level properties or facts, even if it happens to include other kinds of facts, and (iii) the lower-level kind of properties or facts is causally closed with respect to the higher-level properties and facts.[86]

But in fact none of those necessary conditions is satisfied by the strong supervenience or grounding that characterizes aposteriority. Hence aposteriority is an asymmetric necessary or constitutive determination relation *without* reduction.

It is also particularly to be noted here that it is not generally recognized, even by non-conceptualists, that a specifically a priori kind of non-conceptual content exists. This failure of recognition, in turn, crucially affects one's views about a priori rationality and rationalism. Kantian Non-Conceptualism recognizes a priori conceptual content and also a priori non-conceptual content alike, and is therefore committed to *modal dualism*. Modal dualism says that there are two essentially different kinds of necessity or necessary truth and possibility: the analytic or logical kind, and the synthetic or non-logical kind. Kantian Non-Conceptualism thereby fully allows for the possibility of synthetic or non-logical a priori truth and knowledge. I work out this line of thinking in chapters 4 and 6–8. By sharp contrast, many philosophers, even many non-conceptualists, just assume without argument that apriority and non-conceptuality are mutually inconsistent, and in so doing, merely presuppose without argument that *modal monism*—which says that there is one and only kind of necessity or necessary truth and possibility, namely, the analytic or logical kind—is true.

In any case, granting me for the purposes of my current line of argument these definitions of materiality/empiricality/aposteriority and formality/non-empiricality/apriority, I now want to extend The Two Hands Argument + Autonomy argument to an argument for the real existence of formal, non-empirical, or a priori autonomous

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[86] See, e.g., Chalmers, *The Conscious Mind*, ch. 2; Hanna and Maiese, *Embodied Minds in Action*, esp. chs. 6–7; and Kim, *Physicalism, or Something Near Enough*, esp. chs. 4–6.

essentially non-conceptual content. In order to do this, I will simply pick up from where The Two Hands Argument + Autonomy left off.

The Extended Two Hands Argument + Autonomy

(14) Now consider the *rightness* of my right hand and the *leftness* of my left hand, as represented by autonomous essentially non-conceptual content. Then conceive that any other actual contingent causally efficacious macroscopic or sense-perceivable real material object (including any living body-part), as individuated by its qualitative properties, were to be uniformly substituted for either one of my hands, and also that any other contingent causally efficacious experiential real mental event, process, or fact whatsoever were to be uniformly substituted for my experience of my hands. (From (13), and conceivability according to The Logical Cognitivist Theory of Concepts.)

(15) The autonomous essentially non-conceptual representation of that object's rightness or leftness, and the irreducible difference between it and its incongruent counterpart, would not be in any way affected by any of those conceivable uniform substitutions. (From (14), and conceivability according to The Logical Cognitivist Theory of Concepts.)

(16) Therefore the autonomous essentially non-conceptual representation of rightness or leftness is non-empirical, pure, or a priori. (From (15) and the definition of formality/non-empiricality/apriority.)

(17) Therefore formal, non-empirical, or a priori autonomous essentially non-conceptual content really exists. (From (1)–(16).)

Before going on, I need to respond to an obvious objection to what I have argued so far. This objection is based on The Demonstrative Strategy, which, as we saw earlier, has been commonly deployed by Conceptualists against The Fineness of Grain Argument. More precisely, the objection says that even if The Two Hands Argument, The Two Hands Argument + Autonomy, and The Extended Two Hands Argument + Autonomy are all sound, it is nevertheless possible to form the demonstrative concepts *this right hand* and *this left hand*, and then use those concepts to tell my two hands apart from one another. Hence, so the objection goes, the cognition of incongruent counterparts can *still* be conceptual. This in turn would play directly into the hands of a defender of Highly Refined Conceptualism, for instance, the recent McDowell.

The objection trades on an important confusion that is built into the very idea of a "demonstrative concept." As Sean Kelly has correctly pointed out,

the demonstrative concept is something of a chimera: it has the head of a singular term but the body of a general concept.[87]

Indeed, as I would elaborate, reformulate, and strengthen Kelly's very good point, I think that we can easily see that the so-called "demonstrative concept" *this F* is nothing more and nothing less than *a 3-part hybrid demonstrative content* consisting

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[87] Kelly, "Demonstrative Concepts and Experience," p. 398.

of (i) the material autonomous essentially non-conceptual content *this*, which is the semantic content of the essential indexical "this,"[88] (ii) the formal autonomous essentially non-conceptual content *whatever is over here now in the place indicated by the speaker*, which is inherently associated with the speaker's ability to indicate, and which is roughly equivalent with what David Kaplan calls the "indexical character" of "this" and John Perry calls its "semantic role,"[89] and (iii) the material concept *F*, which is roughly equivalent with the Fregean sense of the predicate "x is an F" (in fact, only *very* roughly equivalent, since as I noted earlier, Fregean senses do not, strictly speaking, satisfy the requirements of The Logical Cognitivist Theory of Concepts, but *close enough* to being equivalent for the present purposes of my argument). Now, a 3-part hybrid demonstrative content consisting of a material autonomous essentially non-conceptual content, a formal autonomous essentially non-conceptual content (roughly equivalent with a Kaplanian character), and a material concept (roughly equivalent with a Fregean sense), is both essentially indexical and also conceptual, in the same way that a griffin has both an eagle's head and also a lion's body. But a griffin is not a special kind of lion: it is a sui generis zoological and biological composite. Hence from the mere fact that a griffin includes a lion part, it does not follow that a griffin is a special kind of lion. So, too, a hybrid demonstrative content is a sui generis semantic and psychological composite. Correspondingly, then, from the mere fact that a 3-part hybrid demonstrative content includes a conceptual part, it does not follow that this 3-part hybrid demonstrative content is a special kind of concept.

Therefore, it is fundamentally misleading to call *this F* a "demonstrative concept," just as it would be fundamentally misleading to call a griffin an "eagle-headed lion." Hence any attempt to apply The Demonstrative Strategy to my analysis of essentially non-conceptual content and to The Two Hands Argument, The Two Hands Argument + Autonomy, or The Extended Two Hands Argument + Autonomy, in order to bring them all under the big tent of Highly Refined Conceptualism, must fail. For it simply has not been shown by proponents of The Demonstrative Strategy and Highly Refined Conceptualism that demonstrative contents really *are* concepts; and merely calling them "demonstrative concepts" will obviously not suffice to do it either.

For the same reasons, it is also fundamentally misleading to call the demonstrative content *this right hand* a "demonstrative concept." In fact, the content *this right hand* is nothing more and nothing less than a 5-part hybrid demonstrative content consisting of (i) the material autonomous essentially non-conceptual content *this*, which is the semantic content of the essential indexical "this," (ii) the formal autonomous essentially non-conceptual content *whatever is over here now in the place indicated by the speaker*, which is inherently associated with the speaker's ability to indicate, and roughly equivalent with the Kaplanian indexical character or Perryan semantic role of "this," (iii) the material autonomous essentially non-conceptual

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[88] See Perry, "The Problem of the Essential Indexical." See also Hanna, "Direct Reference, Direct Perception, and the Cognitive Theory of Demonstratives."

[89] Kaplan, "Demonstratives: An Essay on the Logic, Metaphysics, Semantics, and Epistemology of Demonstratives and Other Indexicals" and "Afterthoughts"; and Perry, "The Problem of the Essential Indexical."

content *right*, which is the semantic content of the essential indexical "right," (iv) the formal autonomous essentially non-conceptual content *whatever is on this side of me*, which is inherently associated with the speaker's ability to orient herself in space, and roughly equivalent with the Kaplanian indexical character or Perryan semantic role of "right," and finally (v) the material concept HAND, which is roughly equivalent with the Fregean sense of the predicate "x is a hand" (again, only *very* roughly equivalent, but again, *close enough* to being equivalent for the present purposes). Obviously, from the mere fact that a 5-part hybrid demonstrative content, most of which is systematically built up out of autonomous essentially non-conceptual contents, has a conceptual part, it does not follow that a 5-part hybrid demonstrative content is a special kind of conceptual content. Therefore, The Demonstrative Strategy-Based and Highly Refined Conceptualism-driven objection to The Two Hands Argument, The Two Hands Argument + Autonomy, or The Extended Two Hands Argument + Autonomy fails, regardless of its applicability to The Fineness of Grain Argument.

One last remark in this particular connection. It should especially be noted that the very same basic points I have just been rehearsing apply to *first-person singular thoughts* based on the essentially indexical term "I," for instance, the semantic content of the statement,

I am a Canadian.

According to my account, here we have a statement whose semantic content is a hybrid singular proposition consisting of (i) the material autonomous essentially non-conceptual content *I*, which is the semantic content of the essential indexical "I," (ii) the formal autonomous essentially non-conceptual content *whoever is here now and using this token of "I,"* which is inherently associated with the speaker's ability to uniquely locate, track, and guide her own intentional body movements in space and time, and which is roughly equivalent to the Kaplanian indexical character or Perryan semantic role of "I,"[90] (iii) the material concept *Canadian*, which is roughly equivalent to the Fregean sense of the predicate "x is a Canadian" (under the same qualifications about equivalence as above), and (iv) the formal concept *Singular Predication*, which combines the semantic content of a singular statement's (or singular proposition's) subject-term with the semantic content of that statement's (proposition's) predicate-term in accordance with Evans's Generality Constraint, as well as with other basic logico-semantic constraints such as well-formedness, sortal correctness, non-contradiction, and so on, and yields a truth-value as output.

In chapter 3, I will look more closely at the specific cognitive function of the mental contents associated with (i) and (ii) in relation to the important phenomenon of perceptual self-knowledge.

2.6 More Reasons for Accepting The Logical Cognitivist Theory of Concepts and Kantian Non-Conceptualism

The Two Hands Argument, The Two Hands Argument + Autonomy, and The Extended Two Hands Argument + Autonomy all obviously depend on The Logical

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[90] See, e.g., Campbell, *Past, Space, and Self.*

Cognitivist Theory of Concepts. And to be sure, there are many contemporary theories of concepts, and many contemporary theories of content, that would contradict The Logical Cognitivist Theory of Concepts.

For example, by an *Empiricist* theory of concepts I mean any theory that rejects the possibility of formal, non-empirical, or a priori concepts.[91] More precisely put, the basic claim of any Empiricist theory of concepts is that the existence and specific character of every concept whatsoever is necessarily or constitutively determined by the total set of actual contingent macroscopic material sensory objects (including living body-parts) and actual contingent events, processes, and facts (including experiential mental events, processes, and facts) in the natural world, and therefore that every concept whatsoever is material, empirical, or a posteriori. Obviously, the contemporary Empiricist theory of concepts follows on from the older traditions of classical Lockean-Humean Empiricism, Carnapian Logical Empiricism, or Rylean/Sellarsian Empiricism. According to classical Lockean-Humean Empiricism, experiential mental events, processes, and facts would be irreducible facts. According to Carnapian Logical Empiricism, experiential mental events, processes, and facts would be identical with behavioral events and facts, or logically supervenient on them. And according to Rylean/Sellarsian Empiricism, experiential mental events, processes, and facts would be necessarily or constitutively determined by facts about language-use and linguistic practices. Contemporary Empiricism about concepts might differ from these older forms of concept-Empiricism by asserting that mental events, processes, and facts are reducible to fundamental physical events, processes, and facts (e.g., Prinz's concept-Empiricism), or that facts about concepts are all facts about their non-reducible normative inferential roles (e.g., Brandom's concept-Empiricism). But the general concept-Empiricist thesis of the necessary or constitutive determination of all concepts by contingent actual empirical objects and events/processes/facts would remain fully in place.

Here are six other different kinds of concept-theory.

By a *Fregean* theory of concepts I mean any theory that narrowly identifies concepts with either rough-grained intensions (i.e., Frege's "concepts") or fine-grained intensions (i.e., Frege's "modes-of-presentation" or "senses") alone, whether these intensions are taken to be modally one-dimensional or modally two-dimensional.[92]

By a *Possession-Theoretic* theory of concepts I mean any theory that identifies concepts with capacities for having propositional attitudes or other epistemic capacities.[93]

By a *Quinean* theory of concepts I mean any theory of concepts that explicitly rejects the analytic-synthetic distinction.[94]

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[91] See, e.g., Brandom, *Articulating Reasons: An Introduction to Inferentialism*; and Prinz, *Furnishing the Mind: Concepts and their Perceptual Basis*.

[92] See, e.g., Bealer, *Quality and Concept*; and Chalmers, "The Foundations of Two-Dimensional Semantics."

[93] See, e.g., Peacocke, *A Study of Concept*. Peacocke's theory is also a Fregean theory of concepts.

[94] See, e.g., Fodor, *Concepts*. Fodor's theory of concepts cannot be *fully* Quinean in the sense that it accepts *all* of Quine's arguments against the analytic-synthetic distinction—precisely because Fodor remains a non-reductive psychological realist about concepts and conceptual contents in the classical Davidsonian token-physicalist tradition. Any theory that is fully Quinean must also be *eliminativist* about concepts and conceptual contents, which in turn has radically skeptical, nihilistic consequences for

By a *Reductive Physicalist* theory of concepts I mean any theory of concepts that ontologically or explanatorily reduces concepts to physical properties and facts, whether fundamental, functional, or biological.[95]

By an *Amorphous* theory of mental content I mean any theory that assigns no definite underlying semantic structure to mental content.[96]

And finally by a *Vacuous* theory of conceptual content I mean any theory that straightaway identifies all mental content—including all perceptual content, propositional content, thought-content, and belief-content—with conceptual content, by more-or-less explicitly arguing in the following way:

(1) All mental content must be normative, rule-governed, and accessible to consciousness.
(2) Only conceptual representations can be normative, rule-governed, and accessible to consciousness.
(3) Therefore all mental content must be conceptual, and nothing will ever count as real mental content unless it is conceptual.[97]

I do not mean to imply that Empiricist theories of concepts, Fregean theories of concepts, Possession-Theoretic theories of concepts, Quinean theories of concepts, Reductive Physicalist theories of concepts, Amorphous theories of mental content, and Vacuous theories of conceptual content either exhaust the total space of contemporary theories of concepts, or are mutually exclusive. In fact, on the contrary, it is quite obvious that these can overlap in various ways, and produce hybrid theories. For instance, some Empiricist theories are also Quinean theories and Reductive Physicalist theories, for example, Prinz's concept-empiricism. My point is simply that all these theories of concepts are of contemporary relevance, and would also entail the rejection of The Logical Cognitivist Theory of Concepts. And that is quite a lot of philosophical enemies to have. So what can I say on behalf of The Logical Cognitivist Theory of Concepts, by way of a general critical response to the opposing theories? I can say at least three things.

First, if I am right that both (reductive or non-reductive) physicalism about mental content and knowledge, and also separatism about the consciousness-intentionality relation, are false, then since conceptual content is a sub-species of intentional content, it follows automatically that all (reductive or non-reductive) physicalist and separatist theories of concepts are false, too. So that puts them out of contention from the get-go.

Second, as regards the Empiricist, Fregean, Possession-Theoretic, and Quinean theories of concepts, I have a different kind of response. This is in the form of a collective explanatory challenge: Either you do a better job of accounting for all the psychological, semantic, epistemological, linguistic, and logical data that The Logical

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epistemic and practical rationality. See Hanna, *Kant and the Foundations of Analytic Philosophy*, ch. 3, and Concluding Un-Quinean Postscript. See also chapter 4.

[95] See, e.g., Braddon-Mitchell and Jackson, *Philosophy of Mind and Cognition*, chs. 10–13; Cummins, *Meaning and Mental Representation*; and Dretske, *Naturalizing the Mind*.

[96] See, e.g., Stalnaker, "What Might Nonconceptual Content Be?"

[97] This, e.g., is Speaks's own view of the nature of conceptual content.

Cognitivist Theory of Concepts accounts for, or else you must accept The Logical Cognitivist Theory of *Concepts by inference-to-the-best-philosophical-explanation*. This explanatory challenge from inference-to-the-best-philosophical-explanation, at the very least, gives me some theoretical breathing space, since in effect it is a rational license to postulate The Logical Cognitivist Theory of Concepts in order to develop and defend Kantian Non-Conceptualism and categorical epistemology more fully. By the end of that larger argument, I predict, it should be sufficiently clear that theories of concepts which either (i) reject the existence of formal, non-empirical, or a priori concepts and assert that all concepts are material, empirical, or a posteriori, (ii) narrowly identify concepts with rough-grained or fine-grained Fregean intensions alone, (iii) identify concepts with capacities for having propositional attitudes or other epistemic capacities, or (iv) reject the analytic-synthetic distinction, are all more-or-less seriously explanatorily impoverished. By sharp contrast, I contend, only The Logical Cognitivist Theory of Concepts adequately captures all our authoritative rational intuitions about the roles of autonomous essentially non-conceptual content and concepts alike in mental content, cognitive agency, and knowledge. I will develop that larger argument in chapters 3 to 8, by applying Kantian Non-Conceptualism and categorical epistemology to sense perception and perceptual knowledge, perceptual self-knowledge, the analytic-synthetic distinction, and a priori truth and knowledge in logic, mathematics, and philosophy.

   Third, as regards Amorphous theories of content and Vacuous theories of conceptual content, I have a more overtly dialectical, three-step response to them, on behalf of The Logical Cognitivist Theory of Concepts and Kantian Non-Conceptualism taken together as a coherent pair. First, Amorphous theories entail the denials of Non-Conceptualism and of Conceptualism alike, so if either Non-Conceptualism or Conceptualism is true, then Amorphous theories are false. Indeed, Amorphous theories are really little more than the assertion of a certain skepticism about the nature of content. Second, step (2) of the argument for Vacuous theories seems to me to be clearly false, and really little more than the assertion of certain dogmatism about the nature of content. Third, and for reasons that are intimately related to the first two critical points, it seems to me obvious that if either Amorphous theories of content or Vacuous theories of conceptual content are true, then they pre-emptively make a genuine debate between essentialist content Non-Nonceptualism and Conceptualism impossible, just by ruling out of court any way of marking an intrinsic or essential difference between non-conceptual content and conceptual content. In other words, they rule out essentialist content Non-Conceptualism by preventing it from ever coming to the debating podium. For if, by a priori fiat, no kind of mental content can ever be intrinsically structurally distinguished from any other kind, or if, again by a priori fiat, only conceptual content will ever count as real mental content because rules, normativity, and accessibility to consciousness all simply have to be conceptual, then obviously essentialist content Non-Conceptualism is false. But that is like winning a college debating contest by having your most challenging opponent disqualified by friends on the rules committee. So it seems to me only rationally fair that essentialist content Non-Conceptualism be at least allowed to participate in the debate about the nature of mental content on an equal footing with the other participants. And if essentialist content Non-Conceptualism is allowed

to participate, then so is The Logical Cognitivist Theory of Concepts, since the former requires the latter. Therefore, for the purposes of my argument, I am going to assume that (i) it is at least an open and debatable question whether Amorphous theories of content and Vacuous theories of conceptual content are true, and (ii) Kantian Non-Conceptualism and The Logical Cognitivist Theory of Concepts, when taken together, constitute at least a coherent pair of admissible candidates for jointly explicating the nature of mental content.

2.7 Some Implications of The Two Hands Argument + Autonomy, and The Generalized Causal Pairing Problem

This brings me back now directly to The Two Hands Argument + Autonomy, and its implications for the theory of essentially non-conceptual content. According to The Two Hands Argument + Autonomy, the content of perceptual acts or states that pick out a directly, veridically perceivable real material object—such as a human hand—that has an actual or possible incongruent counterpart, is autonomous essentially non-conceptual content. But it is clearly and distinctly conceivable according to The Logical Cognitivist Theory of Concepts, and therefore logically possible, that any directly, veridically perceivable real material object, and also any external part of anyone's living body, has an actual or possible incongruent counterpart. Here we need only imagine the real material object or living body-part placed in front of a mirror in order to recognize this possibility. This also inherently carries with it the possibility of "massive reduplication."[98] Massive reduplication means that necessarily, for any directly, veridically perceivable real material object and any finite set of such objects embedded in any actual local space in our orientable spatial world, a mirror reflection of that object or set of objects and the surrounding local space in which they are embedded is always possible. So the cognitive need for autonomous essentially non-conceptual content is ubiquitous in our world, in order for us to be able to discriminate between things and their actual or possible incongruent counterparts.

The main point I am making here is, of course, *not* that actual or possible incongruent counterparts are likely to be popping up all over the place, or even popping up just often enough to become a practical nuisance. That seems fairly unlikely, Alice's exploits in *Beyond the Looking Glass* notwithstanding. The main point I am making here is just that conceptual content is inherently incapable of doing the topologically sensitive and dynamically sensitive representational job of either adequately accounting for direct singular reference, or successfully mediating and guiding the perceptual cognitions and basic intentional acts of minded animals through orientable spaces. This is because conceptual content necessarily and constitutively underdetermines the autonomous essentially non-conceptual content that actually performs these representational jobs.

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[98] See Strawson, *Individuals*.

Of course, it is true that some directly, veridically perceivable real material objects are events or processes and not merely static material substances. But every such event E or process P has two possible counterparts that are exactly the same event or process, only occurring either earlier or later than E actually occurs, or in the reverse order to that in which the sequential parts of P occur. So I will assume for the purposes of argument, as Edmund Husserl persuasively argued in his famous lectures on the phenomenology of time consciousness,[99] and also in *Experience and Judgment*, that time is primitively subjectively experienced by rational human animals as asymmetric and irreversible in its direction of flow:

This lawfulness [of temporal experience] concerns *all* phenomenological data, those which are truly passive, as well as [intentional] acts of the ego which make their appearance in the stream of consciousness. *Every [intentional] act of the ego*, for example every act of simple apprehension of an object, *appears in the temporal field as a temporally self-constituting datum*.... With this, we are at the *place of origin of the first so-called "logical categories."* It is true, we can only begin to speak of logical categories in the proper sense in the sphere of predicative judgment, as elements of determination which belong necessarily to the form of possible predicative judgments. But all categories and categorical forms which appear there are constructed on (*bauen sich auf*) the prepredicative [temporal] syntheses and have their origin in them.[100]

Moreover, there are good reasons provided by recent natural science for thinking that real natural time itself also has thermodynamic asymmetry and irreversibility.[101] Let us assume, then, that dynamic asymmetry and irreversibility are partially constitutive facts about minds like ours and manifest physical nature alike. We can then easily recognize how the earlier possible counterpart event $E_{earlier}$ is the precise temporal analogue of one of my hands and the later possible counterpart event E_{later} is the precise temporal analogue of the incongruent counterpart of that hand. But, in real natural time as perceived by us, just which of the counterparts is earlier than E and just which is later than E, such that I could uniquely identify it as happening before E or as happening after E, cannot be determined by descriptive means alone. For example, I could not, even in principle, convey this to someone solely by means of descriptive language over the telephone, even assuming that all the previous-acquaintance conditions and ceteris paribus conditions of conceptual understanding and telephone usage had already been met. Similarly, with suitable appropriate changes made for differences between the cases, we can easily see how a process $P_{forward}$ that runs forward from its inception to its terminus, and its exact counterpart process $P_{backward}$ that runs backward from its terminus to its inception, are thermodynamic process enantiomorphs of one another. Here one can think, for instance, of time-lapse photography of a flower growing and blossoming from a seed, and then imagine the film run in reverse so that the flower runs right back into its seed. These

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[99] See Husserl, *The Phenomenology of Internal Time Consciousness*.
[100] Husserl, *Experience and Judgment*, pp. 111 and 115, texts combined and translation modified slightly.
[101] See, e.g., Prigogine, *Being and Becoming: Time and Complexity in the Physical Sciences*; and Savitt (ed.), *Time's Arrows Today*.

processes are therefore subject to the very set of same representability-facts that I rehearsed in The Two Hands Argument + Autonomy.

Therefore, all contentful mental states directed at actual or possible directly, veridically sense-perceivable manifestly real material things, whether they are representations of static material objects or facts, or whether they are representations of living body parts or natural events or processes occurring outside or within my own living body, must have autonomous essentially non-conceptual content. Generalizing now, we can see that autonomous essentially non-conceptual content is mental content that is inherently sensitive to the egocentrically centered orientation, intrinsic orientable topology, and temporally irreversible dynamics of actual or possible directly, veridically sense-perceivable manifestly real material things, whether this content involves representations of static material objects or facts, or whether it involves representations of living body parts or natural events or processes occurring outside or within my own living body, to the extent that it has an actual or possible incongruent counterpart. Otherwise put in a much shorter sentence, autonomous essentially non-conceptual content is content that locates and tracks things in a way that is inherently sensitive to spatial and temporal asymmetries. Or again, in two words, autonomous essentially non-conceptual content is "situated content."

This generalization also enables me to generalize The Extended Two Hands Argument + Autonomy as follows.

The Generalized Extended Two Hands Argument + Autonomy

(18) Any conceivable actual or possible relevant variation of the monadic or qualitative properties of any directly, veridically sense-perceivable, contingent, causally efficacious, macroscopic, real material object, fact, event, process, or living body-part that is represented by autonomous essentially non-conceptual content, leaves the formal representation of its orientable spatial, irreversible temporal, or asymmetric thermodynamical or otherwise dynamical properties unaffected. (From (17), and conceivability according to The Logical Cognitivist Theory of Concepts.)

(19) Therefore, any autonomous essentially non-conceptual formal representation of an orientable spatial property, or irreversible temporal property, or asymmetric thermodynamical or otherwise dynamical property of any directly, veridically sense-perceivable, contingent, causally efficacious, macroscopic, real material object, fact, event, process, or living body-part, is pure, non-empirical or a priori. (From (1)–(18), and the definition of formality/non-empiricality/apriority.)

The truth of (19) naturally leads to an even more profound consequence of The Two Hands Argument + Autonomy. Not conceptual content, but instead only autonomous essentially non-conceptual content—whether it be material/empirical/a posteriori, or formal/non-empirical/a priori—can accurately and therefore adequately represent the unique location, movement, change, and causal activities of directly, veridically sense-perceivable, contingent, causally efficacious, macroscopic, real material facts, events, processes, and living body-parts. Hence not conceptual content, but instead only autonomous essentially non-conceptual content, can accurately

and adequately represent either (i) the essentially embodied subject herself and her living body-parts or (ii) other essentially embodied minded animal cognitive and practical subjects and their living body parts, from the subject's own unique spatial and temporal standpoint. Therefore not conceptual content, but instead only autonomous essentially non-conceptual content, is structurally and functionally suited to the fine-grained and hyper-fine-grained sensorimotor control of the living body in human and non-human cognition and basic intentional action.

For example, not conceptual content, with its allocentric perspective, but instead only autonomous essentially non-conceptual content, with its egocentrically centered perspective, is structurally and functionally suited to mediate my ability to get my key quickly and smoothly out of my pocket and directly into the keyhole of the front door of my house—even in the dark. More specifically, autonomous essentially non-conceptual content inherently involves what Adrian Cussins calls "basic spatial and temporal tracking and discriminatory skills which are required to find our way around the environment," what Shaun Gallagher calls "body schemas," and what Noë calls "sensorimotor knowledge."[102] Indeed, there is now an impressively large amount of compelling empirical research which directly supports the thesis that sensorimotor activity in embodied cognition and intentional body movement is inherently pre-reflectively conscious, immanently reflexive, non-propositional, non-epistemic, and situated. So the representational content that guides it is autonomous essentially non-conceptual content. In turn, this is all part-and-parcel of what Dreyfus calls "the nonconceptual world of absorbed coping." As I mentioned earlier in section 2.4, however, this extended hand to Dreyfus's account must also include the proviso that the content of this "absorbed coping" is also a normatively rich, pre-reflectively conscious, content that is inherently poised for guiding the performance of basic intentional actions. Thus again it is inherently *agentive* content.

One direct consequence of this is that the knowledge yielded by essentially embodied mental states with autonomous essentially non-conceptual content is fundamentally and irreducibly "knowledge-how," or action-oriented-knowledge, not "knowledge-that," or propositional knowledge. Moreover, let us briefly suppose, just for the purposes of argument, that it turns out to be correct, as Jason Stanley and Timothy Williamson have argued in a well-known co-authored paper,[103] and as Stanley later argued in his book, *Know How*, that knowledge-how can be analyzed in terms of knowledge-that, for the special case of self-conscious or self-reflective rational cognitive and practical intentional action. Nevertheless, even under that supposition, this result will not follow for pre-reflectively conscious cognitive and practical intentional action, whether rational or non-rational, since this kind of action can occur without any conceptual or propositional content whatsoever. Or in other words, even if conceptually determined know-how is based on conceptual or propositional knowledge of facts, this does not follow for autonomous-essentially-non-conceptually-determined know-how.

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[102] See Cussins, "Content, Conceptual Content, and Nonconceptual Content," p. 147; Gallagher, *How the Body Shapes the Mind*, chs. 1–6; and Noë, *Action in Perception*.

[103] Stanley and Williamson, "Knowing How."

In a recent paper, Stanley and a neuroscientist, John Krakauer, have argued on empirical grounds that even motor skills depend on "knowledge of facts."[104] It is important to recognize, however, that at the level of motor skills, which can be effectively exercised and improved even in human subjects—like the famous H. M., who have suffered brain damage or deficit even to the point of losing conceptual access to those activities—this "knowledge of facts" must therefore be non-conceptual knowledge, and not conceptual or propositional knowledge. Leaving aside the empirical studies on cognitively damaged human adults, moreover, it is also obvious that facts about the world can be known by, for instance, human infants or non-human animals, for the purposes of motor skills, without mediating that knowledge either propositionally or conceptually. So Stanley and Krakauer can get the conclusion they want only by fallaciously equivocating on the term "knowledge." This is an equivocation, in turn, that can be easily diagnosed in terms of the four-leveled conception of knowledge in my contemporary Kantian framework of categorical epistemology (i.e., Non-Conceptual knowledge vs. Low-Bar knowledge vs. context-sensitive causally reliable Low-Bar knowledge vs. High Bar knowledge), as well as in the more compact two-leveled scheme (i.e., animal knowledge vs. reflective knowledge) contained in Sosa's virtue-reliabilist account.

This result—namely, that knowledge-how is irreducible to knowledge-that, insofar as knowledge-how is driven by autonomous essentially non-conceptual content—is doubly ironic in the case of Noë. For not only has Noë argued directly against Stanley and Williamson,[105] but he also explicitly describes himself as a Conceptualist.[106] I think, however, that Noë has simply assumed without argument the truth of what, in section 2.6, I called a "Vacuous theory of conceptual content," and therefore he has overextended conceptual content into the domain of the autonomous essentially non-conceptual.

Be that small twist of dialectical irony as it may, however, the point I am emphasizing here is that according to Kantian Non-Conceptualism, the primary psychological function of autonomous essentially non-conceptual perceptual content is uniquely and (more or less) accurately to locate and track either (i) causally efficacious, practically relevant or even usable, static or dynamic actual macroscopic material objects, facts, events, processes, or living body-parts, or other minded animal cognitive and practical subjects, that exist in the local or distal natural environment of the minded animal cognizer and practical intentional agent (*environmental location and tracking*), or (ii) the minded animal cognizer and practical intentional agent herself (*reflexive location and tracking*), in their egocentrically centered intrinsically spatiotemporal contexts. These two kinds of location and tracking, in turn, are both carried out for the purposes of the individuation, normative governance, and informational mediation of the intentional acts, states, or processes of rational human cognition and practical agency.

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[104] Stanley and Krakauer, "Motor Skills Depend on Knowledge of Facts."
[105] Noë, "Against Intellectualism."
[106] See, e.g., Noë, *Action in Perception*, ch. 6; and Noë, "On Overintellectualizing the Intellect."

But what ultimately unifies these capacities? I think that the answer to this question is delivered to us by the distinctively Kantian idea, developed in the Transcendental Aesthetic, that the representation of space and the representation of time are necessary a priori subjective forms of sensibility.[107] Obviously, I have already spelled out an independent argument for the apriority of the representations of space and time in The Generalized Extended Two Hands Argument + Autonomy. So now an argument for the phenomenological necessity of the representations of space and time, and indeed for the phenomenological necessity of the autonomous essentially non-conceptual formal representation of *any* orientable spatial property, or irreversible temporal property, or asymmetric thermodynamic property of *any* directly, veridically sense-perceivable, contingent, macroscopic, real material object, fact, event, process, or living body-part, follows smoothly from the conclusion of The Generalized Extended Two Hands Argument + Autonomy.

The Generalized Extended Two Hands Argument + Autonomy + Phenomenological Necessity

(20) It is conceivable and thus possible to form an autonomous essentially non-conceptual formal representation of an orientable spatial property, or irreversible temporal property, or asymmetric thermodynamic property of any directly, veridically sense-perceivable, contingent, causally efficacious macroscopic material sense-perceivable object, fact, event, process, or living body-part. (From (19), and conceivability according to The Logical Cognitivist Theory of Concepts.)

(21) It is conceivable and thus possible that this autonomous essentially non-conceptual formal representation be removed from the autonomous essentially non-conceptual material representation of any directly, veridically sense-perceivable, contingent, causally efficacious, macroscopic, real material object fact, event, process, or living body-part. (From (20), and conceivability according to The Logical Cognitivist Theory of Concepts.)

(22) It is then inconceivable and thus impossible that the autonomous essentially non-conceptual material representation of that directly, veridically sense-perceivable, contingent, causally efficacious, macroscopic, real material object, fact, event, process, or living body-part would still really exist. (From (21), and inconceivability according to The Logical Cognitivist Theory of Concepts.)

(23) Therefore the autonomous essentially non-conceptual formal representation of an orientable spatial property, or irreversible temporal property, or asymmetric thermodynamic property of any actual contingent causally efficacious macroscopic real material directly, veridically sense-perceivable object, fact, event, process, or living body-part is not only non-empirical/pure/a priori, but also phenomenologically necessary. (From (1)–(22).)

Here we must remember that for Kant the human innate capacity for "sensibility" or *Sinnlichkeit* includes not just a sub-capacity for sense perception, but also sub-capacities for phenomenal consciousness or "inner sense," the imagination and all

its sub-functions, pleasure and pain, and desire. So what I am saying is that we should think of the representation of space and the representation of time as necessary a priori subjective forms of essentially embodied, egocentrically centered, conscious, intentional, caring rational human agency and non-rational or non-human animal intentional agency alike.

Now, autonomous essentially non-conceptual content is always more-or-less directly referentially accurate, and as I have claimed, also inherently poised for guiding and mediating the cognitive and practical intentionality of minded animals. Thus autonomous essentially non-conceptual content is inherently normative and practical. But in specifically rational and specifically human animals, or real human persons, autonomous essentially non-conceptual content is also inherently poised for use in logical cognition (including belief, judgment, inference, and theory-construction) and in self-conscious, deliberative, and morally responsible action. Therefore, in rational human animals or real human persons, autonomous essentially non-conceptual content is inherently proto-rationally normative and also categorically normative.

The main claim I have been developing so far in this section is that autonomous essentially non-conceptual content is metaphysically required for explaining direct singular referential cognition—and more specifically, cognition that locates and tracks individuals, whether environmentally or reflexively—and also for explaining the guidance and mediation of cognitive and practical intentionality. An equivalent way of framing the latter half of this claim, however, is to say that autonomous essentially non-conceptual content is metaphysically required for explaining mental-to-physical causation. This, in turn, connects my main claim directly with a general difficulty for the theory of mental causation, that Jaegwon Kim calls "The Causal Pairing Problem."

In a nutshell, Kim persuasively argues that since according to classical Cartesian dualist interactionism, distinct mental substances are immaterial and non-spatial, but at the same time real causal relations arguably require the spatiotemporal individuation of causes and effects, then it seems impossible for dualist interactionism to account for the "causal pairing" of real causes and real effects.[108] More precisely, however, here is how he formulates the problem:

Let us begin with a simple example of physical causation: two guns, A and B, are simultaneously fired, and this results in the simultaneous death of two persons, Adam and Bob. What makes it the case that the firing of A caused Adam's death and the firing of B caused Bob's death, and not the other way around? What are the principles that underlie the correct and incorrect *pairings* of cause and effect in a situation like this? We can call this "the causal pairing problem," or "the pairing problem" for short. . . . Turn now to a situation involving nonphysical Cartesian souls as causal agents. There are two souls, A and B, and they perform an identical mental act at time *t*, as a result of which a change occurs in material substance M shortly after *t*. We may suppose that the mental actions of the kind involved generally cause physical changes of the sort that happened in M, and, moreover, that in the present case it is soul A's action, not soul B's, that caused the change in M. Surely, such a possibility must exist. But ask: What relation might serve to pair soul A's action with the change in M, a relation that is absent in the case of soul B's action and the change in M? That is, evidently no spatial relations can be

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[108] Kim, *Physicalism, or Something Near Enough*, ch. 3.

invoked to answer this question, for souls are not in space and are not able to bear spatial relations to material things. Soul A cannot be any "nearer" to material object M, or more propitiously "oriented" in relation to it, than soul B is. Is there anything that can do for souls what space, or a network of spatial relations, does for material things?[109]

Then after considering several possible candidates for being the pairing relation between immaterial Cartesian souls and their putative causal effects—intentionality, causal chains, and somehow locating immaterial souls in space—Kim concludes that the answer to his leading critical question is *no*, and also that

[t]he more we think about causation, the clearer becomes our realization that the possibility of causation between distinct objects depends on a shared space-like coordinate system in which these objects are located, a scheme that individuates objects by their "locations" in the scheme.[110]

Let us grant Kim his formulation of the problem and his basic conclusion. It then seems to me that there is also a *Generalized* Causal Pairing Problem that is every bit as problematic for reductive physicalism and non-reductive physicalism, as the original Causal Pairing Problem is for Cartesian dualist interactionism.

Here is what I mean. We start with the now-familiar idea of incongruent counterparts or enantiomorphs. Now consider causal mental event M (which might be either identical to or logically strongly supervenient on a physical event, but also might be something "over and above" the physical, as in non-reductive physicalism or substance dualism) and its putative physical effect P_1 at spacetime location L. Now also consider P_1's enantiomorph P_2. The Generalized Causal Pairing Problem is this:

What explains M's causing P_1, as opposed to its causing P_2 in the closest possible world which differs from the actual world only in that P_2 replaces P_1 at L?

By way of a response to The Generalized Causal Pairing Problem, obviously it will not be right to say: "Because P_1 is in the *actual* world, whereas P_2 is merely in a nearby merely *possible* world." That clearly begs the question. What needs to be explained is exactly why M is causally paired with P_1 while also M is not causally paired with something else P_2 that is importantly physically similar to P_1—and P_2, as P_1's enantiomorph, is obviously very importantly physically similar to P_1. By hypothesis, P_1 and P_2 are both in the same place at the same time relative to their respective virtually identical possible worlds, and all their intrinsic non-relational and extrinsic relational properties are identical. So why does M cause P_1 and not P_2? Why is the world with the physical effect P_1 in it precisely the actual world, and not the other virtually identical possible world with the physical effect P_2 in it?

The notion of "the world" I am using here is obviously the broad one that includes both the actual world and also all the different possible ways the actual world might have been, and not the narrow one that is restricted to the actual world alone. Indeed, it is precisely the fact that causal relations are also necessitation relations which extend across nomologically possible worlds that makes The Generalized Causal

[109] Kim, *Physicalism, or Something Near Enough*, pp. 78–80.
[110] Kim, *Physicalism, or Something Near Enough*, p. 91.

Pairing Problem so very difficult for reductive physicalism, non-reductive physicalism, and interactionist dualism alike.

The difficulty that The Generalized Causal Pairing Problem poses for interactionist dualism is clear and distinct. Since Cartesian souls are immaterial and non-spatial, they cannot possibly contain any properties that are causally sensitive to differences between a material object and its enantiomorph, since these are inherently topological, hence spatial, differences. Therefore, if M is an event in the life of an immaterial, non-spatial Cartesian soul, then there is necessarily nothing about M that can explain why M is causally paired with P_1 as opposed to P_2.

Moreover, the problem that The Generalized Causal Pairing Problem poses for both reductive physicalism and non-reductive physicalism alike is equally clear and distinct—although obviously somewhat different from the one posed for interactionist dualism. By hypothesis, according to either reductive or non-reductive physicalism, M is either identical to, or necessarily or constitutively determined by, some purely physical event P_3. Therefore, whether or not there are any overdetermining causal relations running from M to P_1, nevertheless the one and only efficacious and fundamental causal relation is the physical causal relation that runs directly between P_3 and P_1. Also by hypothesis, P_3 is a purely physical event. Now we can explicitly ask:

Which purely physical property of P_3 could guarantee that it is causally paired with P_1 and not with P_2?

And more generally we can ask:

How can any purely physical property, or any set of such purely physical properties, ever be causally sensitive to the difference between an actual causally efficacious material object or event and its closest merely possible enantiomorph?

The root of the difficulty, of course, is that the difference between a given actual causally efficacious material object or event and its (actual or) closest merely possible enantiomorph can be adequately determined only from the standpoint of an egocentric center that is embedded in the very same space and time as that material object. But something's being egocentrically centered, I submit, is not a purely physical property of that thing.

By way of elaborating and defending that claim, my proposal for an adequate solution to The Generalized Causal Pairing Problem has three parts.

First, it seems to me that only an appeal to intentionality can solve The Generalized Causal Pairing Problem.[111] Kim officially rules out appealing to intentionality as an adequate solution to the original Causal Pairing Problem, on the grounds that intentionality is, arguably, fully explicable in physical terms, which of course violates the original Cartesian interactionist dualism hypothesis.[112] But (i) reductive physicalism about mental content is arguably false, for reasons I have given in chapter 1, and in any case, as we have just seen, (ii) The Generalized Causal Pairing Problem is

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[111]   Many thanks to Kelly Vincent for pressing me to be clearer on this point.
[112]   Kim, *Physicalism, or Something Near Enough*, pp. 80–81.

every bit as problematic for reductive physicalism and non-reductive physicalism about mental content as it is for interactionist dualism.

Second, it seems to me that the kind of intentionality we are appealing to must also be *conscious* intentionality, precisely in order to account for the possibility of egocentric centering, which in turn is required in order to account for the real possibility of M's causal sensitivity to the difference between the actual causally efficacious material/physical object or event P_1 and its closest merely possible enantiomorph P_2. This is because an egocentrically centered space is nothing more and nothing less than a space in which a conscious, intentional, caring, essentially embodied subject is actually or possibly embedded.

Third, in view of The Two Hands Argument + Autonomy and its implications as I have spelled them out, it is very plausibly arguable that the only kind of conscious intentional content that effectively causally pairs M with P_1 and not with P_2 is autonomous essentially non-conceptual content, since only autonomous essentially non-conceptual content is necessarily sensitive to enantiomorphic differences in the material intentional targets of mental representation.

Or in other words, then, and now summing up this phase of my argument, my conclusion is that only Kantian Non-Conceptualism can adequately solve The Generalized Causal Pairing Problem. No version of Conceptualism will be able to solve it, given the soundness of The Two Hands Argument, and no theory of mental content that entails Cartesian interactionist dualism, reductive physicalism, or non-reductive physicalism will be able to solve it either. So this result, it seems to me, is strong or even decisive evidence in favor of Kantian Non-Conceptualism.

2.8 Another Implication of The Two Hands Argument + Autonomy: The Deep Consciousness Thesis

I now want to consider another extremely important implication of The Two Hands Argument + Autonomy. This is that basic levels of mental activity and representation generally assumed to belong to "the cognitive unconscious"[113] are in fact *conscious*, by virtue of their autonomous essentially non-conceptual content. Otherwise put, on my view consciousness goes all the way down to the sensorimotor ground floor of cognitive and practical agency, via the vital cord of autonomous essentially non-conceptual content. This is what I call *The Deep Consciousness Thesis*. More precisely, however, The Deep Consciousness Thesis says:

Necessarily, whenever a creature with a consciousness like ours is in any sort of mental state, then it is also occurrently conscious in some definite way, even if only minimally. So occurrent consciousness like ours penetrates into every aspect of our mental lives, including so-called "non-conscious," "sub-personal," or "sub-doxastic" information processing.

If The Deep Consciousness Thesis is true, then this provides the beginnings of a solution to what Ray Jackendoff aptly calls *The Mind-Mind Problem*, which is how it is ever possible for there to be genuine two-way causal interaction or semantic

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[113] See, e.g., Kihlstrom, "The Cognitive Unconscious."

interaction across the theoretical and normative gap between The Conscious Mind, or first-personal information processing, and The Computational Mind, or so-called "non-conscious," "sub-personal," or "sub-doxastic" information processing.[114] The Kantian Non-Conceptualist solution to The Mind-Mind Problem, along with The Deep Consciousness Thesis, is that all this so-called "non-conscious," "sub-personal," or "sub-doxastic" mental processing is still in fact inherently conscious, first-personal, proto-rational, categorically normative mental processing, insofar as it has autonomous essentially non-conceptual content and is pre-reflective, non-self-conscious, and non-inferentially doxastic.[115]

In this context, the term "doxastic" means *inherently open to belief*, by virtue of non-inferentially grounding perceptual beliefs, as opposed to "sub-doxastic," which means *inherently closed to belief*. In other respects, of course, autonomous essentially non-conceptual content is *non*-doxastic since it neither requires nor is sufficiently determined by beliefs. In any case, since, as I am assuming, autonomous essentially non-conceptual content is inherently proto-rationally and categorically normative in all rational human animals or real human persons, fundamentally understood as cognitive and practical agents, then it follows that all sensorimotor cognition and action in us is also inherently proto-rationally and categorically normative.

This in turn comes back to the important difference I pointed up in section 2.1 between my view and Burge's in *Origins of Objectivity*. Burge's account achieves the concept-independence and concept-autonomy of perceptual content only by way of drawing a metaphysically sharp line between so-called "sub-doxastic" and doxastic animal mindedness and between so-called "non-conscious" and conscious animal mindedness. So Burge's account contains an explanatory gap: in effect, Jackendoff's Mind-Mind Problem. On the contrary, however, my account rejects these metaphysically hard-and-fast lines as relics of the mythical and philosophically disastrous Cartesian Two Trains Picture of the mind. In turn, my account achieves the concept-independence and concept-autonomy of perceptual content by another route altogether—a strictly cognitive-semantic route, exemplified by The Two Hands Argument—that also remains fully open to the necessary complementarity and symbiotic connectedness of the autonomous essentially non-conceptual and the conceptual domains.

The Deep Consciousness Thesis, like other parts of my view, may initially seem shockingly radical and unorthodox. But properly understood, it is much less shocking than it might seem. One fundamental source of philosophical confusion in this area is that the very idea of a consciousness like ours, or "the first-personal," is deeply ambiguous as between (i) self-consciousness or self-reflection, which is the ability of a rational animal to have conscious propositional/conceptual meta-representational

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[114] See, e.g., Jackendoff, *Consciousness and the Computational Mind*.
[115] By contrast, for the thesis that at least some non-conceptual content is, or must be, non-conscious, sub-personal, or sub-doxastic, see: Bermúdez, "Nonconceptual Content: From Perceptual Experience to Subpersonal Computational States"; Pylyshyn, *Seeing and Visualizing*; and Raftopolous and Müller, "The Nonconceptual Content of Experience." Nevertheless, if I am correct, then one familiar worry about whether the fact or notion of non-conceptual content is really unitary or not has thereby been removed—namely, the worry that if some of it is conscious, and some of it is non-conscious, how could it all be of the same basic kind? If I am correct, then it is all conscious, all the way down.

states, or self-describing conscious thoughts about itself, and what Evan Thompson aptly calls (ii) *sensorimotor subjectivity*,[116] which is the more primitive and pre-reflective ability of rational (and also non-rational minded) animals to have what Nagel also aptly calls a "single point of view."[117] In turn, I hold, this pre-reflective ability of a rational (or non-rational minded) animal to have a single point of view is grounded in egocentrically centered essential embodiment, and what I call *primitive bodily awareness*, which includes proprioception (the sense of the relative positioning of one's own body parts and limbs, at rest or in movement), kinaesthesia (the sense of bodily movement), the senses of orientation and balance (as intrinsic aspects of proprioception or kinaesthesia), bodily pleasures and pains, tickles and itches, the feeling of pressure, the feeling of temperature, the feelings of vitality or lethargy, and so on.

It is important to note here that consciousness in this pre-reflective or sensorimotor-subjective sense necessarily includes what philosophers of mind generally call "phenomenal character," which is the same as Nagel's "subjective character of experience"—

[F]undamentally an organism has conscious mental states if and only if there is something it is like to *be* that organism—something it is like *for* the organism. We may call this the subjective character of experience.[118]

Nevertheless, the irreducible fact of consciousness in minded animals is far from being either captured or exhausted by phenomenal character alone.[119] On the contrary, according to the doctrine of consciousness developed by Maiese and me in *Embodied Minds in Action*, the psychological facts of point-of-view and primitive bodily awareness, whether taken separately or together, are massively richer psychological facts than that of mere phenomenal character, given their necessary involvement with spatial facts, temporal facts, biological facts, and complex thermodynamic facts more generally. It is equally important to note here that on my view even the notion of phenomenal character is not the same as the classical notion of qualia—indeed, on my view, which I share with other "qualia-eliminativists," although no doubt for very different reasons, there really are no such things as qualia.[120]

The really key point in the present context, however, is that self-consciousness or self-reflection requires sensorimotor subjectivity or pre-reflective consciousness, yet the converse is not true: sensorimotor subjectivity or pre-reflective consciousness does not require self-consciousness or self-reflection. For example, at least some non-human animals—most famously, Nagel's bat—and all normal human infants have sensorimotor-subjective or pre-reflectively conscious states that are not also self-conscious or self-reflective. Again, and despite the fact that I am a rational, self-conscious, and self-reflective animal, when I am skillfully driving my car and drinking hot coffee without spilling it, but also thinking intensely about philosophy,

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[116] See Thompson, "Sensorimotor Subjectivity and the Enactive Approach to Experience."
[117] Nagel, "What Is It Like to Be a Bat?," pp. 166–67.
[118] Nagel, "What Is It Like to Be a Bat?," p. 166.
[119] See Hanna and Maiese, *Embodied Minds in Action*, chapter 2.
[120] See Hanna and Maiese, *Embodied Minds in Action*, section 2.3.

the conscious acts or states that skillfully control my driving and my coffee-drinking are sensorimotor-subjective or pre-reflectively conscious but not in any way self-conscious or self-reflective. If they were, then I would most probably spill the hot coffee all over myself, and drive off the road into the ditch. Since, presumably, everyone would agree that normal human infants and at least some non-human animals are conscious animals, but not also self-conscious or self-reflective animals, and also that it is possible for rational, self-conscious, self-reflective animals like us skillfully to drive a car and at the same time drink hot coffee consciously and pre-reflectively but not self-consciously or self-reflectively, then at least implicitly everyone already concedes a distinction between sensorimotor subjectivity, on the one hand, and meta-representational, self-conscious or self-reflective subjectivity, on the other. Sensorimotor subjectivity or pre-reflective consciousness, in turn, necessarily corresponds to autonomous essentially non-conceptual content, non-conceptual knowledge, and "know-how" at the level of motor skills.

Hence it is not so very shocking after all for me to hold that all mental states, even "tacit" computational information processing states, are also occurrently conscious. All I am saying is that even "tacit" computational information processing involves sensorimotor subjectivity, or pre-reflective consciousness, but not meta-representational, self-conscious or self-reflective subjectivity.

Sensorimotor subjectivity or pre-reflective consciousness is also an autonomous essentially non-conceptual consciousness, precisely because all sensorimotor-subjective, pre-reflectively conscious acts or states contain autonomous essentially non-conceptual information that necessarily includes direct singular reference, in the modes of location and tracking, and that inherently guides and mediates them in their directedness to their intentional targets. By contrast, as Kant explicitly held in the Transcendental Analytic, a claim which I would also fully endorse, self-consciousness or self-reflection is a conceptual/propositional consciousness. This, in turn, is because the capacity for self-consciousness or self-reflection is a subject's ability to make reflexive, reflective, meta-representational judgments about one's own mental acts and states, and thereby to possess (even if only in the very weak possession-theoretic sense of Highly Refined Conceptualism—see section 2.2) a concept of oneself, by way of those self-directed judgments.

If we were sufficiently careful about the distinction between sensorimotor subjectivity or pre-reflective consciousness, on the one hand, and self-consciousness or self-reflection, on the other, then I think that even the deeply puzzling and much-discussed phenomenon of *blindsight* could be explained.[121] Blindsight occurs when brain-damaged subjects who introspectively report an inability to see, and are to that extent clinically blind, are also able to point with some significant level of accuracy to objects in the self-professedly blind parts of their visual fields.[122] By means of a

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[121] See, e.g., Weiskrantz, *Blindsight*.
[122] Strikingly there is also a "blindimagination" analogue of blindsight, in which a brain-damaged subject reports a complete loss of conscious mental imagery, yet is able to score at least as well or better on "mental manipulation" tests (i.e., involving the mental comparison of two imagined figures, etc.) than subjects whose capacity for conscious imagination is normal. One other unusual feature of the blindimagination data is that although normal subjects take longer to compare imagined figures in direct proportion

thought-experiment, Ned Block then extends "ordinary," empirically well-confirmed blindsight to what he calls "superblindsight" and "superduperblindsight,"[123] in which blind subjects are able to locate and track objects at very high, or even exceptionally high—in effect, normally sighted—levels of accuracy. What I want to say about these cases is that not only the rough-grained sensorimotor abilities manifest in actual blindsight, but also the fine-grained or hyper-fine-grained abilities manifest in superblindsight and superduperblindsight can be explained by postulating that these abilities are all guided and mediated by the autonomous essentially non-conceptual information carried by or contained in sensorimotor-subjective or pre-reflectively *conscious* vision, even though they lack *self-conscious* or *self-reflective* vision for that cognitive and practical task.[124]

Otherwise put, I am proposing that in actual blindsight or its thought-experimental extensions, the frontline information-processing mechanisms of the eyes and related areas of the wider brain-body system—whose neural operations are, arguably, localized in the parietal lobe of the brain—are relevantly and relatively undamaged and continue to transmit sensorimotor-subjective or pre-reflectively conscious autonomous essentially non-conceptual visual information. This occurs even though the corresponding downstream mechanisms for processing self-conscious or self-reflective conceptual visual information—whose neural operations are, arguably, localized in the temporal lobe—have broken down. Blindsighters, after all, have their eyes open and are working under well-lit conditions. Blindsighters would then be best and most coherently characterized as "sighted" in one sense of conscious vision, but also "blind" in another sense of conscious vision, instead of being paradoxically characterized as being both "blind" and "sighted" in the same sense of conscious vision.

If that proposal is correct, then blindsighters subjectively experience self-conscious or self-reflective blindness via the more sophisticated "what"-sensitive downstream processing mechanisms of the brain-body system, but also subjectively experience sensorimotor-subjective, pre-reflectively conscious sight via the simpler "where"-sensitive processing mechanisms of the eyes and related parts of the brain-body system. Blindsighted subjective experience, moreover, has its own unique sort of phenomenal character and thus its own unique "something it is like to be *for* the organism." Otherwise put, according to this account, blindsight is a determinate kind of conscious perceptual experience running on autonomous essentially non-conceptual content, just

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to the degree of difference between the angle of perspective on the two objects (the bigger the difference, the longer it takes the subjects to recognize the objects as the same or different), the blindimaginer always takes the same amount of time to produce the same answer. See Zimmer, "The Brain: Look Deep into the Mind's Eye." Many thanks to Devon Belcher for bringing these studies to my attention.

[123] See Block, "Concepts of Consciousness," p. 211.

[124] Analogously, in the "blindimagination" case (see note 122, this chapter), I would want to say that the subject still possesses conscious mental imagery and is manipulating it non-self-consciously or pre-reflectively, but has lost the ability to be self-consciously or self-reflectively aware of it. The fact that normal subjects take longer to compare imagined figures in direct proportion to the degree of difference between the angle of perspective on the two objects, while the blindimaginer always takes the same amount of time to produce the same answer, could then be explained by saying that the extra cognitive layer of self-conscious or self-reflective reporting on mental imagery actually slows subjects down and increases their response times.

as ordinary seeing is another determinate kind of conscious perceptual experience running on essentially non-conceptual content together with conceptual content. The blindsighted person obviously is not unconscious, and therefore is consciously feeling and doing something in a determinately specific way when she "blindsees" an object.

Furthermore, the notion of a divided consciousness is already theoretically familiar from well-known experiments involving divided attention tasks and the dissociated cognitive abilities of neo-commissurotomy patients (i.e., "split brain" patients whose *corpus callosum*, the primary neural connection between the two brain hemispheres, has been surgically severed), and functionally similar agnosias. Most importantly for my purposes, there are the well-known Milner and Goodale data in favor of the hypothesis that there are two relatively distinct visual pathways of information processing, the *ventral stream* and the *dorsal stream*. The ventral stream is localized in the temporal lobe and supports so-called "conscious"—or as I would say, in correction of that crucially ambiguous term, self-conscious or self-reflective—visual perception. The dorsal stream is localized in the parietal lobe and supports so-called "non-conscious"—or as I would say, in correction of that crucial misnomer, nonself-consciously conscious or pre-reflectively conscious—visual perception.[125] So what I am saying is that in blindsight, the ventral stream, as the support for one kind of conscious vision, is significantly compromised, while the dorsal stream, as the support for the other kind of conscious vision, remains uncompromised.

There is much more to say about the Milner-Goodale data, but I will only just mention a few directly relevant points. In my essay, "Minding the Body," I spell out the two-types-of-consciousness thesis, and connect it to the Milner-Goodale data. There I also propose that what I call *type-1* (i.e., ventral stream, temporal-lobe localized) *consciousness* runs on conceptual content, whereas *type-2* (i.e., dorsal stream, parietal-lobe localized) *consciousness* runs on autonomous essentially non-conceptual content. In her article, "Vision for Action and the Contents of Perception," Berit Brogaard persuasively argues that at least some information processed in the dorsal stream gets into ventral stream processing, contrary to the usual interpretation of Milner-Goodale, which strictly dissociates the two information-processing streams. Although Brogaard would not, I think, accept either The Deep Consciousness Thesis or Kantian Non-Conceptualism, they are perfectly consistent with her basic argument. Indeed, since on my account both streams are *conscious*, albeit non-self-consciously and pre-reflectively, it also neatly explains how it is that egocentric spatial visual information in the dorsal stream is also carried over into the allocentric spatial visual representations in the ventral stream without any mysterious jump from the *non*-conscious into the conscious. It is conscious all the way down. Looked at historically, moreover, my Kantian non-conceptualist account is basically just an updated and critically cleaner version of Kant's theory of how the human capacity for "sensibility" or *Sinnlichkeit* (implemented in dorsal stream, parietal-lobe localized processing) and the human capacity for "understanding" or *Verstand* (implemented in ventral stream, temporal-lobe localized processing) cognitively combine in rational human agents in order to produce our objective experience of the manifestly real

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[125]   Milner and Goodale, *The Visual Brain in Action*.

world. So my account also neatly fuses important ideas in the history of early modern philosophy with the results of contemporary cognitive neuroscience.

This Kantian non-conceptualist way of thinking about blindsight, in turn, would also effectively avoid the further and even deeper paradox that in blindsight a brute, non-conscious, non-unified, purposeless mental processing somehow exerts rough-grained, fine-grained, or hyper-fine-grained control over our essentially embodied cognitive and practical intentional agency. If this were true, then blindsighters would be nothing but natural automata with respect to their blindseeing activities. But it seems more than just implausible to hold that blindsighted people are nothing but naturally mechanized puppets or robots in the blind areas of their self-conscious or self-reflective visual fields, but otherwise really free agents and real persons. On the contrary, it seems clearly and distinctly true that blindsighted people are real human persons who are genuinely visually conscious in those areas, and also genuinely choose and act with real freedom of the will under the relevant experimental conditions. In this way, even in their blindsighted condition, they are ultimate sources of their own intentional body movements, which are thereby "up to them," such that they are also causally and morally responsible for their movements. After all, the scientists in blindsight experiments are certainly not "overwhelming manipulators" like, for instance, the weirdly jolly evil cognitive scientist in *The Manchurian Candidate*.[126] So our rationally intuitive, clear and distinct, and cognitively smooth attribution of responsibility for their movements to the blindsighted subjects is good prima facie evidence against their being nothing but naturally mechanized puppets or robots in the blind areas of their self-conscious or self-reflective visual fields. Hence it is also good prima facie evidence *against* their being non-conscious cognizers in that domain, and thereby also good prima facie evidence *in favor of* their being deeply free rational human animals and real human persons in that very domain.

It is true that both blindsighted conscious experience and also blind-sighted choosing and doing occur in a way that is in some determinate respects sharply and intrinsically phenomenologically, semantically, and biologically/neurobiologically different from the visual consciousness and intentional visual activity of normal self-consciously or self-reflectively sighted people. So blindsighters have a sensorimotor-subjective or pre-reflective visual consciousness that is just like those of ordinary self-consciously or self-reflectively sighted people. But those blind-sighters also differ determinately, specifically, and sharply from ordinary sighted people at the cognitive and practical level that is inherently guided and mediated by *conceptual* content. At the same time, however, no one doubts that, other things being equal, blindsighters are operating normally as rational human animals or real human persons during the course of the blindsight experiments. Their higher-level self-conscious cognitive activity and their lower-level blindsighted cognitive activity are not two essentially separate processes—one causally closed inherently ghostly and immaterial process (pure epiphenomenal rationality), and another causally closed inherently mechanical and material process (pure mechanical animality)—as the

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[126] (Directed by J. Frankenheimer, 1962).

philosophically disastrous Cartesian Two Trains Picture implies. So, at the end of the day, all I am saying is that blindsighters are rational human animals and real human persons all the way down, via autonomous essentially non-conceptual perceptual content.

This Kantian Non-Conceptualist explanation of blindsight, correspondingly, suggests a new way of explaining the equally puzzling phenomenon of "filling-in."[127] Filling-in is the well-confirmed empirical fact that our visual field presents itself as rich and continuous, even though we actually have blind spots on our retinas. A similar but more externalized version of this phenomenon occurs when you are walking alongside a tall slatted fence with narrow gaps between the slats, and can see a complete object behind the fence, seemingly without any visual occlusion. But here is the puzzling question raised by all such phenomena: Why doesn't the normal human visual field have some holes in it?

Various possible solutions to the puzzle have been offered. The Kantian Non-Conceptualist solution is that filling-in is, in effect or even essentially, the cognitive contrapositive of blindsight. In blindsight, I have proposed, the cognitive subject has sensorimotor-subjective or pre-reflectively conscious (dorsal stream, parietal-lobe localized) vision without self-conscious or self-reflective (ventral stream, temporal-lobe localized) vision. That is, she has sensorimotor-subjective or pre-reflectively conscious vision via the simpler "where"-sensitive processing mechanisms of the eyes and related parts of the brain-body system, together with self-conscious or self-reflective blindness via the more sophisticated "what"-sensitive processing mechanisms of the downstream brain-body system. Contrapositively, in filling-in, I am suggesting, cognitive subjects have an uncompromised capacity for self-conscious or self-reflective (ventral stream, temporal-lobe localized) vision, combined with a slightly compromised or agnosic capacity for sensorimotor-subjective or pre-reflectively conscious (dorsal stream, parietal-lobe localized) vision. Or in other words, subjects have self-conscious or self-reflective *full vision* via the more sophisticated processing mechanisms of the downstream brain-body system that are running on conceptual content together with essentially non-conceptual content, alongside a sensorimotor-subjective or pre-reflectively conscious *selective blindness* via the simpler processing mechanisms of the eyes and related parts of the brain-body system that are running on autonomous essentially non-conceptual content. And as a consequence, the capacity for self-conscious or self-reflective (ventral stream, temporal-lobe localized) vision simply compensates for the slightly compromised or agnosic capacity for sensorimotor-subjective or pre-reflectively conscious (dorsal stream, parietal-lobe localized) vision in this cognitive and practical context—in just the way that one might lean more heavily on one's left leg if the right leg were slightly injured—and thereby fills-in the blind spots.

If this explanation is correct, then it will also smoothly bind together blindsight and filling-in within a single theoretical framework.

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[127] See, e.g., Pessoa, Thompson, and Noë, "Finding out about Filling in: A Guide to Perceptual Completion for Visual Science and the Philosophy of Perception."

That might seem shockingly radical and unorthodox, too. But in any case, whatever its ultimate success in explaining both blindsight and filling-in as cognitive contrapositives of one another, Kantian Non-Conceptualism predicts that sensorimotor subjectivity or pre-reflective consciousness and autonomous essentially non-conceptual content go inherently together, hand-in-glove—and this, in turn, is the deepest insight of Kant's Transcendental Aesthetic. Indeed, in the particular case of blindsight, Kantian "intuitions" or *Anschauungen* are literally "blind" in the self-conscious or self-reflective sense (the subject believes herself to be blind), yet intrinsically involve a sensorimotor subjectivity or pre-reflective consciousness in "inner sense" and are also directly referential conscious mental representations. The blindsighted subject authentically blindsees the world in a sensorimotor-subjective or pre-reflectively conscious sense, via autonomous essentially non-conceptual content, but also authentically fails to see the world in a self-conscious or self-reflective, thought-based, and conceptual sense. By an illuminating comparison and contrast, while Nagel's bat is obviously "blind" in the self-conscious or self-reflective sense, it also has a sensorimotor subjectivity or pre-reflective consciousness and is capable of directly referential cognition, location and tracking, and non-rational forms of intentional action. Hence the bat truly sees the world in a specifically sensorimotor-subjective or pre-reflectively conscious sense, via a capacity for biological sonar that is running on autonomous essentially non-conceptual perceptual content, in a way that is functionally and structurally analogous to human blindsight. Therefore the normal healthy bat "batsees" the world, just as the ordinary blindsighter, super-blindsighter, or superduperblindsighter "blindsees" the world.[128]

2.9 The Grip of the Given

Even Jeff Speaks, who of course is skeptical about the defensibility of content Non-Conceptualism, thinks that progress on the question of the relations between thought and perception cannot be made until we work out a theory of "the involvement of a faculty of spontaneity in perception," that is, a theory which tells us precisely "how far one's conceptual capacities—one's abilities to have thoughts involving certain kinds of concepts—go toward shaping the contents of one's experience":

I do think that there is a natural understanding of the questions about nonconceptual content which I have not discussed, but which seems to be in the background of McDowell's discussions of the issue. I have in mind his many discussions of the involvement of a faculty of spontaneity in perception. This is the Kantian question of how far one's conceptual capacities—one's abilities to have thoughts involving certain kinds of concepts—go toward shaping the contents of one's experience. But is this a matter of the new concepts entering into the content of one's perceptions, or of one simply being able to infer more sophisticated beliefs from a more or less stable perceptual content? This does strike me as an interesting and fundamental question with broad consequences for our understanding of the nature of intentionality.[129]

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[128] See Hanna, "What the Bat Saw."

[129] Speaks, "Is There a Problem about Nonconceptual Content?," pp. 389–90.

Otherwise put, what Speaks is saying is that we need to have a theory which tells us precisely how our conceptual capacities encounter the externally given world through sense perception, survive that encounter in such a way that our rationality remains fully intact—in the sense that it does not collapse into a mere bundle of contingently associative cognitive powers, as in classical Empiricism—and at the same time, along with our capacity for sense perception, jointly produce the normative fact of experiential content.

Here is a working sketch of how Kantian Non-Conceptualism can provide a theory that will answer precisely this "interesting and fundamental question with broad consequences for our understanding of the nature of intentionality." Kantian Non-Conceptualism holds that autonomous essentially non-conceptual content has its own "lower-level spontaneity"—which Kant calls the spontaneity of the *synthesis speciosa* or "figurative synthesis" of the "transcendental" or "productive" imagination, at (*CPR* B151–152)[130]—and hence its own lower-level normativity. This lower-level spontaneity and lower-level normativity, in turn, are based on intrinsically spatiotemporally structured and egocentrically oriented instrumental or "hypothetically imperative" rules for the skillful manipulation of tools and of the proximal or distal environment, and for the skillful fine-grained or hyper-fine-grained sensorimotor control of one's own body in basic intentional actions. Correspondingly, Kantian Non-Conceptualism also holds that the lower-level spontaneity of our non-conceptual cognitive capacities is irreducible to the "higher-level spontaneity"—which Kant calls the spontaneity of the *synthesis intellectualis* or "intellectual synthesis" of the understanding and reason at (*CPR* B151–152)—of our conceptual capacities and our self-consciousness. Thus its lower-level normativity is irreducible to the higher-level normativity of our conceptually funded rationality, which is based on non-instrumental or non-hypothetically imperative—categorically normative— rules of logic and morality. And finally Kantian Non-Conceptualism also holds (i) that the lower-level spontaneity and lower-level normativity of autonomous essentially non-conceptual content, as situated content, is the necessary, presupposed ground of the higher-level rational spontaneity and normativity of conceptual content, and (ii) that both kinds of content are fully complementary to one another and symbiotically connected to one another in the constitution of atomic or basic perceptual judgments, or what Kant calls "judgments of experience."[131] This

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[130] Unfortunately, Kant's own views on the nature of the transcendental or productive imagination and its figurative synthesis are inherently conflicted. On the one hand, he says that it "belongs to **sensibility**" (*CPR* 151), which is the interpretation I am endorsing from the standpoint of Kantian Non-Conceptualism. But he also says that to the extent that it is an expression of cognitive "spontaneity," then it is merely "an effect of the understanding on sensibility" (*CPR* B 152), which of course assigns it to the discursive powers of the rational human mind and directly implies Conceptualism. There are important reasons for Kant's conflictedness here, having to do with some deep worries he had about the unsoundness of the Transcendental Deduction, and, correspondingly, some equally deep worries he had about the possible dire implications of the Deduction's unsoundness for the metaphysics of transcendental idealism. My own view is that *facing up* to these worries yields a much better contemporary Kantian theory; see Hanna, "Kant, Hegel, and the Fate of Non-Conceptual Content." More precisely, in chapters 6 to 8, I face up to the worries by working out a contemporary Kantian *theory* of the productive imagination and its figurative synthesis, in the larger context of a Kantian Non-Conceptualist theory of rational intuition.

[131] See Hanna, *Kant, Science, and Human Nature*, chs. 1–2.

complementarity and symbiotic connectedness also smoothly extends to a posteriori hypothetical/instrumental-practical judgments and a posteriori non-instrumental practical judgments, as well as to a priori judgments in mathematics, logic, categorical/non-instrumental morality, and philosophy.

In this same theoretical neighborhood, there is an extremely important question, raised by McDowell in *Mind and World*, of how non-conceptual content can ever really and truly justify, and not just "exculpate"—merely cause, occasion, or trigger—any of our rational human beliefs, choices, and actions. Following out McDowell's thought, one might argue, for instance, in the following way:

(1) All justification involves reasons.
(2) All reasons stand in inferential relations to beliefs, choices, or actions.
(3) Non-conceptual content on its own can never stand in inferential relations to beliefs, choices, or actions.
(4) So non-conceptual content on its own can never supply justification for beliefs, choices, or actions.
(5) Representational content is genuine only if it can supply justification for beliefs, choices, or actions.
(6) So non-conceptual content is not genuine representational content.[132]

I will call this *The Inferentialist Argument* against non-conceptual content. The Kantian Non-Conceptualist answer I am giving to McDowell's important question, and correspondingly the Kantian Non-Conceptualist response I am giving to The Inferentialist Argument, has three parts.

First, it is quite true that non-conceptual content certainly cannot ever justify beliefs, choices, or actions if one adopts the false "sensationist" or phenomenalist conception of non-conceptual content that accepts The Myth of the Given, whereby non-conceptual content is nothing but the unstructured causal-sensory "given" input to the cognitive faculties, passively waiting to be carved up by concepts and propositions. To hold that non-conceptual content, so construed, could ever justify, would be mistakenly to accept The Myth of the Given. But to believe that the "sensationist" conception is the only theory of how non-conceptual content could ever justify, is equally mistakenly to accept The Myth of the Myth.

Second, and again, it is quite true that non-conceptual content certainly cannot ever justify beliefs, choices, or actions if one adopts state Non-Conceptualism, which provides no well-grounded principles or reasons for cognizing or acting, and instead only asserts the subject's non-possession of concepts. This is shown by the fact that state Non-Conceptualist premises do not entail content Non-Conceptualist conclusions, together with the real possibility (and in recent work by McDowell, the actuality) of what, in section 2.2, I called Highly Refined Conceptualism, which in turn demonstrates that failures of concept-possession are systematically consistent

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[132] Many thanks to Daniel Korman for helping me formulate this anti-non-conceptualist line of argument more clearly. See also Bengson, Grube, and Korman, "A New Framework for Conceptualism." Bengson, Grube, and Korman successfully show that Heck's argument for essentially non-conceptual content fails; but they do not actually consider The Two Hands Argument or other incongruent counterpart-style arguments.

with the thesis that the content of perception is still thoroughly conceptual, although in an implicit or rationally unarticulated format.

But **third**, according to Kantian Non-Conceptualism, steps (2), (4), and (6) in The Inferentialist Argument are all false. Not all reasons stand in inferential relations to beliefs, choices, or actions. Reasons can justify beliefs, choices, or actions directly and non-inferentially, as when person A says "Give me one good reason why I should believe/choose/do X," and then person B simply delivers, demonstrates, or presents X to A's essentially embodied capacities for believing, choosing, or doing X, thereby activating the relevant capacity. A thereby has a good non-inferential reason for believing, choosing, or doing X. So, to take a concrete example, suppose that you are person A and I am person B, and X is a state-of-affairs consisting of a big martini sitting on the kitchen table. Then you say, "Give me one good reason for believing that there is a big martini sitting on the kitchen table." And I simply turn you around (or point, or open the door to the kitchen, or turn on the kitchen light, etc.), so that you are visually gob-smacked by the manifest fact that there is a big martini sitting on the kitchen table. In such cases, as they say, *seeing is believing*, by which it is meant that in such cases the act of seeing itself is a good reason for believing what is seen. Or otherwise put, I am claiming that there is autonomous essentially non-conceptual access to non-inferential reasons.[133]

To exploit this general point—namely, that autonomous-essentially-non-conceptually-accessed reasons can justify beliefs, choices, or actions directly or non-inferentially when a manifest fact is simply delivered, demonstrated, or presented to the relevant essentially embodied capacities of a rational agent—Kantian Non-Conceptualism thus invokes the primitive fact of the proto-rationality of the minded body. Some reasons are *the minded body's own reasons*. More precisely, autonomous essentially non-conceptual content is presupposed by all rational conceptual/propositional content whatsoever, and thus it is inherently proto-rational. Furthermore, in rational human minded animals or real human persons of the specifically higher-level or Kantian kind, it is also self-reflectively constrained by categorically normative moral principles. It therefore can and does sometimes sufficiently justify perceptual beliefs and basic intentional actions, and thereby provide reasons for them, even without standing in inferential relations to them. Otherwise put, over and above inferential reasons, there is at least one *other* kind of normative, good-reason-producing, justifying relation to beliefs, choices, and actions; and autonomous essentially non-conceptual content can stand in *that* kind of relation to them.[134] Hence autonomous essentially non-conceptual content is genuine, normatively loaded representational content, although obviously of a categorically or essentially different kind from conceptual content.

Here is the explicit rationale for those claims. Autonomous essentially non-conceptual content can provide rational human animals with an inherently spatio-temporally situated, egocentrically centered, essentially embodied, pre-reflectively conscious, skillful perceptual and practical "grip" or "handle" on things in the

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[133] For a similar point, see also Schmidt, "Perceptual Reasons and Inferential Justification."
[134] See also Hopp, "Conceptualism and the Myth of the Given"; and Schellenberg, "Experience and Evidence."

manifestly real world. I will call this fundamental normative fact *The Grip of the Given*, with due regard to the two-part thought that (i) to stand *within* The Grip of the Given is also thereby (ii) to have a grip or handle *on* things in the manifestly real world. More precisely, to stand within The Grip of the Given is to be so related to things and other minded animals in the manifestly real world, and thereby to have a grip or handle on the positions and dispositions of things and other minded animals in the world, via essentially non-conceptual content, that we are poised for achieving accurate reference, true statements, authentic knowledge, consistency and valid consequence in logical reasoning, effectiveness in intentional performance, goodness of means or ends, rightness in choice or conduct, and consistency and coherence in practical reasoning. In short, we are poised for achieving any or all of the highest values of our cognitive and practical lives. Or otherwise put, to stand within The Grip of the Given is to be *well-situated* for epistemic and practical justification.

This conception of The Grip of the Given fully includes the familiar idea that rational human cognition necessarily comprises "responsiveness to reasons," but also extends well beyond it. Whenever, and just insofar as, minded animal sense perceivers like us stand within The Grip, then all of these achievements actually lie within the scope of our cognitive and practical capacities or powers. As cognizers and practical agents we are then enabled and primed for rational human cognition and intentional action, and the fact that we ought to believe, choose, or do X necessitates the fact that we really can believe, choose, or do X.

To be sure, being in The Grip of the Given is not an absolute or even a money-back guarantee. Being well-situated for epistemic and practical justification does not itself ensure or secure any of these cognitive or practical achievements. In the event, and in the actual thick of things, matters can go trivially or colossally wrong—FUBAR. For example, the perceiver might unknowingly be looking into an *Ames room,* which is a trapezoidally shaped room that is specially designed to give the appearance of a rectangular room and create illusions of depth, when viewed from one particular standpoint.[135] It is therefore possible to stand in direct, veridical cognitive relations to inherently deceptive world-situations, and then the unlucky cognizer and practical agent just has to make-do as best she can in those situations. Such phenomena are usefully labelled *veridical illusions.*[136] The possibility of veridical illusions, in turn, raises a significant worry to the effect that The Grip of the Given cannot ever sufficiently justify cognition or intentional action.

What I want to say in reply to the worry about veridical illusions is this. The Grip of the Given endows and underwrites all actual cognitive and practical achievements, and all cognitive and practical success. It makes cognitive and practical success really possible for all rational minded animals or real persons, including, of course, human ones. It enables and primes all our cognitive and practical success. The Grip does not, however, a priori buy us cognitive or practical success. Nothing ever could. Indeed, it would be a serious Cartesian—or for that matter, Hegelian—fallacy about the rational

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[135] See, e.g., Illusionism.org, "The Ames Room."
[136] See, e.g., Hanna, "Direct Reference, Direct Perception, and the Cognitive Semantics of Demonstratives."

human animal mind to think that anything ever could a priori buy us cognitive or practical success. There is still the rational human minded animal's own free contribution to cognition and intentional action, and also the world's factive contribution. Sufficient justification according to The Grip of the Given, like all High-Bar knowledge, requires (i) intrinsic compellingness of consciously experienced evidence, (ii) a properly functioning cognitive mechanism delivering that conscious evidence to belief, and (iii) the essential reliability that non-accidentally or necessarily connects the belief's worldly truth-maker to that belief. The world's factive contribution to (iii) means that there is always an element we cannot (wholly) control.

In short, then, in addition to inferential relations to beliefs, choices, and actions, there is also the normative, sufficiently justifying non-inferential "grip" or "handle" relation to beliefs, choices, and actions, and autonomous essentially non-conceptual content can stand in *that* kind of relation to them, thereby providing non-inferential good reasons for those beliefs. Therefore it is precisely The Grip of the Given, via autonomous essentially non-conceptual content, that is our primitive source of non-inferential sufficiently justifying reasons for basic perceptual beliefs or basic intentional actions. No rational human minded animal cognitive or practical activity could ever be genuinely accurate, true, High-Bar justified, logically consistent, effective, good, right, or practically consistent and coherent without autonomous essentially non-conceptual content. And correspondingly, no rational human minded animal could ever freely and successfully navigate her way through the world and perform basic intentional acts according to principles without it. So that is why autonomous essentially non-conceptual content really and truly sufficiently justifies, when it is combined with the other cognitive and practical capacities that are jointly essential to human rationality and free agency.

Otherwise put, and now generalizing to contemporary epistemology, the theory of basic perceptual knowledge that I am proposing is, in effect, an "internalistic virtue-epistemic externalism" or an "internalistic virtue-epistemic reliabilism." That may seem syncretic—as it were, throwing everything but the kitchen sink at the problem of knowledge, and hoping that one or more of those things sticks—but it is not. And here is the rationale for its not being syncretic, but instead genuinely theoretically innovative.

Classical *internalism* in the theory of knowledge says that knowledge is sufficiently justified true belief by virtue of a higher-order act or state of knowing-that-I-know, which yields indubitability. Classical *externalism* or *reliabilism* in the theory of knowledge, by contrast, says that knowledge is true belief plus justification by means of a reliable "sub-personal" or "sub-doxastic" causal mechanism of belief-formation, hence without any higher-order act or state of knowing-that-I-know. And standard *virtue epistemology* says that knowledge is irreducibly normative and inherently involves properly functioning cognitive mechanisms that result from the activation of our cognitive capacities or competences.

Now, classical internalism typically makes no appeal to inherently worldly factors and instead appeals to airtight inferential reasons for the justification of belief, usually in the guise of inherently mentalistic or phenomenological evidence. Contrariwise, classical externalism or reliabilism typically makes no appeal to inherently inferential factors and instead appeals to inherently mechanical worldly factors—natural

mechanisms and "sub-personal" or "sub-doxastic" truth-apt belief-causing processes—for the justification of belief.[137] And virtue epistemology typically over-looks the cognitive phenomenology of intrinsic compellingness or self-evidence in High-Bar knowledge, and tends to track context-sensitive, causally reliable Low-Bar knowledge instead—for instance, via trustworthy testimony. What is right about classical internalism is its appeal to mentalistic or phenomenological evidence for the justification of belief. What is right about classical externalism or reliabilism is its appeal to worldly factors, together with its insight that knowledge is possible at the first-order level without any appeal to inferential relations or higher-order validation. And what is right about virtue epistemology is its robustly normative approach together with its appeal to correctly exercised cognitive capacities or competences. What is wrong about all three approaches, taken as separate from one another, is the false shared assumption that justificatory appeals to mentalistic or phenomenological evidence, to worldly factors, and to properly functioning cognitive mechanisms are somehow fundamentally at odds with one another. This, in turn, is perhaps because they think of the mentalistic or phenomenological evidence as inherently mental and fundamentally non-physical and of the worldly evidence as inherently mechanical and fundamentally non-mental, and also of the cognitive virtues component as inherently disconnected from that which is inherently mental and fundamentally non-physical. In short, perhaps, they mistakenly assume the truth of The Cartesian Two Trains picture.

In any case, by sharp contrast to classical internalism, classical externalism or reliabilism, and standard virtue epistemology alike, according to the Kantian Non-Conceptualist view, together with categorical epistemology, basic perceptual knowledge is sufficiently—High-Bar—justified true belief, by virtue of The Grip of the Given. The Grip, via autonomous essentially non-conceptual content, by making us well-situated for epistemic justification, provides a two-way genuinely worldly, but also genuinely non-inferential, pre-reflectively conscious, and cognitively virtuous relation that fully enables, endows, primes, and underwrites basic perceptual beliefs and basic intentional actions in a first-order way, hence without any higher-order act or state of knowing-that-I-know. Thus in one go makes really possible (i) the intrinsic compellingness of consciously experienced phenomenal or sensory evidence, (ii) the proper functioning of the cognitive mechanism that delivers this evidence to perceptual belief, and (iii) the essential reliability of that perceptual belief, that is also, thereby, High-Bar perceptual knowledge. This "internalistic virtue-epistemic externalism or reliabilism" about basic perceptual knowledge, even despite its being somewhat of a mouthful to say or write out, is therefore not only importantly distinct from classical internalism, classical externalism or reliabilism, and standard virtue epistemology alike, and not only theoretically greater than the sum of the mere syncretic conjunction of the three different standard approaches to epistemology, but also designed to cohere seamlessly with The Deep Consciousness Thesis.

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[137] See, e.g., Steup, "Epistemology."

2.10 Conclusion

According to the account given in this chapter, autonomous essentially non-conceptual content, or situated content, unified by the Kantian necessary a priori subjective forms of sensibility, our representations of space and time, not only really exists. It is also the original and necessary two-way continuous thread of life by which the world is sensorimotor-subjectively or pre-reflectively consciously delivered up from human minded animal experience to our self-conscious or self-reflective thought and action-oriented deliberation, and then is downwardly transformed by our thinking and deliberative action under universal a priori categorically normative logical and moral principles. As I have argued, although the difference between autonomous essentially non-conceptual content and conceptual content is an essential difference, nevertheless they are naturally related in a way that is asymmetric—that is, such that the conceptual constitutively presupposes the autonomous essentially non-conceptual, but not the other way around—necessarily complementary, and symbiotic. So when we go beyond The Myth of the Myth, what we find is just ourselves as rational human animals, fully embedded in the dynamic natural world, well-situated for epistemic and practical justification, and living purposefully and purposively within the unshakeable Grip of the Given.

3

Radically Naïve Realism

Perception is . . . the mental faculty that puts us into direct contact with the world.

—B. Nanay[1]

My point is really that what we get from sensory experience is better than what is ordinarily called "knowledge." When one makes one's judgments out of their sensed truthmakers, the mind's response to reality is wholly adequate. The elements that make up the sensed truthmakers are abstracted and recombined in the corresponding judgment. A sliver of reality has been adequately *digested* in the judgment.

—M. Johnston[2]

My beliefs can be like Lichtenberg and Wittgenstein and Anscombe have in mind, of the sort we might express with "Hot coffee in that cup in front; there is thirst and caffeine deprivation; so drink." We can imagine animals, cognitively sophisticated enough to perceive the world in terms of objects having properties and standing in relations, and perhaps even to re-identify objects perceived at different times, with no need to appreciate *themselves* as objects. Their beliefs concern them, but do not represent them in the way that they represent other objects. Such an animal picks up and acts on the basis of information about itself in spite of not having an idea that stands for themselves—much less a first person pronoun. It gets information about how things are around *it*, and this influences which self-sensitive actions it takes. I'll say such an animal has *primitive* self-knowledge, gained by methods that are self-informative, and motivating actions that are self-sensitive. And we are like such animals when we are young enough, and revert to this more primitive level of thought in cognitively undemanding situations.

—J. Perry[3]

O body swayed to music, O brightening glance,
How can we know the dancer from the dance?

—W. B. Yeats[4]

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[1] Nanay, "Philosophy of Perception: The New Wave," p. 5.
[2] Johnston, "Better than Mere Knowledge? The Function of Sensory Awareness," p. 289.
[3] Perry, "On Knowing One's Self," p. 31. See also Perry, *Reference and Reflexivity*.
[4] Yeats, "Among School Children," verse viii, p. 245.

3.0 Introduction

What is rational human sense perception? Can we correctly sense-perceive our world, and thereby know it? And if the answer to both of those questions is "yes," then how is this possible?

My working analysis of High-Bar, or sufficiently justified, perceptual knowledge, as derived from categorical epistemology, says that a rational human cognitive subject S has High-Bar perceptual knowledge if and only if (i) S has a true perceptual belief that P, (ii) S's phenomenal or sensory evidence that P is intrinsically compelling or self-evident, (iii) S possesses a properly functioning cognitive mechanism that delivers this phenomenal or sensory evidence to S's belief that P, and (iv) S's belief that P is essentially reliable–there is a non-accidental or necessary connection between S's belief that P and its worldly truth-maker. In general support of this analysis of High-Bar perceptual knowledge, in this chapter I want to explore two important applications of the Kantian theory of autonomous essentially non-conceptual content that I developed in chapter 2. And as I previewed it in section 1.3, I will be presenting a view that captures the consistent fusion of representationalism and relationism: perceptual acts, states, or processes have irreducible intentional or mental content *and also* are partially constituted by the real objects they represent.[5]

Not too surprisingly, there are different possible ways of combining representationalism and relationism. McDowell, for instance, in "Perceptual Experience: Both Relational and Contentful," does this in a framework that combines Conceptualism, content-monism, and disjunctivism. My way of doing it, by contrast, combines Kantian Non-Conceptualism, an "action-first" approach to perception, direct or naïve realism, content-dualism, capacity-dualism, disjunctivism, and The Essential Embodiment Theory of the mind-body relation. More precisely, then, I will, **first**, work out the basics of an intelligible and defensible Kantian Non-Conceptualist and essential-embodiment-oriented theory of rational human sense perception and High-Bar perceptual knowledge, in a super-robustly naïve-realist, content-dualist, capacity-dualist, and disjunctivist framework, and then, **second**, use this theory of sense perception and High-Bar perceptual knowledge to provide what I call a "minimalist" solution to the problem of perceptual self-knowledge raised by strong externalism.

That all sounds fairly anodyne and scholastic, perhaps. My overarching goal, however, is nothing less than to change the way we normally think about our perceptual engagement with the world. In the first epigraph for this chapter, I have elided Bence Nanay's phrase, "our window to the world," because it does not adequately convey the radical implications of the direct or naïve realist, disjunctivist theory of perception that I am proposing, when it is combined with The Essential Embodiment Theory of the mind-body relation. According to my view, in being perceptually acquainted with the object, *I am directly acquainted with the whole*

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[5] See also Siegel, "Do Visual Experiences Have Contents?"; Schellenberg, "Perceptual Content Defended"; McDowell, "Perceptual Experience: Both Relational and Contentful"; and Logue, "Experiential Content and Naïve Realism: A Reconciliation."

worldly object, via my whole living minded body. That is the primary fact of sense perception. My whole living minded body is the primary "perceptual organ." So sense perception is not like living inside a well-insulated house and then spying on the world through the windows, or via security cameras. On the contrary, it is like eating food, and like Nietzsche's Dionysian dancing to the tune of Schopenhauer's music of the "world-as-will."[6] This conception of the nature of perception has all sorts of important implications, including a new solution for Molyneux's Problem (see section 3.3).[7]

3.1 Digestivism, Manifest Realism, and Disjunctivism

In chapter 2, I claimed that if our original cognitive encounter with the world is independent of concepts, and if it is also based on an inherently different kind of content from conceptual content, then prima facie, the prospects for a very robust version of direct or naïve perceptual realism look quite good. For in that case, our original encounter with the world is not inherently mediated by concepts. Therefore, given the plausible assumption that propositions, beliefs, judgments, and theories always involve concepts, then that perceptual encounter cannot fail to be direct and veridical due to any failures of conceptualization, propositions, beliefs,[8] judgments, or theories. Furthermore, again in view of what I argued in chapter 2, it seems to me that the categorical or essential, and mutually exclusive, difference that the thesis of disjunctivism about perception posits between, on the one hand, direct, veridical perceptual acts or states, and on the other hand, non-veridical conscious experiences such as complete or partial hallucinations, can be both directly attributed to and adequately explained by the difference between autonomous essentially non-conceptual content and conceptual content. So I will now elaborate and argue explicitly for a Kantian Non-Conceptualist and essentially embodied approach to disjunctivist direct or naïve perceptual realism.

Direct or naïve realism about perception, in general, says that (i) rational and other minded animals stand in immediate, unmediated cognitive relations to external real objects (i.e., individual manifestly real objects—individual causally efficacious macroscopic material beings in their local or distal natural spatiotemporal environments, and their properties and relations) that are consciously and correctly sense perceived by them, and that (ii) these external real objects partially constitute those direct, veridical perceptual acts or states.[9] As Mark Johnston has very aptly put it, the

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[6] See Shapshay, "Schopenhauer's Aesthetics," section 5.2.5: "Thus, like the feeling of embodiment, Schopenhauer believes the experience of music brings us epistemically closer to the essence of the world as will—it is as direct an experience of the will *qua* thing in itself as is possible for a human being to have."

[7] Many thanks to Robert Abele for pressing me to be clearer about all this.

[8] See, for instance, Dretske's theory of "non-epistemic perception" in *Seeing and Knowing*, ch. 1.

[9] On the role of partial constitution in direct or naïve perception, see, for example, Fish, *Perception, Hallucination, and Illusion*; Hellie, "Factive Phenomenal Characters"; Martin, "The Limits of Self-Awareness"; Martin, "On Being Alienated"; Snowdon, "The Objects of Perceptual Experience"; and Travis, "The Silence of the Senses." And for the role of partial constitution in cognitive semantics, see, for example, Hanna, "Direct Reference, Direct Perception, and the Cognitive Theory of Demonstratives"; and Hanna, "Extending Direct Reference."

digestivist direct or naïve perceptual realist also holds that rational and other minded animals can in some literal sense take in and ingest the sensed things, sensed properties, and sensed relations of individual causally efficacious macroscopic material items in their local or distal natural spatiotemporal environments, by means of direct, veridical sense perception.[10] More precisely, then, digestivist direct or naïve perceptual realism holds that the sensed properties and relations of individual causally efficacious macroscopic material beings in the local or distal natural spatio-temporal environments of conscious animals partially constitute veridical perceptual acts or states, by partially constituting the subjective experiential mental content of those perceptual acts or states. This digestivist thesis, if it is true, not only directly entails the Weak Externalism I proposed in section 1.5, but it also significantly strengthens it.

Weak Externalism (which also entails Burge's Anti-Individualism), we will remember, says that exogenous factors partially necessarily or constitutively determine mental content, including, of course, perceptual content. Digestivist direct or naïve perceptual realism further extends that same thought, and says that the sensed things, sensed properties, and sensed relations of macroscopic external material beings partially necessarily and constitutively determine veridical perceptual mental content and also veridical subjective experiential perceptual mental content itself. I do not mean that subjective experiential veridical perceptual mental content is in itself spatial, or somehow shaped like external material beings, or that external material beings themselves somehow physically migrate into the vital systems of the perceiver. What I mean is only that subjective experiential veridical perceptual content is in direct causal-dynamic interaction with material beings, via the living activated minded body of the sentient and sapient perceiver, and that the essence or nature of the object partially metaphysically controls the essence or nature of the representational and phenomenal perceptual content. So the material beings themselves are in that metaphysical sense delivered to the subjectively experiencing perceiver, via the living activated minded body of that sentient and sapient perceiver; and the total delivery system, running from the object to the subjectively experiencing perceiver, just is the veridical perceptual mental content. This partial constitution relation thus involves the mutual activation of both the causal powers of macroscopic external material beings and also the perceptual powers of minded animals, whether rational or non-rational.

Otherwise put, in digestivist veridical sense perception, the sensed things, sensed properties, and sensed relations that are directly available in the causally efficacious macroscopic local or distal natural environment of the essentially embodied animal perceiver come to play a causally efficacious, partially constitutive, and therefore partially necessarily determining role in her conscious, inner life. The causal dependence of an actual episode of perception on the physical source of the essentially embodied perceiving subject's conscious experience is one thing. But the metaphysical dependence of the specific characters of the intentional content and the phenomenology of perception itself on the nature of the perceived object itself is

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[10] See note 2, this chapter.

something sharply different from and deeper than mere causal dependence, although of course it is fully consistent with causal dependence, and, for me, also includes causal dependence. Causal dependence on the real object is the natural production of the whole perceptual act or state by the object according to natural causal laws. But metaphysical dependence on the real object also involves the fine-grained necessitation, by the essence or nature of the object, of certain cognitive-semantic and epistemic specific characters of the conscious, intentional states of perception. Otherwise put, causal dependence is only about the existence or occurrence of perceptual acts or states, whereas metaphysical dependence is also about the essence or nature of those perceptual acts or states.

So, given (i) digestivism, (ii) the *causal* dependence of veridical perception on the real object, and (iii) the *metaphysical* constitutive dependence of veridical perception on the real object, then we can quite accurately say that in veridical perceptual experience we literally take in and ingest parts of our manifestly real world. One direct implication of this way of thinking about sense perception is that perceptually taken-in, ingested, and digestible causally efficacious macroscopic sensed material beings must be manifestly real, or authentically apparent to the conscious perceiver via their sensed properties and sensed relations. The directly sensed properties and sensed relations of directly sensed causally efficacious material beings are thus the primitive properties and primitive relations of those manifestly real things. Otherwise put, that is also to say that manifestly real things must be perceptually edible in the sense that they smoothly conform to the psychological structures of our perceptual capacities for actively taking in and digesting them. According to this notion of perceptual edibility, the real things targeted by direct, veridical perception must be at once (i) irreducibly macrophysical, (ii) such that they possess essential macrophysical structures (specifying the basic macrophysical proper parts, monadic properties, and relational properties of those items) that fall intrinsically under causal-dynamic laws, hence they are causally efficacious, (iii) such that their essential macrophysical structures conform isomorphically to the consciously accessible mental-processing capacities of rational human animals, and finally, (iv) such that the primitive sensed properties and sensed relations embedded in those macrophysical structures not only causally trigger those mental processing capacities but also partially constitute, and therefore partially necessarily constitutively determine, the representational and phenomenal mental content of the perceptual states or acts in which they are consciously and correctly perceived.

Moreover, this notion of perceptual edibility, I think, non-tendentiously captures the defensible, solid, minimal core of Kant's deep idea of a "Copernican hypothesis," "Copernican revolution," or "Copernican turn," in the theory of cognition, content, and knowledge. Kant postulates that our cognitive faculties do not passively conform to the objects, but instead the objects necessarily conform to our inherently active, innately specified, cognitive faculties. Kant's deep idea, in turn, is directly encoded in what I call *Weak or Counterfactual Transcendental Idealism*, which makes the following four basic claims.

(i) Things-in-themselves/noumena are logically possible, but at the same time it is knowably unknowable and unprovable whether things-in-themselves/noumena exist

or not, hence for the purposes of an adequate anthropocentric or "human-faced" metaphysics, epistemology, and ethics, they can be ignored (= **radical agnosticism and methodological eliminativism about things-in-themselves/noumena**).

(ii) Necessarily, all the proper objects of rational human cognition have the same forms or structures as—in other words, they are isomorphic to—the forms or structures that are non-empirically generated by our innately specified spontaneous cognitive capacities, but at the same time those manifestly real worldly forms or structures are not literally type-type identical to those a priori cognitive forms or structures (= **the isomorphism-without-type-identity thesis**).

(iii) It is a necessary condition of the existence of the manifestly real world that if some rational human animals were to exist in that world, then they would veridically cognize that world, via either autonomous essentially non-conceptual content or conceptual content, at least to some extent (= **the counterfactual cognizability thesis**).

(iv) The manifestly real world has at some earlier times existed without rational human minded animals, or any other minded beings, to cognize it veridically, and could exist even if no rational human minded animals, or any other minded beings, ever existed to cognize it veridically, even though some rational human animals now actually exist in that world—for instance, I (R. H.) now actually exist in the manifestly real world—who do in fact cognize it veridically, at least to some extent (= **the existential thesis**).

In this way, my direct or naïve perceptual realism in the digestivist sense is also a contemporary version of Kant's singularly ingenious attempt to combine transcendental idealism and what he calls "empirical realism." Or more precisely put, it is a contemporary Kantian *manifest realism*.[11] In section 7.3, I will present a detailed argument for Weak or Counterfactual Transcendental Idealism. For my present purposes in this chapter, I want only to flag Weak or Counterfactual Transcendental Idealism, and manifest realism, as background assumptions of my argument, for the purposes of a constructive inference to the best explanation of all the basic facts and phenomena about perceptual knowledge. My present claim, then, is that, all things considered, my contemporary Kantian Weak or Counterfactual Transcendental Idealist, manifest realist, and digestivist version of direct or naïve perceptual realism explains all the basic facts about High-Bar perceptual knowledge more adequately than indirect realist theories and the other versions of direct realism alike.

Now, as I will understand it, *disjunctivism* about perception,[12] which is both an intensification and a specification of direct or naïve perceptual realism, posits a categorical or essential and mutually exclusive difference between (1) direct, veridical perception on the one hand, and (2) non-veridical conscious experiences (e.g., complete or partial hallucinations) on the other hand. *Anti-disjunctivism* about

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[11] See Hanna, *Kant, Science, and Human Nature*, chs. 1–5. For related and not dissimilar views—although not framed in specifically Kantian terms—see also Johnston, *The Manifest*; Putnam, *The Threefold Cord: Mind, Body, and World*; and Van Fraassen, *The Scientific Image*.

[12] See, for example, Martin, "On Being Alienated." See also Burge, "Disjunctivism and Perceptual Psychology"; McDowell, "Tyler Burge on Disjunctivism"; Byrne and Logue (eds.), *Disjunctivism: Contemporary Readings*; and Haddock and Macpherson (eds.), *Disjunctivism: Perception, Action, Knowledge*.

perception, by an opposing contrast, claims that not only is there no categorical or essential difference between direct, veridical perception and hallucination, but also that there is something about their mental content or phenomenal character that is inherently shared between direct, veridical perception and hallucination, such that the two either actually always are, or at least always can be, epistemically indiscriminable.

More precisely, however, disjunctivism about perception (DP), as I will understand it, makes the following three claims.

(DP1) A consciously experiencing animal subject can be *either* perceiving directly and veridically, in which case the subject stands in an immediate, unmediated cognitive relation to an individual causally efficacious macroscopic material being that is consciously and correctly perceived by her in that context and which partially constitutes the mental content and phenomenal character of that direct, veridical perceptual act or state *or* else consciously experiencing in a non-veridical way (e.g., a complete or partial hallucination), in which case the experiencing subject does *not* stand in a direct cognitive relation to an individual macroscopic being that is consciously and correctly perceived by her in that context, but *not both*.

(DP2) Direct, veridical perception and non-veridical conscious experience, for instance, hallucination, are categorically or essentially different, hence they share no mental content or phenomenal character whatsoever, and in fact share only whatever it extrinsically or non-essentially is that makes them sometimes undiscriminated, namely the variable abilities of the conscious animal subject to attend to the inherently different phenomenology of the experiences and to discriminate between these in different contexts.

(DP3) Direct, veridical perception and non-veridical conscious experience, for instance, hallucination, are inherently discriminable by a suitably attentive, self-conscious, and self-reflective conscious animal subject, even if not always discriminated by that subject, or indeed by any other such subject, at any given time, due to context-sensitive failures of the subject's ability to discriminate. This discriminative ability, therefore, is authoritative but not infallible.

Claim (DP1) captures what can be called the *Constitutivity* feature and also the *No Common Kind* feature of disjunctivism. Claims (DP2) and (DP3) jointly capture the *Categorical or Essential Difference in Kind* between direct, veridical perception and non-veridical conscious experience—for example, complete or partial hallucination—as well as specifying the precise sense in which there can be failures of epistemic discrimination across direct, veridical perception cases and hallucination cases, while also asserting the inherent epistemic discriminability of direct, veridical perception and hallucination.

It is crucially important to notice that claim (DP2) does not entail that it is impossible to find any non-trivial, extrinsic, non-mental-content-based, or non-phenomenal-character-based similarities between direct veridical perception and non-veridical conscious experience. After all, by hypothesis, they are both species of conscious experience, and when realized in the real spacetime world, their instances fall under many of the same logical laws, mathematical laws, metaphysical laws, natural laws, and so on. Thus, in a metaphysical sense, obviously direct veridical perception and non-veridical conscious experience share some important specific

and generic properties, including various non-trivial causal features. That point is made by Burge in his well-known critique of disjunctivism, "Disjunctivism and Perceptual Psychology." But Burge's otherwise correct argument is beside the point being made here. For the point being made here is that direct veridical perception and non-veridical conscious experience share no inherently content-or-character-based features, and that the only even extrinsic content-based or character-based feature they share is whatever it is that grounds the variable discriminatory abilities of the conscious subject, in context, in relation to those inherently content-based or character-based features.

This point about discrimination and discriminability is extremely important too, and requires further emphasis. Many or perhaps even most contemporary disjunctivists—and paradigmatically, M. G. F. Martin—hold that there is nothing in common between direct, veridical perception and hallucination, except for whatever it is that accounts for their epistemic indiscriminability. But if the disjunctivist holds that direct, veridical perception and hallucination are categorically or essentially different, except for whatever it is that makes them inherently epistemically indiscriminable, then he is in serious trouble. This is because something must then play the role of the metaphysical supervenience base, or ground, of indiscriminability.

That metaphysical ground of indiscriminability then makes the two otherwise radically different cases of direct, veridical perception on the one hand, and hallucination on the other, fundamentally the same at the ontological level of their metaphysical supervenience base or ground. And that violates the No Common Kind feature. Therefore, the fully consistent disjunctivist must hold, on the contrary, that direct, veridical perception and hallucination are epistemically *inherently discriminable*, although sometimes *actually undiscriminated*, by the very same self-conscious, self-reflective perceivers who are inherently capable of discriminating between them. I will have more to say about this crucial point in the next section.

It seems to me that disjunctivism in this super-strong, metaphysical sense[13] is every bit as true as digestivist direct or naïve perceptual realism, manifest realism, and Weak or Counterfactual Transcendental Idealism are, and for the same good reasons. In other words, they all belong to the same tightly wrapped theoretical package, which expresses Kant's deep idea that only the metaphysics of transcendental idealism can explanatorily vindicate a full-strength perceptual realism (*CPR* A371–377). In order to be the right kind of perceptual realist, you have to be the right kind of idealist! Otherwise, some or another highly recalcitrant version of philosophical skepticism lurks in the wings.[14] The super-robust direct or naïve perceptual

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[13] There is also a weaker, *epistemic* version of disjunctivism, which says that a cognitive subject's justification for her perceptual beliefs or judgments is essentially different in kind depending on whether her perceptual experience is *either* direct, veridical sense perception on the one hand, *or* non-veridical conscious experience (e.g., hallucination) on the other. See, e.g., Pritchard, *Epistemic Disjunctivism*. In this context, in order to keep things fairly simple, I won't explicitly argue against epistemic disjunctivism per se, and will restrict myself to noting that if my argument for radically naïve realism goes through, since it also entails a non-Pritchardian version of epistemic disjunctivism as a sub-component, then whatever theoretical benefits accrue to epistemic disjunctivism will also accrue to radically naïve realism.

[14] Interestingly, this is a basic conclusion of Barry Stroud's important 1984 book, *The Significance of Philosophical Skepticism*. Now, Stroud takes this to be a *reductio ad absurdum* of transcendental arguments

realism that I want to defend, then, is at once digestivist, disjunctivist, manifest realist, and also Weakly or Counterfactually Transcendental Idealist. As I mentioned earlier, I call this doctrine *radically naïve realism*.[15] And as I also mentioned previously, my claim is that radically naïve realism most adequately explains High-Bar perceptual knowledge.

A leading theoretical virtue of radically naïve realism is that it provides a very clear account of the difference between the following two possible cases:

> Case 1: Rational animal subject S directly and veridically perceives object O, where O = a very large martini sitting on the table right in front of her.
>
> Case 2: Rational animal subject S is blindfolded (or otherwise blinded) but has a descriptively correct conscious visual experience of an object O, where O = a very large martini sitting on the table right in front of her, that is in fact caused by O by means of a video camera that is attached directly to S's brain.

Are these two cases both perceptions of O, or not? According to radically naïve realism, even though Case 2 clearly satisfies The Causal Theory of Perception—which says that S perceives O if and only if O causes a descriptively correct conscious experience of O in S, and this experience is descriptively correct because O caused it—nevertheless Case 2 is in fact merely a non-veridical conscious experience or hallucination that is (as it happens) descriptively correct about O, and not a case of veridically perceiving O. Otherwise put, in Case 1 the subject S actually sees the big martini on the table, whereas in Case 2 the subject S only hallucinates and, as it were, "pseudo-superduper-blindsees" the big martini on the table—as opposed to actual blindsight, which I take to be a special case of direct, veridical perception, as I argued in section 2.8.

What, then, is the categorical or essential difference between a direct, veridical visual perception of an object, on the one hand, and a descriptively correct non-veridical conscious experience or hallucination that is about the very same object, on the other hand? The answer is that in Case 1, although not in Case 2, the manifestly real object O—the big martini on the table—not only causes but also itself partially necessarily and constitutively determines S's conscious experience of O. In so doing, it partially necessarily and constitutively determines S's conscious experience of O, including the specific structural character of the intentional content of her experience, and also the specific phenomenal character of her conscious act or state. Or otherwise put, in Case 1, it is the whole manifestly real object O itself, together with the total neurobiology and intentional-action-readiness of S herself, that fully necessarily and constitutively determines S's conscious experience of O. By sharp contrast, in Case 2, it is just the video camera signal caused by O, together with the operations of S's brain, that necessarily determines the specific intentional and phenomenal

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against skepticism. But in effect, Stroud's *modus tollens* is my *modus ponens*. So my alternative view is that the original transcendental argument from anti-skepticism to transcendental idealism was sound, and that Stroud's mistake lay in postulating a needlessly strong, old-school, Oxford-style, Conceptualist version of transcendental idealism. See also note 14, ch. 4.

[15] See also Siegel, "Do Visual Experiences Have Contents?," p. 358.

characters of S's conscious experience. So in Case 2, S is merely enjoying (or suffering) a *private movie* about the big martini on the table.

One way of effectively highlighting this categorical or essential difference is by means of thought-experiments involving "deviant causal chains,"—non-standard causal mechanisms. Consider now a variant on Case 2, call it Case 2*, which involves the following non-standard causal mechanism: The video camera signal that produces the conscious experience of O—the big martini on the table—is now proximally caused by rays beamed from Mars, which in turn are distally generated by a Martian machine that is highly accurately causally sensitive to occurrences of *martini events* on Earth, roughly in the way we Earthlings currently track sunspots on the sun, or seismic events under the surface of the Earth. Now, it seems clear that even the most ardent defender of The Causal Theory of Perception would not be prepared to call Case 2* a case of perception, as opposed to an accidentally correct illusion. But what, then, is the real difference between Case 2 and Case 2*? It remains fully true of Case 2* that the big martini on the table caused S's descriptively correct conscious experience of the big martini on the table, and also that S's conscious experience is descriptively correct because the big martini on the table caused it. Of course the causal theorist could try to insist that in Case 2, S's conscious experience is caused "in the right way," whereas in Case 2*, S's conscious experience is caused "in the wrong way." But that seems question-begging or at least tendentious. So if the putative real difference between Case 2 and Case 2* cannot be non-question-beggingly or non-tendentiously stated, then it is clear that there is no real difference at all between Case 2 and Case 2*. Hence the salient categorical and essential difference between Case 1 and Case 2* can then be smoothly transitively transferred to the original difference between Case 1 and Case 2.

This critical line of thinking also strongly suggests a certain way of criticizing a specific kind of anti-disjunctivism. Anti-disjunctivism, it will be remembered, denies disjunctivism by asserting that not only is there no categorical or essential difference between direct, veridical perception and hallucination, but also that there is something inherently shared at the level of content between direct, veridical perception and hallucination, such that the two either actually always are, or at least can be, epistemically indiscriminable. Now suppose that the anti-disjunctivist, by defending some or another version of The Causal Theory of Perception, also wants to be a direct or naïve perceptual realist of some sort, and thus also wants to accept the Constitutivity feature. Those commitments notwithstanding, if the presence of the real object of perception in the direct, veridical perception case makes a constitutive difference to visual experience, then it cannot be the case that the *absence* of the real object in the hallucinatory case does *not* make a constitutive difference to visual experience. Therefore, if the presence of the real object makes a constitutive difference to direct, veridical visual experience, then the content and phenomenal character of visual experience *cannot* be the same across the direct, veridical perception and hallucination cases. So anti-disjunctivism plus some or another version of The Causal Theory of Perception plus some or another version of direct or naïve perceptual realism plus some or another version of the Constitutivity feature is (collectively) false.

This critical line of thinking, in turn, generalizes to an argument against *all* forms of anti-disjunctivism. A primary motivation for disjunctivism has been the thought

that theories which hold that the mental content and phenomenal character of (e.g.) visual experience are indiscriminably the same across direct, veridical perception and hallucination are committed to the implausible and perhaps even absurd thesis that the common object of (e.g.) visual experience across the two cases is either the (e.g.) visual mental content or the (e.g.) visual experience itself. But it is clearly possible to reject the claim that this is a consequence of every theory which holds that the mental content and phenomenal character of (e.g.) visual experience are indiscriminably the same across direct, veridical perception and hallucination. That is, it is clearly possible to reject the claim that this is a consequence of every version of anti-disjunctivism. For as we have just seen earlier, it is possible to be an anti-disjunctivist who also accepts some or another version of The Causal Theory of Perception, together with some or another version of direct or naïve realism, together with also some or another version of the Constitutivity feature.

Even so, I do also think that it is clearly open to another disjunctivist (e.g., me) to hold the following very different motivation for rejecting anti-disjunctivism:

Theories which hold that the mental content and phenomenal character of (e.g.) visual experience are the same across direct, veridical perception and hallucination, are committed to the implausible and perhaps even absurd thesis that there is no constitutive difference between cases of (e.g.) visual experience in which the real object of perception is present and cases of (e.g.) visual experience in which the real object of perception is absent. But on the contrary, clearly and distinctly, the presence or absence of the real object of perception does make a constitutive difference to the mental content and phenomenal character of (e.g.) visual experience, and this difference is every bit as clear and distinct as the constitutive difference between *real ducks* and *decoy ducks*.[16] That is, they are essentially different in the manifestly real world. So anti-disjunctivism is false.

That seems to me to be a powerful objection to all anti-disjunctivist theories. In the next section, I will elaborate and justify the line of thinking that lies behind this worry.

But just before I do that, it is crucially important to notice that the claim I am making is not that cases of visual experience in which the real object of perception is present and cases of visual experience in which the real object is absent are noumenally different and phenomenally identical. On the contrary, the manifest realist, Weak or Counterfactual Transcendental Idealist metaphysics I am deploying, given its radical agnosticism about things-in-themselves or noumena, explicitly denies the truth of noumenal realism, and is also explicitly committed to methodological eliminativism about things-in-themselves or noumena. I am claiming that the "good" case of visual experience in which the object is present, and the "bad" case of visual experience in which the object is absent, are *manifestly* constitutively different, not *noumenally* constitutively different.

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[16] For a similar line of argument, see Austin, *Sense and Sensibilia*.

3.2 The Veridicality Relation, and an Argument for Disjunctivism

I asserted at the beginning of this chapter that the categorical, or essential, and mutually exclusive difference that disjunctivism about perception postulates between direct, veridical perceptions and non-veridical conscious experiences, for instance, hallucinations, can be both directly attributed to and adequately explained by the difference between autonomous essentially non-conceptual content and conceptual content. Here, now, is an argument for that assertion.

I proposed, in section 2.7, that the primary psychological function of autonomous essentially non-conceptual perceptual content, as "situated content," is uniquely and (more or less) accurately to locate and track either (i) causally efficacious, practically relevant or even usable, static or dynamic actual macroscopic material objects, or alternatively other essentially embodied cognitive and practical subjects, that exist in the local or distal natural environment of the essentially embodied minded animal cognizer and practical intentional agent (*environmental location and tracking*), or (ii) the essentially embodied minded animal cognizer and practical intentional agent herself (*reflexive location and tracking*), in their egocentrically centered intrinsically spatiotemporal contexts, in order to individuate, normatively guide, and informationally mediate, the intentional acts, states, or processes of cognitive and practical intentional agency. My claim now is that the environmental location-and-tracking function of autonomous essentially non-conceptual content, in turn, fully satisfies the requirements of radically naïve realism. And it does this by enabling the essentially embodied conscious, intentional, caring, self-conscious, self-reflective rational animal cognitive agent to take in the entire manifestly real macroscopic external material being that she consciously and correctly perceives.

In order to do this, the whole living minded body of the perceiver is the primary "perceptual organ." Since what is essential to autonomous essentially non-conceptual content is its representational sensitivity to individual actuality, spatiotemporal properties, and causal-dynamic properties, then whatever it is in the world that is directly and veridically picked out by autonomous essentially non-conceptual content, as an entire causally efficacious manifestly real thing embedded in a given worldly situation, is completely and immediately taken in, or ingested, by our activated, essentially embodied capacity for sense perception. The whole living minded body of the perceiver takes in the whole object.

"Ingestion" is meant to be a vivid epistemic metaphor. But again, I hasten to add by way of qualification, in order to stop just short of an excessive appreciation of that metaphor, that I do not mean that perceptual mental content is in itself spatial, or somehow shaped like external material beings, or that external material beings themselves somehow physically migrate into the vital systems of the perceiver. Instead, I mean only that perceptual content is in direct causal-dynamic interaction with material beings, and also standing in a metaphysical constitutive dependency relation to the object, via the entire living activated minded body of the sentient and sapient perceiver.

In any case, and assuming a full but not excessive appreciation of the ingestion metaphor, this special kind of sense perception is what I call direct, veridical

perception, or *sense perception by acquaintance*.[17] In direct, veridical perception, or sense perception by acquaintance, all the manifest properties of the object are delivered to the whole living minded body of the active subject in direct perception, who then possesses a complete set of sensory dispositions to articulate the various properties of the object in perceptual judgments, even if some of the sensory mechanisms needed for full articulation are offline, for example, even if you are blind from birth (see section 3.3). That, again, is because the whole living minded body of the perceiver, and not (just) the eyes, ears, nose, and so on, is the primary perceptual organ of sense perception.

In terms of the four-leveled epistemic framework provided by categorical epistemology (see section 1.2), this kind of perception yields *non-conceptual knowledge*. Suppose, now, that we assume the existence of a conscious rational human subject's direct, veridical, act of acquaintive perception in this sense, and therefore we assume that she has some non-conceptual knowledge. Then she can also present, by means of perceptual belief and perceptual judgment, by way of the perceptual concepts possessed by that perceiver, the various real proper parts, sensed monadic properties, and sensed relational properties of that causally efficacious manifestly real thing, whether essential or accidental, in either a fine-grained or hyper-fine-grained way. All that is required for this "full determination of the object" is that the special sensory mechanisms for doing this—the visual system, the auditory system, the olfactory system, and so on—are also online and functioning properly. This kind of human cognition is what (following Fred Dretske in *Seeing and Knowing*, his classic 1969 study of perception and perceptual knowledge) I call *epistemic perception*, or *sense perception by description*. Dretske's term "epistemic perception" is apt for two reasons. **First**, his contrastive technical term "non-epistemic perception" nicely picks out autonomous essentially non-conceptual cognition. **Second**, in the framework provided by categorical epistemology (again, see section 1.2), this kind of descriptive, intellectually charged perception yields Low-Bar perceptual knowledge, context-sensitive causally reliable Low-Bar perceptual knowledge, or High-Bar perceptual knowledge, and thereby captures all the relevant epistemic kinds.

The general claim I am making, then, is that all rational minded animal direct, veridical sense perception necessarily has two distinct, ordered components.

First, there is an autonomous essentially non-conceptual, or situated, content-component in all direct, veridical sense perception whatsoever, shared by rational human minded animals and by non-rational human minded animals or non-human minded animals alike. This secures a direct, veridical relation between an essentially

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[17] Strictly speaking, it is also possible to stand in an immediate but also *mediated* cognitive relation to an object, for instance, by watching it on TV ("Oh look—there's Barack Obama!"). In linguistic contexts, this latter phenomenon is also called "deferred ostensive reference." The crucial point, however, is that it involves an extension of direct perception by directly referential technologies (which I call "reference delivery systems") that extend beyond the living animal body of the perceiver/speaker. See, e.g., Hanna, "Direct Reference, Direct Perception, and the Cognitive Theory of Demonstratives"; and Hanna, "Extending Direct Reference." In such cases, The Veridicality Relation is also correspondingly extended. On the other hand, however, direct perception that is both immediate and unmediated, requiring only the essentially embodied capacities of the perceiver, is obviously more basic than direct perception that is immediate but mediated.

embodied minded animal perceiver and an individual actual causally efficacious complex macrophysical material being, or a single array of such beings, in its local external natural environment, via its primitive sensed properties and relations. By standing in this relation, via her whole living minded body, the perceiver thereby acquires a complete set of sensory dispositions to articulate the various manifest properties of the object in perceptual judgments.

For example, let us assume that the essentially embodied minded animal perceiver is also a rational human minded animal, but more specifically a very thirsty and very tired university teacher named "Mary." Unlike Frank Jackson's more famous Mary,[18] Mary is not a super-scientist. But she *is* a terrific teacher. So there she is, at the end of a long day of terrific teaching, completely exhausted, and the relevant single array of complex macrophysical objects in her local external environment is a very large and very refreshing martini sitting on her kitchen table. For convenience, I will call this *The Thirsty Mary example*, and also call this direct, veridical relation *The Veridicality Relation*.

The Veridicality Relation makes it possible for rational animal perceivers to have non-conceptual knowledge, to stand within The Grip of the Given, and to be well-situated for epistemic justification. More precisely, The Veridicality Relation is partially causal/neurobiological and partially act-intentional/phenomenological.[19] On the causal/neurobiological side, there is some determinate physical information link, satisfying various natural causal-dynamic laws, between the macrophysical object or objects, and the neurobiological constitution of the essentially embodied rational minded animal cognizer. But on the act-intentional/phenomenological side, the rational animal cognizer is also accurately aware of the unique location and movement (if any) of the manifestly real object or objects in a sensorimotor-subjectively or pre-reflectively conscious sense. This brings it about that she can appropriately locate and orient her own body so as to perceive this object or these objects in a more distinct way, or engage in appropriate intentional bodily movements with respect to it or them. In this way, the rational animal cognizer is at least pre-reflectively consciously, and perhaps even also self-consciously, aware of the fact that she stands within The Grip of the Given, via autonomous essentially non-conceptual content. In other words, she subjectively experiences the spatial, temporal, and causal-dynamic epistemic well-situatedness of her activated capacity for cognition in the actual, natural, manifestly real world.

In The Thirsty Mary example, this involves vision under improved light conditions by her turning on the light before she approaches the big martini on the table—but in other similar cases, via hearing, taste, smell, or touch—and then also reaching

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[18]   See Jackson, "Epiphenomenal Qualia."

[19]   There are obvious parallels between the Veridicality Relation and Gibsonian "affordances." But exploring these parallels in this context would needlessly complicate matters, since Gibsonian approaches to perception are almost universally anti-representationalist. The crucial point here, for my purposes, is made by Siegel, who shows that contrary to what many of its proponents think, "action-first" approaches to perception like Gibsonianism are perfectly consistent with representationalism, aka the Content view; see her "Affordances and the Contents of Perception."

out for the glass, picking it up, and then drinking from it, thereby simultaneously satisfying her thirst and wonderfully alleviating her tiredness.

Now, the causal/neurobiological and act-intentional/phenomenological sides of the direct, veridical relation are individually necessary, and individually insufficient, but also jointly sufficient for The Veridicality Relation. If The Veridicality Relation holds, and if an essentially embodied rational minded animal cognizer thereby stands within The Grip of the Given, then she has ingested and digested her manifestly real perceptual object via its primitive sensed properties, by means of the autonomous essentially non-conceptual content of her perception. In The Thirsty Mary example, to be sure, she has also self-consciously, self-reflectively, and even literally ingested and digested the liquid contents of the manifestly real perceptual object itself. So the "ingestive" and "digestive" part is slightly overdetermined for this example. But in any case, this fully satisfies the requirements of a digestivist, disjunctivist, direct or naïve perceptual manifest realism that can in turn provide an adequate explanation of the foundations of High-Bar perceptual knowledge.

Nevertheless, it is crucial to re-emphasize that the obtaining of The Veridicality Relation is strictly via autonomous essentially non-conceptual content. Hence it is belief-independent or "non-epistemic" (to use Dretske's terminology again), non-self-conscious, and pre-reflective. It simply does not matter precisely what the essentially embodied conscious cognitive agent is thinking about the objects, about its environment, or about itself, as long as The Veridicality Relation holds and she stands within The Grip. Indeed, it does not even matter whether the cognizer is thinking anything determinate at all. For at least in principle, in a relevant variant on the Thirsty Mary example—let us call it "The Thirsty Mary* example"—Mary* could even be sleep-walking, and yet still directly and veridically perceive the big martini on the table and then successfully drink from it, purely as a thirsty somnambulist,[20] and yet neither self-consciously nor self-reflectively perceive it.

To be sure, if a self-conscious, self-reflective rational human animal cognizer is thinking descriptively correct thoughts about her manifestly real perceptual object or objects, then she is also thereby framing some true perceptual judgments about it or them, and thereby also possesses some sufficiently justified true beliefs (hence also true propositions, as the contents of those beliefs) about it or them. But suppose that she is not thinking descriptively correct thoughts. Neither the descriptive correctness of any perceptual concept, nor the truth of any perceptual judgment, nor the truth of any perceptual belief (or proposition), is required for the obtaining of The Veridicality Relation. Again, direct, veridical perception according to The Veridicality Relation is itself *non*-epistemic, even despite the fact that it naturally puts the rational minded animal subject in a position to be well-situated for epistemic justification.

This entails, for instance, that what, in section 2.9, I called *veridical illusions*, are all cases in which The Veridicality Relation holds. Veridical illusions are illusions that presuppose veridical sense perception and are specifically due to modular perceptual processing, such as the Ames room illusion, the Müller-Lyer illusion, the Hering illusion (and Wundt's variation on it), the Poggendorf illusion, the Ponzo illusion,

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[20] See Hanna, "Direct Reference, Direct Perception, and the Cognitive Theory of Demonstratives."

the classical "bent stick in water" light refraction examples, and the commonplace phenomenon of the moon appearing much larger near the horizon than when it is higher in the night sky, and so on.[21] These are all, therefore, cases in which there is non-conceptual knowledge below the low bar of Low-Bar perceptual knowledge, and in which the cognitive subject is thereby standing within The Grip of the Given. They are also cases in which digestive, disjunctive, directly or naïvely realistic perception of the manifestly real world is occurring, and in which the rational minded animal cognizer would be well-situated for epistemic justification, other things being equal. Yet at the same time, in such cases, she is *epistemically unlucky* in the sense of being open to the situational contingency of epistemic luck. For example, in the Müller-Lyer case, if the cognizer correctly judges that the lines are of equal length, then this is not because she is actually seeing them as equal. She still sees them as unequal. For all she sees, therefore, in a nearby possible world, they could actually be of unequal length. So at best, the cognizer will be able to achieve either Low-Bar perceptual knowledge or context-sensitive causally reliable Low-Bar perceptual knowledge, and not High-Bar perceptual knowledge. As I noted in section 2.9, to stand within The Grip of the Given is not thereby to have an epistemic absolute or even money-back guarantee, and the veridical illusion cases are vivid cases-in-point.

So now imagine that there you are, in one of those veridical illusion situations. Ingestion and digestion of the object occur. You are literally, directly, and veridically seeing the trapezoidal Ames room and the two equal lines in the Müller-Lyer diagram, just as you are literally, directly, and veridically seeing the colored surface of your desk even when it has a shadow cast across it. At the same time—and this satisfies (DP2) and (DP3), the second and third necessary conditions of Disjunctivism—obviously it remains possible in some contexts for you to fail to discriminate between the Ames room and an ordinary rectangular room, and between two ordinary parallel lines of equal length and the two equal parallel lines in the Müller-Lyer diagram. This is because the conscious visual experience of a rectangular room in the Ames room illusion is re-activated even when you correctly judge the Ames room to be trapezoidal and it has already been seen by you as such. Correspondingly, the conscious experience of unequal lines in the Müller-Lyer illusion is re-activated even when the lines are correctly judged to be of equal length and also have already been seen by you as such. Or, in other words, *perceptual illusions*—as opposed to what I will call *sheer illusions*, including lucid dreams, non-lucid dreams, and hallucinations—belong on the side of direct, veridical conscious experiences, along with direct, veridical sense perception, standing within The Grip of the Given, and thereby being well-situated for justification. To be sure, you have achieved non-conceptual knowledge. So you are primed for epistemic perception. It is just that you are also in an epistemically unlucky situation—Stuff Happens!—and the best that you will be able to achieve epistemically is only some or another version of Low-Bar perceptual knowledge, never High-Bar.

On the other hand, however, if The Veridicality Relation does not hold, either because the causal/neurobiological condition is not satisfied, or because the

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[21]   See, e.g., Gregory, "Perceptual Illusions and Brain Models."

act-intentional/phenomenological condition is not satisfied, then no matter what the psychological condition of an essentially embodied rational animal cognizer in that context of cognition and action, in that context she is not perceiving the real manifest object or objects, but rather only having a non-veridical conscious experience, for example, a hallucination. Or in other words, she is enjoying or suffering a fully non-veridical conscious experience, or what I will call a *sheer illusion*. This entails that a cognizer can in some cases falsely believe that she is perceiving, even though in fact she is experiencing a sheer illusion.

The phenomenon of sheer illusions, in turn, raises two very hard questions: (1) what is the difference between waking direct, veridical perception, on the one hand, and non-lucid dreaming, on the other?, and (2) what is a hallucination? More than twenty years ago, I attempted to answer the former question by way of a critical analysis of Descartes's classical argument against dream skepticism in *Meditations* 6, and I still stand by the basics of that analysis.[22] So in the present context I will restrict myself to attempting to answer the latter question about the nature of hallucinations.

In order to answer this question adequately, however, we must initially distinguish explicitly between (i) *complete hallucinations*, in which there is no direct, veridical mental content, and (ii) *partial hallucinations*, in which there is a mixture of some non-veridical mental content and some direct, veridical mental content. Correspondingly, then, in order to keep things as clear and orderly as possible, I will start by offering an answer to the question "what is a complete hallucination?" and then move on to offering an answer to the question "what is a partial hallucination?," using my analysis of complete hallucinations as a guide.

It seems to me that there are four individually necessary and jointly sufficient conditions for a conscious experience's being a complete hallucination.

<u>First</u>, a complete hallucination satisfies the necessary and sufficient conditions for what I will call *Strong Individualism* about mental content:

Strong Individualism: The representational properties and structures of all mental contents are necessarily or constitutively determined endogenously (i.e., necessarily or constitutively determined by what is inside the minded animal), even if causal initiation and triggering occurs exogenously (i.e., causally initiated and triggered by what is outside the minded animal), and even if the vehicles of content are also exogenous. Mental content for which this thesis holds is "narrow" content.

In other words, the mental content of a hallucination is necessarily or constitutively determined endogenously and is therefore a "narrow" content, even if the causal initiation and triggering of the hallucination occurs exogenously.

<u>Second</u>, in a complete hallucination, there is no really existing hallucinatory object and in that sense I am not hallucinating some real-world X over which I could existentially quantify. Roughly, I am just experiencing a private movie inside my head. I am consciously deploying various concepts, and also engaging in conscious imaginational activity, but there is no existing object whatsoever corresponding to

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[22] Hanna, "Descartes and Dream Skepticism Revisited." In 1992, I was unaware of the label "disjunctivism." Did it even exist then? In any case, in retrospect and with 20/20 hindsight, it is clear to me that the anti-skeptical argument I attributed to Descartes is a disjunctivist argument.

those concepts. There is, to be sure, an intentional target of my intentionality, since necessarily every act or state of intentionality has an intentional target. But in the case of hallucination, this is not a really existing object of any sort. Manifestly real objects, we will remember, are individual causally efficacious macroscopic material objects in the local or distal natural environment of the rational animal cognizer, and obviously, hallucinatory objects are not existing objects of this kind.

In this connection, there is also a hard question about precisely how to characterize the difference between waking experience and lucid dreaming. For the record, I think that lucid dreaming is structurally analogous to lucid hallucination cases. The basic difference is that in a lucid or even non-lucid hallucination case, there is also likely to be some non-trivial dimension of veridical proprioceptive consciousness, whether pre-reflective or self-conscious. Absence seizures (aka "walking comas") would then fall somewhere between non-lucid hallucinations and non-lucid dreaming.

Third, and perhaps most radically, a hallucination is the cognitive and epistemic analogue of *inauthenticity* in the existentialist sense. Here is a working characterization of that:

By a categorical contrast to authenticity (i.e., Kierkegaard's "purity of heart,"[23] or wholeheartedness), inauthenticity is comporting yourself in a double-minded, half-hearted, or heartless way, as if you were a natural automaton—as if you were a mere puppet, robot, or fleshy deterministic or indeterministic Turing machine running a decision-theoretic program, and not really alive or conscious; as if you were not a person; as if you could never think or choose or act for yourself; and as if you did not really have the capacity for real freedom.

Now let us transfer this basic idea from the practical-and-moral domain to the cognitive-and-epistemic domain. What I mean, then, is that a hallucination is essentially a way of being alienated from the manifestly real world and also from yourself. To use Sartrean language, in a complete hallucination, cognitively speaking, "you are what you are not, and you are not what you are." Furthermore—and I will come back to this point later—every complete hallucination is inherently characterized by a pervasively hollow, uncanny phenomenology, a temporary experience of cognitive and epistemic automation-psychosis—one of the pathological "illusions of control," whether or not you happen to notice this in that context. (As in: "I must have been completely out of my head. But I didn't realize it at the time.") Hence, a hallucination is a falling-away from the natural or normal state of our cognitive and epistemic nature, which is to be pre-reflectively at home in the world and in The Grip of the Given, and thereby able to know our way about in the world. In a complete hallucination, you have temporarily lost your ability to know your way about in the world, and have involuntarily turned into an-automaton-within-an-image.

Otherwise, and even more vividly put, all complete hallucinations are phenomenologically like this: Instead of having a nice drink in a cozy pub, you are actually locked inside a private movie about having a nice drink in a cozy pub. It is like Peter Weir's thought-provoking 1998 film *The Truman Show*, only in fact it is *The Falseman Show*. In the *Investigations,* Wittgenstein evocatively asks us to imagine

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[23] See, e.g., Kierkegaard, "Purity of Heart Is to Will One Thing."

ourselves "having frightful pains and turning to stone while they lasted," so that in effect we would become statues of ourselves.[24] Now, instead, imagine yourself turning into a character in a private movie directed, written, and photographed by (e.g.) Peter Weir. Thus, a hallucination is simply not in accordance with our rational animal cognitive and epistemic nature. In a complete hallucination, something is inherently missing, namely, the presence of the real object in the real-live world, and the conscious subject has temporarily fallen into The Absurd. In this sense, actually living inside the Matrix, as in *The Matrix*,[25] would be living in cognitive and epistemic hell.

Fourth, and finally, for any conscious animal cognizer, a complete hallucination can in some contexts fail to be discriminated from a veridical perception. But no complete hallucination is indiscriminable from veridical perception. Cases in which the conscious animal cognizer fails to discriminate are non-lucid complete hallucinations, and cases in which she manages to discriminate are lucid complete hallucinations.

As I mentioned earlier, in turn I now want to raise the question, "what is a partial hallucination?" Following out the general format of my analysis of complete hallucination, it seems to me that, correspondingly, there are four individually necessary and jointly sufficient conditions of a partial hallucination.

First, a partial hallucination fails the necessary and sufficient conditions for Strong Individualism about mental content, yet it also satisfies the necessary and sufficient conditions for what I call *Weak Individualism* about mental content:

Weak Individualism: Endogenous facts do not on their own, but instead either conjointly (together with some exogenous facts), or in any case at most partially, necessarily or constitutively determine all mental contents, and the mental contents that satisfy this thesis are "weakly narrow contents."

In other words, the mental content of a partial hallucination is at most partially necessarily or constitutively determined endogenously, and not wholly necessarily or constitutively determined endogenously, unlike a complete hallucination.

Second, in a partial hallucination, just as in a complete hallucination, there is no existing hallucinatory object, but at the same time, I am also directly, veridically perceiving something else. For example, during the dog days of summer and after a long exhausting walk in the blast-furnace heat of an ordinary summer day in an Arizona desert city like Phoenix, I could be hallucinating an ice cold can of Dale's Pale Ale sitting on a kitchen table, but also directly, veridically perceiving that very kitchen table on which, in fact, nothing at all is sitting.

Third, and again perhaps most radically, a partial hallucination is the cognitive and epistemic manifestation of partial inauthenticity in the existential sense. What I mean is that a partial hallucination is a way of being at once partially alienated from the manifestly real world and from yourself, and also partially at home in that world. Correspondingly, every partial hallucination is characterized by a partially hollow,

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[24] Wittgenstein, *Philosophical Investigations*, §283, p. 97ᵉ.
[25] (Directed by A. Wachowski and L. Wachowski, 1999).

partially uncanny phenomenology, a temporary experience of partial cognitive and epistemic automation-psychosis. Thus, experiencing a partial hallucination is like being locked inside a private hologram, which in turn is projected into a real-world environment. Or even more vividly put, experiencing a partial hallucination is like being an epiphenomenal ghost hovering above the world of real living bodies, like the Bruno Ganz character in Wim Wender's eerily romantic 1987 film, *Wings of Desire*.

Fourth, and finally, for any conscious animal cognizer, just like a complete hallucination, a partial hallucination can in some contexts fail to be discriminated from a direct, veridical perception. But, and again just like a complete hallucination, no complete hallucination is indiscriminable from direct, veridical perception. Correspondingly, there will also be non-lucid partial hallucinations and lucid partial hallucinations.

Going to back to direct, veridical perception now, part of what I am claiming is that necessarily, whenever an essentially embodied rational human minded animal cognizer is standing in The Veridicality Relation to her manifestly real perceptual object or objects via their primitive sensed properties and relations, by means of autonomous essentially non-conceptual perceptual content, then she consciously "knows what is out there" in the sense of non-conceptual knowledge—she is cognitively committed to it and is well-situated for justification. But here it is crucial to recognize that she consciously "knows what is out there" only in the mode of consciously knowing-how uniquely and accurately to track, locate, and (if appropriate) manipulate the manifestly real object or objects of her perception. Therefore, she "knows what is out there" only necessarily in a pre-reflectively conscious sense of knowing, but not necessarily also in a self-conscious or self-reflective sense of knowing, or the mode of knowing-that. This in turn fully satisfies the basic requirements of the digestivist, disjunctivist, direct or naïve perceptual manifest realism that is captured by radically naïve realism, and in turn adequately explains the foundational layer of High-Bar perceptual knowledge.

Second, there is a conceptual/propositional component in all specifically rational human minded animal sense perception that enables the rational human animal cognizer to perceive, in a fine-grained or hyper-fine-grained way, the proper parts, primitive sensed monadic properties, and primitive sensed relations, whether essential or accidental, of her manifestly real perceptual object or objects. This is epistemic perception. But the conceptual/propositional component of epistemic perception presupposes The Veridicality Relation, and thus epistemic perception presupposes non-epistemic direct perception and non-conceptual knowledge.

More precisely and now negatively formulated, I am claiming that without The Veridicality Relation and direct, veridical perception, and non-conceptual knowledge, the rational minded animal cognizer's mental act or state is simply not perception, but instead is a non-veridical conscious experience, for instance, a hallucination, which is inherently or in principle discriminable from direct, veridical perception, even if the rational human minded animal cognizer who performs that mental act or has that mental state sometimes fails to discriminate self-consciously or self-reflectively between the two.

This, of course, is just a direct consequence of the three-part thesis of disjunctivism about perception. It is also, however, directly supported by an ancillary

act-intentional/phenomenological thesis which says that there is necessarily always a sensorimotor-subjective or pre-reflectively conscious significant difference between direct, veridical perceptual experience, on the one hand (i.e., being grounded by, or standing within, The Grip of the Given), and non-veridical conscious experience, on the other (i.e., being alienated from, or standing without, The Grip of the Given), that could at least in principle be noted by a sufficiently attentive self-conscious or self-reflective rational human minded animal cognizer. In short, this ancillary act-intentional/phenomenological thesis says that the categorical or essential and mutually exclusive difference between direct, veridical perception and non-veridical conscious experience, for example, a hallucination, is necessarily always pre-reflectively consciously acted out and deeply felt as a cognitive and epistemic manifestation of inauthenticity in the Existentialist sense, especially in the mode of primitive bodily awareness, even if it is not necessarily always self-consciously or self-reflectively noticed. In the direct, veridical case you pre-reflectively truly feel cognitively at home, grounded, or epistemically well-situated. But in the non-veridical, for example, hallucinatory, case, you pre-reflectively truly feel more-or-less cognitively alienated, ungrounded, and unsituated: homeless. Otherwise put, in the non-veridical, for instance, hallucinatory, case, something truly important is missing and it is pre-reflectively consciously experienced as hollow, indigestible, uncanny, and superfluous—it sticks in your craw. But at that time, and in that context, you might fail to isolate the sense or source of your cognitive indigestion or unease, or fail to say precisely what it is like or what it is, or indeed fail to tell the difference between this non-veridical experience and a direct, veridical experience—just as one might easily fail to realize that one is in a state of inauthenticity, for instance, self-deception.

I will call this thesis *The Significant Difference Thesis*. One basic point made by The Significant Difference Thesis is that it is actually quite easy to be fooled by the presence or absence of something—as it were, an ambient decoy duck on the loose, mingling indiscriminately with all the real ducks—that is significantly different from the real thing, as the scientifically well-confirmed phenomenon of "change blindness" empirically demonstrates,[26] and as the "show biz" phenomenon of theatrical magic— aka "illusionism"—also vividly indicates. All that is required is a slight misdirection of the subject's attention at the crucial moment.

There is also further empirical evidence for The Significant Difference Thesis. This is because the cases of blindsight and its cognitive contrapositive, filling-in, as I interpreted them in section 2.8, both clearly offer direct support for The Thesis.

Consider, **first**, blindsight. Normal blindsighters, superblindsighters, and super-duperblindsighters could never be fooled by visual illusions in the self-consciously or self-reflectively blind parts of their visual fields, because their ability to track manifestly real objects in those parts of their visual fields, obviously and by hypothesis, remains unaffected and uncompromised. So necessarily they would always consciously feel the significant difference between direct, veridical sight and non-veridical visual experience.

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[26] See, e.g., O'Regan, Rensink, and Clark, "Change Blindness as a Result of 'Mudsplashes'"; and Rensink, O'Regan, and Clark, "On the Failure to Detect Changes in Scenes Across Brief Interruptions."

Now, consider, **second**, filling-in. Conversely to blindsight, for the case of filling-in, everyone capable of self-conscious vision can actually immediately consciously feel the significant difference between their normal state of illusory continuity in their self-conscious visual fields, and the gaps that saliently show themselves when a piece of paper with two dots on it is brought into appropriate alignment with one's eyes and one of the dots disappears into the blind spot. It is immediately consciously experienced as odd or surprising. So this is empirically well confirmed.

If the central line of the argument I have been developing is sound, and if The Significant Difference Thesis is also true, then correct epistemic perception presupposes the ingestive and digestive act of direct, veridical perception, aka nonconceptual knowledge, inherently guided by autonomous essentially non-conceptual, or situated, mental content, and standing within the unshakeable Grip of the Given, via The Veridicality Relation. The function of perceptual judgment and perceptual conceptualization is then descriptively to articulate, discriminate, and isolate the various macrophysical parts, properties, and relations of the manifestly real objects that are already fully presented and securely grasped in the comfortably tight and autonomous essentially non-conceptual content-funded grip on things that is provided by The Veridicality Relation, for the several rational human minded animal purposes of cognition and intentional action, in a propositionally true way. That, in turn, yields High-Bar justified true perceptual belief—High-Bar perceptual knowledge—which, as I pointed out in section 3.0, conforms to this analysis in categorical epistemology: A rational human cognitive subject S has High-Bar perceptual knowledge if and only if (i) S has a true perceptual belief that P, (ii) S's phenomenal or sensory evidence that P is intrinsically compelling or self-evident, (iii) S possesses a properly functioning cognitive mechanism that delivers this phenomenal or sensory evidence to S's belief that P, and (iv) S's belief that P is essentially reliable—there is a non-accidental or necessary connection between S's belief that P and its worldly truth-maker.

In other words, radically naïve realism theoretically vindicates the deepest perceptual epistemic aspirations of rational human minded animal cognizers.

3.3 Molyneux's Problem Revisited

There is at least one other important consequence of radically naïve realism, together with The Essential Embodiment Theory of the mind-body relation. More precisely, it is a direct consequence of the fact that by virtue of The Veridicality Relation, the whole living minded body of the perceiver takes in the whole macroscopic object. It then follows directly from my argument in the last section, as a further corollary thesis, that the separate external[27] sense modalities—vision, hearing, smell, taste, and touch, each of which contributes much special content to our perceptual judgments and concepts—are merely derivative facts about essentially embodied sense perception. These derivative facts are deeply important, to be sure, for the fine-grained and

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[27] By "external" in this context, I mean: "standing in some determinate spatiotemporal and causal relationship to the sense perceiver's living animal body, and not existing or occurring inside that body."

hyper-fine-grained purposes of our rational human minded animal cognitive and practical lives, but they are not perceptually fundamental. What is perceptually fundamental is how we pre-reflectively consciously detect the spatial, temporal, and causal dynamic properties of manifestly real things when we enter into The Veridicality Relation and stand within The Grip of the Given. This is because all of the essential and non-essential primitive sensed monadic or relational properties of the manifestly real object are consciously perceived by the cognizer in the mode of sensorimotor-subjective or pre-reflective consciousness, even insofar as they are also simultaneously delivered via the several distinct sense modalities in healthy, normal sense perception.

What I am saying, again, is that the simultaneous (or non-simultaneous) delivery of the manifestly real object via our several distinct external sense modalities is an entirely real, and perfectly normal, but also secondary or derivative fact about sense perception. Hence it is really possible to strip the several distinct external sense modalities away, whether one-by-one or in clusters, and still preserve the pre-reflectively conscious component of sense perception, running on autonomous essentially non-conceptual perceptual content, that accesses The Veridicality Relation. In this way, blind people, deaf people, people without hands, people who for whatever reason cannot taste or smell things, and so on, all directly perceive exactly the same manifestly real world of individual macroscopic material beings and primitive sensed properties that we do. You are not a non-perceiver of the manifestly real world just because you lack some specific external sense modalities by means of which you can become specially attuned to the proximal or distal manifestly real world. These sense modalities, as humanly important as they are, are relatively cognitively contingent.

This in turn leads directly to the following line of thought. By standing in The Veridicality Relation, via her whole living minded body, the perceiver thereby acquires a complete set of sensory dispositions to articulate the various manifest properties of the object in perceptual judgments, provided that the special sensory mechanisms for doing this (e.g., the visual system, the auditory system, the olfactory system, and so on) are also online and functioning properly. But suppose that one or more of these systems—for instance, vision—is offline, and has also been that way since birth, so that the perceiver is blind from birth. Since by standing in The Veridicality Relation the perceiver has already acquired a complete set of sensory dispositions to articulate the object in perceptual judgments, then the perceiver already has enough information to be able to make a complete set of perceptual judgments about the size, shape, color, and so on, of the object. So if the blind-from-birth perceiver should somehow be "made to see"—that is, when the relevant sensory mechanism, in this case the visual system, is brought online and presented with the object—then the various correct judgments can be generated immediately from the basic set of sensory dispositions, without further experience.

That line of thought, in turn, provides a very simple solution to the classical problem, known as *Molyneux's Problem*, of whether a man who is blind from birth but regains his sight as an adult could immediately recognize the difference between a cube and a sphere without having to touch them first, or not.[28] The response to

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[28] See, e.g., Locke, *Essay Concerning Human Understanding*, book II, ch. ix, pp. 145–46.

Molyneux's question that is provided by digestivist, disjunctivist, direct or naïve perceptual manifest realism, aka radically naïve realism, together with The Essential Embodiment Theory, follows directly from its corollary thesis that the several sense modalities of vision, touch, and so forth, are derivative facts about sense perception. More precisely, the response says this: "Yes, a man who is blind from birth but regains his sight as an adult *could* immediately self-consciously or self-reflectively recognize the difference between a cube and sphere without having to touch them first."

Here, more explicitly now, is the justification for that claim. According to radically naïve realist/Essential Embodiment-based explanation of the positive Molyneux result, the adult blind perceiver in Molyneux's thought experiment has acquired an ingestive and digestive direct, veridical whole-body perception of all the manifestly real basic three-dimensional shapes in his local environment, including, of course, cubes and spheres, primarily via The Veridicality Relation. In so doing, he has received a complete set of sensory dispositions with respect to those shapes, as part of his autonomous essentially non-conceptual content. (At the same time, of course, he has also received further fine-grained perceptual information about these real three-dimensional shapes in a secondary and derivative way, via the sense modality of touch.) Now, when this blind perceiver is then somehow "made to see," he can immediately self-consciously or self-reflectively correlate the visual shape of the cube and its tactile shape, and the visual shape of the sphere and its tactile shape, and also discriminate between them. This is because he already sensorimotor-subjectively or pre-reflectively knows their shapes in direct, veridical perception, via the ontically anchored grip on things that is provided by The Veridicality Relation. Previous to the recovery of sight, then, various cubes and spheres have been perceptually ingested and digested by him. The further fact that he also ingestively and digestively perceived their cubic and spherical shapes in a fine-grained way via the specific sense modality of touch, which in turn funded a great many of his perceptual judgments and concepts, whereas vision throughout that time period provided no funding to perceptual judgment and conceptualization, is merely a contingent fact about his essentially embodied perception of the world. Indeed, for the purposes of the example, this could just as easily have been the other way around. Here we can imagine a sighted man born without hands, then somehow given new living hands as an adult, and thereby "made to touch." He could then immediately recognize the difference between a cube and a sphere, if he were made to wear a blindfold and then allowed to run his hands over them.

There is a slightly weird but philosophically illuminating spin on this scenario in Robert Wiene's striking 1924 silent film, *The Hands of Orlac*. Orlac is a pianist who loses his hands in a train accident; he then receives new living hands in a post-accident operation, and is thereby "made to touch." The first twist is that the new hands are those of a notorious killer recently executed, and the hands seem to have a criminal mind of their own. And the second twist is that the supposed notorious killer eventually turns out to have been innocent, so the hands turn out to have been "innocent" too. In the meantime, as per other masterpieces of classic Weimar cinema,[29] Orlac has a pretty rough time of it.

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[29] See, e.g., Kaes, *Shell Shock Cinema: Weimar Culture and the Wounds of War*.

In any case, what is most important here for our discussion of Molyneux's Problem is the recognition that the process of being "made to see"—or mutatis mutandis, of being "made to touch"—will actually take some time, as the previously blind perceiver gradually becomes acclimated to his newly functioning eyes (or new living hands, in the "made to touch" scenario). This is a crucial qualification, because there is in fact empirical evidence that in cases of the sudden recovery of sight by a person blind from birth, the newly sighted perceiver cannot self-consciously or self-reflectively tell the difference between a cube and a sphere.[30] But that would be like a normally sighted person's being suddenly awakened in the middle of the night, having a bright light shone directly into her eyes, and then asked to tell the difference between a cube and a sphere just by looking. Of course she would be unable to see *anything* clearly until she woke up properly, and gradually acclimated herself to the light conditions in that context. Hence, by analogy, the sudden recovery of sight by a person blind from birth does not count as "being made to see" in the sense that is philosophically relevant to Molyneux's Problem.

In any case, what I am claiming is that the mental act, state, or process of direct, veridical perception, as specified by radically naïve realism, is the mental act, state, or process of knowing the world primarily via the whole living minded body of the rational human cognizer, a bodily *sensorium*. Correspondingly, she perceptually knows the world only secondarily and derivatively via her body's particular external sense organs, even if the latter sort of knowing is simultaneous with the former sort of knowing. This conclusion also smoothly conforms to the empirical data on neural plasticity and vision in the case of Tactile Visual Substitution Systems, which arguably show that blind people can (re)acquire a kind of secondary conscious vision by using prosthetic devices attached to their bodies, which impose tactile imaging patterns onto their skin.[31] Again, it needs to be re-emphasized that this is knowing in the mode of sensorimotor-subjective or pre-reflective knowing-how, inherently guided and mediated by autonomous essentially non-conceptual content, not necessarily knowing in the mode of self-conscious or self-reflective knowing-that.

So, according to radically naïve realism, together with The Essential Embodiment Theory, in direct, veridical perception we actively ingest and then digest the inherently sensibly edible individual causally efficacious macrophysical material objects that fill the manifestly real world, via their primitive sensed properties and relations, by means of autonomous essentially non-conceptual content. And all of this occurs via The Veridicality Relation, while we are standing within The Grip of the Given. Then we have thereby achieved non-conceptual knowledge, hence we are well situated for epistemic justification. By contrast, in epistemic perception, when everything goes well and we are sufficiently above the low bar of Low-Bar perceptual knowledge, we also rationally self-consciously and self-reflectively "taste" the very same manifestly real objects, proper parts, properties, and relations, in a descriptively articulated, discriminated, and isolated way—provided that the relevant sensory mechanisms are actually online—via perceptual judgment and perceptual conceptualization. These judgmental and conceptual activities, in turn, have already been fully

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[30] See, e.g., Gallagher, *How the Body Shapes the Mind*, ch. 7.
[31] See, e.g., Hurley and Nöe, "Neural Plasticity and Consciousness."

"pre-fed" and primed by The Veridicality Relation. So we have jointly satisfied the self-evident phenomenology/internalist condition, the essential reliability/anti-luck condition, and the well-functioning cognitive mechanism/epistemic virtues condition, and thereby achieve High-Bar perceptual knowledge. Or, in still other words, the philosophical picture of the nature of sense perception and High-Bar perceptual knowledge that is jointly provided by Kantian Non-Conceptualism, radically naïve realism, and The Essential Embodiment Theory, is just about as realistic as it is possible to be. The big wide manifestly real natural world out there is yours for the eating.

3.4 The Problem of Perceptual Self-Knowledge, and a Minimalist Solution

Precisely what is it, and what is it like, for me to be a rational human minded animal that knows myself perceptually? In this section, I apply Kantian Non-Conceptualism and radically naïve realism to the contemporary debate about the nature of self-knowledge, in order to preserve the widely held and prima facie compelling intuition that at least some first-person ascriptions of contentful perceptual acts or states enjoy a special kind of authority, even in the face of strong externalist worries that seem to undermine this authority. This vindication of special first-person authority, at least under some cognitively good and practically good conditions, is extremely important for my view, given my commitments to disjunctivist discriminability and The Significant Difference Thesis.

  More precisely, however, my three-part special authority thesis is as follows: (1) my first-order sensorimotor-subjective or pre-reflectively conscious awareness of my own necessary and complete biological/neurobiological embodiment has a primitive epistemic authority that is primary and grounds every other kind of perceptual self-knowledge, (2) this primitive and primary perceptual self-knowledge is an autonomous essentially non-conceptual or acquaintive kind of self-knowledge, and not a conceptual or descriptive kind of self-knowledge,[32] and (3) by means of this primitive and primary perceptual self-knowledge, I am directly acquainted with the perceptual contents of my own thoughts. If I am correct, then in this three-part sense, I primitively, primarily, acquaintively, know myself in sense perception, via autonomous essentially non-conceptual content. In turn, I do so just by being a necessarily and completely biologically/neurobiologically embodied mind, and just by being directly consciously in touch with my own body in the skillful pre-reflective performance of its spontaneous intentional movements. Thus, primitive and primary self-knowledge is not self-conscious or self-reflective knowledge of the conceptual parts of the propositional content of my own perceptual acts or states. I perceptually know myself primitively and primarily by pre-reflectively consciously knowing-how to perform spontaneous intentional body movements, not by self-consciously knowing-that I think such-and-such. This in turn guarantees that I am directly acquainted with the autonomous essentially non-conceptual perceptual content of

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[32] See also Perry, "On Knowing One's Self"; and Perry, *Reference and Reflexivity*.

my own thoughts. So I am directly acquainted with the autonomous essentially non-conceptual perceptual content of my thoughts just by "enacting"[33] those very contents. Then, because all singular first-person thoughts and perceptual thoughts alike are at least partially constituted by autonomous essentially non-conceptual perceptual content, it follows that I can authoritatively know all those parts of my first-person and perceptual thoughts by acquaintance. I call this *The Embodied Special Authority Thesis*.

Otherwise and more metaphorically put, and borrowing from Yeats, my thesis is that I know myself perceptually *because I can dance*:

> How can we know the dancer from the dance?

The notion of "dancing" I am using here should be taken in the very broad sense of skillful, pre-reflectively conscious spontaneous intentional bodily movements performed in direct response to some immediate emotional impulse or stimulation, that is, performed in direct response to "music" in a similarly broad sense. It is therefore closely related to what Nietzsche aptly calls the "Dionysian" form of life in *The Birth of Tragedy*, and also specifically designed to capture the action-theoretic correlate of the Dionysian form of life—intentional actions without self-conscious or self-reflective deliberative reasons.[34]

In any case, as I have already indicated, The Embodied Special Authority Thesis also bears an intimate relation to the disjunctivism about perception that I worked out earlier in this chapter. Again, my disjunctivism about perception makes the following three claims.

(DP1) A consciously experiencing animal subject can be *either* perceiving directly and veridically, in which case the subject stands in an immediate, unmediated cognitive relation to an individual causally efficacious macroscopic material being that is consciously and correctly perceived by her in that context and which partially constitutes the mental content and phenomenal character of that direct, veridical perceptual act or state *or* else consciously experiencing in a non-veridical way (e.g., a complete or partial hallucination), in which case the experiencing subject does *not* stand in a direct cognitive relation to an individual macroscopic being that is consciously and correctly perceived by her in that context, but *not both*.

(DP2) Direct, veridical perception and non-veridical conscious experience, for example, hallucination, are categorically or essentially different, hence they share no mental content or phenomenal character whatsoever, and in fact share only whatever it extrinsically or non-essentially is that makes them sometimes undiscriminated, namely the variable abilities of the conscious animal subject to attend to the inherently

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[33] There is an important parallel here between my view and Noë's "enactive" theory of perception in *Action in Perception*. But there is also an important difference. Noë's basic claim is that the perceiver's acts or dispositions to act *wholly* constitute and individuate perceptual content. So for him, the enactive theory of perception is a very strong metaphysical thesis about content. By contrast, my view is that the perceiver's acts or dispositions to act *wholly* constitute and individuate the *self-knowledge* of the perceptual content of our thoughts, but only *partially* constitute and individuate the *content* of perception. So for me, enactivity is *sufficient* (and necessary) for perceptual self-knowledge, and *necessary* (but not sufficient) for perceptual content.

[34] See Hanna and Maiese, *Embodied Minds in Action*, pp. 126–53.

different phenomenology of the experiences and to discriminate between these in different contexts.

(DP3) Direct, veridical perception and non-veridical conscious experience, for instance, hallucination, are inherently discriminable by a suitably attentive, self-conscious, and self-reflective conscious animal subject, even if not always discriminated by that subject, or indeed by any other such subject, at any given time, due to context-sensitive failures of the subject's ability to discriminate. This discriminative ability, therefore, is authoritative but not infallible.

In an intimately related way, my disjunctivism about perceptual self-knowledge makes the following three claims.

(DPSK1) A consciously experiencing animal subject can be *either* engaging in a direct, veridical self-acknowledging act or state, in which case the subject knows exactly what and who she is in that context, including exactly knowing the contents of her own mind, *or* engaging in a self-ignorant act or state, in which case the subject does not know exactly what or who she is in that context, including not exactly knowing the contents of her own mind, but *not both*.

(DPSK2) Direct, veridical self-knowledge and self-ignorance are categorically or essentially different, hence they share no mental content or phenomenal character whatsoever, and in fact share only whatever it extrinsically or non-essentially is that makes them sometimes undiscriminated, namely the variable abilities of the conscious animal subject to attend to the inherently different phenomenology of the experiences and to discriminate between these in different contexts.

(DPSK3) Direct, veridical self-knowledge and self-ignorance are inherently discriminable by a suitably attentive, self-conscious, and self-reflective conscious animal subject, even if not always actually discriminated by that subject, or indeed by any other such subject, at any given time, due to context-sensitive failures of the subject's ability to discriminate. This discriminative ability, therefore, is authoritative but not infallible.

The Embodied Special Authority Thesis fully satisfies (DPSK1), (DPSK2), and (DPSK3). On the view I am proposing, then, a consciously experiencing rational animal subject's knowing exactly what and who she is in that context, including her authoritatively and exactly knowing the perceptual contents of her own thoughts by acquaintance, is primitively and primarily grounded on her pre-reflectively or first-order consciously exactly knowing how to perform spontaneous intentional body movements in that context—even if she does not, in that context, successfully discriminate self-consciously or self-reflectively between this state and a self-deceived or ignorant state.

In section 2.1, I identified eight different arguments for (mostly, state) Non-Conceptualism in the contemporary literature on mental content, namely:

  (I) *From phenomenological richness,*
 (II) *From perceptual discrimination,*
(III) *From infant and non-human animal cognition,*
(IV) *From the distinction between perception (or experience) and judgment (or thought),*
 (V) *From the knowing-how vs. knowing-that (or knowing-what) distinction,*

(VI) *From the theory of concept-acquisition,*
(VII) *From the theory of demonstratives,* and
(VIII) *From the "cognitive impenetrability" of sub-personal or sub-doxastic representation.*

Then later, in section 2.6, I worked out a ninth and specifically Kantian argument for essentialist content Non-Conceptualism, namely:

(IX) *From our direct, veridical experience of real material enantiomorphy* (= The Two Hands Argument, as warmed-up by The Handwaving Argument, then supplemented by an argument for The Autonomy of Essentially Non-Conceptual Content, and then extended, generalized, and finally combined with an argument for Phenomenological Necessity).

Now I want to propose adding a tenth argument to the list of arguments for (mostly, state) Non-Conceptualism, which in turn is also a second argument for Kantian Non-Conceptualism, hence also a second argument for essentialist content Non-Conceptualism, namely:

(X) *From the theory of essentially embodied self-knowledge:* My pre-reflectively conscious awareness of my own essential embodiment has a primitive epistemic authority that grounds every other kind of perceptual self-knowledge. Furthermore, this primary and primitive perceptual self-knowledge, obtained via my pre-reflectively or first-order consciously knowing how to perform spontaneous intentional body movements, is an acquaintive kind of self-knowledge, inherently mediated by autonomous essentially non-conceptual content, and not a conceptual or descriptive kind of self-knowledge. Therefore normal rational minded animal perceptual self-knowledge inherently runs on and necessarily includes autonomous essentially non-conceptual content.

As will be immediately obvious from this formulation, this argument is based on the crucial distinction that I developed and applied in section 2.8, between (i) *sensorimotor-subjective consciousness*, or *pre-reflective consciousness*, which is the primitive and non-self-consciously conscious ability of rational minded animals to have what Nagel calls a "single point of view," and is grounded in egocentrically centered essential embodiment and primitive bodily awareness, and (ii) *self-consciousness*, or *self-reflective consciousness*, which is the more sophisticated and derivative ability of a rational minded animal to have conscious conceptual/propositional meta-representational states.

Before I can advance to an explicit formulation of my argument, however, a clarification of The Embodied Special Authority Thesis is needed. The minimally special kind of authority enjoyed by at least some first-person intentional states must be distinguished from the maximally special kind of authority entailed by the Cartesian thesis that rational minded animals can have "privileged access" to our own mental states, by which I will mean the thesis that rational minded animals possess unique self-conscious or self-reflective conceptual/propositional access to their own perceptual mental acts or states, and thereby are also epistemically infallible about them.

I will call this *The Cartesian Special Authority Thesis*. Most philosophers of self-knowledge nowadays reject The Cartesian Special Authority Thesis. But even those who reject The Cartesian Special Authority Thesis by denying the possibility of privileged access usually also hold the further thesis that we possess, at the very least, a fairly robust kind of special epistemic authority about our first-person states. This can be formulated as the thesis that necessarily, other things being equal, and in any ordinary context, I am normally in the best position to know exactly what I am and who I am, including exactly knowing the contents of my own perceptions.

To deny this carefully qualified, but still quite substantive, thesis would be to defend deflationism, skepticism, or nihilism about perceptual self-knowledge. Hence I dub this thesis *The Minimal Special Authority Thesis*, which must be explained and accommodated by any non-deflationist, non-nihilist, non-radically-skeptical account of self-knowledge. Given the highly rationally intuitive plausibility of The Minimal Special Authority Thesis, it is unsurprising that most philosophers of self-knowledge nowadays are looking for characterizations of self-knowledge that preserve minimal special authority without privileged access.[35]

The Minimal Special Authority Thesis, however, has recently been under threat. The advent and widespread popularity of what I will call *Strong Externalism* about mental content poses a serious challenge to even the minimal special authority of self-knowledge. Strong Externalism says this:

Strong Externalism: The representational properties and structures of all mental contents are necessarily or constitutively determined exogenously, even if causal initiation and triggering occurs endogenously, and even if the vehicles of content are also endogenous. Mental content for which this thesis holds is broad or wide content.

If Strong Externalism is correct, then since the contents of one's words and mental states are necessarily determined by exogenous factors that one does *not* know self-consciously, conceptually, or by description, then it seems to follow that at best one can only ever have non-exact or partial knowledge of those contents. This apparent entailment obviously puts The Minimal Special Authority Thesis in serious jeopardy.

In the face of this challenge to The Minimal Special Authority Thesis, some externalists have attempted to preserve or reinstate the minimally special authority of perceptual self-knowledge,[36] and there has been much interesting discussion in the recent literature about whether strong externalists can give a theory of self-knowledge that vindicates The Minimal Special Authority Thesis, or not. Nevertheless, in my opinion, its interestingness notwithstanding, this discussion ultimately leads to a sharp and seemingly unresolvable dilemma between, on the one hand, the rationally intuitively plausible thesis that

(1) given Strong Externalism, some 18th-century thinker *T*, who by assumption knows his own water thoughts, also does not self-consciously or self-reflectively

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[35] See, e.g., Burge, "Our Entitlement to Self-Knowledge"; Cassam (ed.), *Self-Knowledge*; Heal, "On 'First-Person Authority'"; Moran, *Authority and Estrangement*; and Wright (ed.), *Knowing Our Own Minds*.
[36] See, Burge, "Individualism and Self-Knowledge"; and Brown, *Anti-Individualism and Knowledge*.

know that his water thoughts involve the concept *water* and not the concept *te-water* (i.e., the Twin-Earthian concept of water, whose content is partially determined or fixed by the presence of XYZ in the local Twin-Earthian environment, and not by H_2O),

and the seemingly equally rationally intuitively plausible thesis that

(2) if some 18th-century thinker T does not self-consciously or self-reflectively know that his own water thoughts involve the concept *water* and not the concept *te-water*, then T does not know his own water thoughts.[37]

I will call this *The Strong Externalist Dilemma about Perceptual Self-Knowledge*.

Here, now, is a two-part minimalist strategy for solving The Strong Externalist Dilemma about Perceptual Self-Knowledge.

First, I think that the key false and vitiating assumption shared by all Externalist accounts of perceptual self-knowledge, whether they are Strongly Externalistic or not, is that all self-knowledge must be self-conscious, self-reflective knowledge by description, or conceptual self-knowledge. The problem that motivates The Strong Externalist Dilemma about Perceptual Self-Knowledge is just that the perceiver is unable to individuate, in a self-conscious descriptive way, the concepts that partially compose his thoughts. So he is apparently unable to know his own perceptual thoughts, and yet by hypothesis he knows his own perceptual thoughts. But the fact that the perceiver is unable to individuate, in a self-conscious or self-reflective and descriptive way, the concepts that partially compose his thoughts, is clearly perfectly consistent with the thesis that it is the autonomous essentially non-conceptual parts of perceptual thoughts that are knowable with authority, not self-consciously or self-reflectively by description, but instead pre-reflectively or first-order consciously by acquaintance.

Then, **second**, my vindication of The Minimal Special Authority Thesis in terms of The Embodied Special Authority Thesis is grounded directly on the thesis that primary, primitive perceptual self-knowledge is a certain kind of pre-reflectively conscious knowledge by acquaintance. This is none other than direct, veridical perceptual self-knowledge, via autonomous essentially non-conceptual content. That falsifies the vitiating assumption and puts in its place the following true doctrine. If, like me, you are an essentially embodied rational human animal, then you primarily and primitively know yourself, and thereby acquaintively know the perceptual content of your own thoughts, just by *being* an essentially embodied rational human animal, which in turn is just being directly, veridically, and consciously in touch with your own body, in some or another pre-reflective way, via the skillful performance of its spontaneous intentional movements. That is, as an essentially embodied rational human animal, you primarily and primitively know yourself, and thereby acquaintively know the perceptual content of your own thoughts, just by pre-reflectively or first-order consciously knowing how to move around freely in the

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[37] Many thanks to Derek Kern for this illuminating formulation of the problem of perceptual self-knowledge generated by Strong Externalism.

directly perceived manifestly real world—just by pre-reflectively or first-order consciously knowing how to "dance to the Schopenhauerian music of the world."

Furthermore, and as a direct philosophical payoff, my minimalist vindication of
The Minimal Special Authority Thesis in terms of The Embodied Special Authority
Thesis has the immediate consequence that it effectively resolves The Strong Externalist Dilemma about Perceptual Self-Knowledge, even if we suppose Strong Externalism to be true. More precisely, my minimalist vindication does this by falsifying
the second horn of the dilemma. From the mere fact that some thinker does not self-
consciously or self-reflectively know that her water thoughts involve the concept
water and not the concept *te-water*, it does not follow that this thinker does not know
her water thoughts in any robust sense of self-knowledge. She can still primarily and
primitively know herself, and thereby acquaintively know the perceptual content of
her own thoughts, just by pre-reflectively or first-order consciously knowing how to
move around freely in different ways on Earth and on Twin Earth.

For example, suppose that an unusual person named *Divine* is a highly skilled and
successful water diviner on Earth in the 18th century. Who knows how Divine does
it? Any plausible cognitive-neuroscientific explanation we can give of the biological/
neurobiological basis of her/his unusual ability will suffice for the purposes of my
argument. The simple and crucial fact is just that on Earth, Divine pre-reflectively or
first-order consciously knows how to find H_2O with remarkable skill and success.
And if someone asks her/him what s/he knows, s/he can authoritatively answer this
question just by saying "I know *this*," and in so saying, thereby display or show
precisely what s/he knows by carrying out yet another skillful and successful act of
water divining. So the word standing for the content of her/his thought is semantically completed by the deed, and knowing the meaning of the content-word is just
doing the deed. Analogously, someone might authoritatively answer the question,
"What do you know about circles?" by saying, "I know *this*," and in so saying, thereby
display or show precisely what s/he knows by correctly drawing a circle on a piece of
paper, or by correctly moving her/his arm in a circle.

On Twin Earth, Divine's water divining sense works equally well and tells her/
him that there is no water there at all, only some other watery stuff, which is,
self-consciously or self-reflectively unbeknownst to her/him, namely XYZ. So
Divine does not know her/his own water thoughts in one sense of perceptual
self-knowledge—self-conscious, self-reflective, conceptual self-knowledge. Nevertheless, Divine also does know the autonomous essentially non-conceptual perceptual
content of his/her own water thoughts in the quite distinct, primary, and primitive
sense of The Embodied Special Authority Thesis, namely by pre-reflective or first-
order conscious acquaintance. S/he cannot describe what s/he knows. Yet s/he *shows*
exactly what s/he knows, and s/he *knows* exactly what s/he shows. This effectively
resolves The Strong Externalist Dilemma about Perceptual Self-Knowledge, whether
or not Strong Externalism is true.

3.5 Conclusion

At the outset of this chapter, I said that its overarching goal was nothing less than to
change the way we normally think about our perceptual engagement with the world.

My core idea is that in autonomous essentially non-conceptual perception, the whole manifest worldly object is perceived via the whole living minded body of the perceiver, her bodily *sensorium*. Hence, we should think of direct, veridical sense perception, High-Bar perceptual knowledge, and perceptual self-knowledge as inherently active and fully natural biological/neurobiological processes whereby we get a cognitive and practical grip or handle on the larger natural and social world, and also come to stand within the grip of that larger natural and social world. These processes happen via autonomous essentially non-conceptual content, and therefore also via the conscious, and especially the spontaneous, intentional movements of our own activated, living animal bodies. Then, direct, veridical sense perception, non-conceptual knowledge, the two varieties of Low-Bar perceptual knowledge, High-Bar perceptual knowledge, and perceptual self-knowledge are all deeply like eating food, and Nietzschean Dionysian dancing to the tune of the Schopenhauerian music of the world.

Therefore, our perceptual engagement with the world should not be understood as a process of passively receiving, rationally interpreting, and abstractly self-evaluating a set of brute causal impacts from an alien material world, via the deterministic or indeterministic operations of a fleshy Turing machine. Sense perceiving is a fundamental form of minded animal life in the manifestly real world[38] that is more basic than any kind of conceptualizing, judging, or reasoning. And we ourselves are nothing more and nothing less than situated, activated, sapient, sentient animals, in whom direct, veridical conscious perceptions of the manifestly real world, non-conceptual knowledge, Low-Bar perceptual knowledge, context-sensitive causally reliable Low-Bar perceptual knowledge, High-Bar perceptual knowledge, and direct, veridical perceptual self-knowledge all grow up together naturally and in vital suffusion, for better or worse, within the unshakeable Grip of the Given.

This recognition is not perceptual self-knowledge in the sense I discussed in section 3.4: instead, it is substantive philosophical self-knowledge of what we really and truly are as sense perceivers.

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[38] Episodic memory of the past and episodic imagination of the future are equally fundamental forms of minded animal life, although I have not attempted to address either of them directly or discuss either of them explicitly in this book. But see, e.g., Russell and Hanna, "A Minimalist Approach to the Development of Episodic Memory."

4

Truth in Virtue of Intentionality, *Or*, The Return of the Analytic-Synthetic Distinction

[F]or all its a priori reasonableness, a boundary between analytic and synthetic statements simply has not been drawn. That there is such a distinction at all is an unempirical dogma of empiricists, a metaphysical article of faith.

—W. V. O. Quine[1]

[T]here remains a thesis of Brentano's, illuminatingly developed of late by Chisholm, that is directly relevant to our emerging doubts over the propositional attitudes and other intentional locutions. It is roughly that there is no breaking out of the intentional vocabulary by explaining its members in other terms. Our present reflections are favorable to this thesis. . . . Chisholm counts the semantical terms "meaning," "denote," "synonymous," and the like into the intentional vocabulary, and questions the extent to which such terms can be explained without the help of other semantical or intentional ones. . . . One may accept the Brentano thesis either as showing the indispensability of intentional idioms and the importance of an autonomous science of intention, or as showing the baselessness of intentional idioms and the emptiness of a science of intention. My attitude, unlike Brentano's, is the second.

—W. V. O. Quine[2]

This is the way the world ends
This is the way the world ends
This is the way the world ends
Not with a bang, but a whimper.

—T. S. Eliot[3]

It's the end of the world as we know it and I feel fine.

—R.E.M.[4]

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[1] Quine, "Two Dogmas of Empiricism," p. 37.
[2] Quine, *Word and Object*, p. 221.
[3] Eliot, "The Hollow Men," p. 92.
[4] R.E.M., "It's the End of the World as We Know It (and I Feel Fine)," from *Document* (1987), lyrics by M. Stipe.

4.0 Introduction

What is the analytic-synthetic distinction? According to the contemporary Kantian conception I am offering, it is the categorically sharp contrast between two fundamentally different kinds of truth, distinguished in terms of what each kind is "true-in-virtue-of." That is, the analytic-synthetic distinction, as I am understanding it from a contemporary Kantian point of view, is the categorically sharp contrast between (i) *necessary truth in virtue of conceptual content*, such that this content is always taken together with some things in the manifestly real world beyond conceptual content, although its truth is never in virtue of those worldly things (analytic truth), and (ii) *necessary or contingent truth in virtue of things in the manifestly real world beyond conceptual content, as represented by autonomous essentially non-conceptual content*, such that this content is always taken together with some conceptual content, although its truth is never in virtue of conceptual content (synthetic truth). And as I will understand them, the phrase "in virtue of" means "essentially because of, although not exclusively because of," and correspondingly the phrase "never in virtue of" means "never essentially because of, even if partially because of."

In this chapter, then, I want to tell the thrilling three-part story of how the analytic-synthetic distinction departed from mainstream Analytic philosophy, not with a bang but a whimper, why the analytic-synthetic distinction must now return with a bang, and what that bang must sound like. More precisely, however, I will argue that for contemporary Kantian and contemporary mainstream Analytic philosophers alike, if we are not to become *The Hollow People*, lacking any adequate conception of human rationality (whether cognitive rationality or practical rationality) in virtue of our lacking the very idea of a semantic content, which in turn presupposes the analytic-synthetic distinction, it is now rationally obligatory for us to bring about the return of a fully intelligible and defensible analytic-synthetic distinction.

I will also attempt to discharge this rational obligation by working out a detailed, positive theory of the analytic-synthetic distinction.

Here is a brief advertisement for that theory. In "Two Dogmas of Empiricism," W. V. O. Quine informally characterized the first dogma of "modern empiricism,"—Logical Empiricism—as

a belief in some fundamental cleavage between truths which are *analytic*, or grounded in meanings independently of matters of fact, and truths which are *synthetic*, or grounded in fact.[5]

Then Quine rejected the analytic-synthetic distinction, in this Logical Empiricist sense, on the grounds that it could not be reductively explained in other terms, and proposed its elimination. But later in *Word and Object* (as recorded in the second epigraph of the chapter), he also explicitly conceded that because there is no explaining intentional idioms and intentionality in other terms, this could be taken

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[5] Quine, "Two Dogmas of Empiricism," p. 20.

either as showing the indispensability of intentional idioms and the importance of an autono-
mous science of intention, or as showing the baselessness of intentional idioms and the
emptiness of a science of intention.

Subsequently, he decisively took up the second option. On the contrary, I want to
reject Quine's rejection of the analytic-synthetic distinction by decisively taking up
the first option, and by arguing that the analytic-synthetic distinction itself can be
adequately explained, in a contemporary Kantian way, in terms of intentional idioms
and intentionality, or more precisely, in terms of mental content and human
rationality.

   If this is correct, then Quine's earlier reasons for rejecting the analytic-synthetic
distinction are undermined by his own later admission, since it immediately follows
that the correct explanation of the analytic-synthetic distinction is in terms that
remain fully and irreducibly within the framework of intentional idioms and inten-
tionality, by way of mental content and human rationality. At the same time there
emerges a new and powerful reason for accepting "the indispensability of intentional
idioms and the importance of an autonomous science of intention." So if I am right,
then Brentano was right, Kant was even more right, and Quine was wrong.

   In short, my claim is that the right theory of mental content and human ration-
ality, on the one hand, and the analytic-synthetic distinction, on the other, are
explanatorily complementary, mutually supporting, and jointly cogent. More pre-
cisely, I am claiming that the analytic-synthetic distinction mirrors an essential
division within the mental content of intentional acts and states—the division
between conceptual content and autonomous essentially non-conceptual content—
which, in turn, captures an essential structure of human rationality. One very
important further consequence of this contemporary Kantian theory is that it
demonstrates that there are in fact no such things as necessary a posteriori statements
or contingent a priori statements, contrary to popular post-Quinean belief. So again
if I am right, then Brentano was right, Kant was even more right, Quine was wrong,
and, perhaps even more surprisingly, Kripke was wrong, too.

4.1 Two Urban Legends of Post-Empiricism

Without a doubt, the greatest urban legend of post-Logical Empiricist philosophy is
the belief that W. V. O. Quine refuted the analytic-synthetic distinction in "Two
Dogmas of Empiricism" in 1951. This is indeed a mere legend, however, for five
reasons.

   First, Quine's critique of the analytic-synthetic distinction was actually a cumulative
argument that included at least three other important texts in addition to "Two
Dogmas," spread out over three decades from 1935 to 1965—namely, "Truth by
Convention" (1935), *Word and Object* (1960), and "Carnap and Logical Truth" (1963).[6]

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[6] Actually, the publishing history of the "Carnap and Logical Truth" paper is somewhat complicated. It
was originally written in 1954 for the Library of Living Philosophers volume on Carnap, which eventually
appeared in 1963. But parts of the 1954 paper appeared in 1956 (in Italian) and in 1957 (in English); and a
complete English version also appeared in *Synthese* in 1960.

Second, and more importantly, Quine's argument in "Two Dogmas" badly mischaracterizes Kant's theory of the analytic-synthetic distinction by falsely assimilating it to Frege's and Carnap's theories,[7] hence, in effect, by falsely assimilating it to the Logical Empiricist conception of the analytic-synthetic distinction, and by assuming without argument that the very idea of the synthetic a priori (including the notion of synthetic necessity and also the notion of synthetic a priori knowledge) is unintelligible: so Quine never even rejected Kant's theory itself, much less refuted it.

Third, and very importantly, as I shall argue in detail later in this chapter, Quine's critical arguments against the analytic-synthetic distinction are all demonstrably unsound, even despite their undeniable fame and powerful influence.

Fourth, and equally importantly, as a part of his eliminative strategy, Quine introduced a deflationary or *ersatz* version of the analytic-synthetic distinction that effectively converts what was originally, for Kant, a cognitive-semantic distinction, into a merely epistemic-pragmatic distinction. More precisely, having mistakenly rejected the original Kantian analytic-synthetic distinction—the distinction between (i) necessary truth in virtue of conceptual content, such that this content is always taken together with some things in the manifestly real world beyond conceptual content, although never in virtue of those worldly things, and (ii) necessary or contingent truth in virtue of things in the manifestly real world beyond conceptual content, as represented by autonomous essentially non-conceptual content, such that this content is always taken together with some conceptual content, although never in virtue of that content—Quine then strategically replaced it with a very different distinction. That distinction was between (i*) asserted statements or beliefs that stubbornly resist recalcitrant experience and can be acquired without experiential evidence and inquiry (aka "armchair beliefs," aka "the a priori"), and (ii*) asserted statements or beliefs that are flexibly sensitive to recalcitrant experience and cannot be acquired without experiential evidence and inquiry (aka "experimental beliefs," aka "the a posteriori").[8]

By a strange historical twist, this Quinean deflationary or ersatz epistemic-pragmatic version of the original analytic-synthetic distinction has now become, in

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[7] In "Carnap and Logical Truth," however, Quine accurately points up the most important difference between Kant's theory of analyticity, Frege's theory, and Carnap's theory:

> Altogether, the contrasts between elementary logic and set theory are so fundamental that one might well limit the word 'logic' to the former..., and speak of set theory as mathematics in a sense exclusive of logic. To adopt this course is merely to deprive 'ϵ' of the status of a logical word. Frege's derivation of arithmetic would then cease to count as a derivation from logic; for he used set theory. At any rate we should be prepared to find that [Carnap's] linguistic doctrine of logical truths holds for elementary logic and fails for set theory, or vice versa. Kant's readiness to see logic as analytic and arithmetic as synthetic, in particular, is not superseded by Frege's work (as Frege supposed), if "logic" be taken as elementary logic. And for Kant logic certainly did not include set theory. (p. 111)

In fact, Kant's pure general logic is closest in structure to *monadic* logic (classical sentential logic plus quantification into one-place predicates only). So unlike Frege and Carnap alike, Kant would have regarded both elementary logic (which includes identity and multiple quantification into relational predicates) and set theory as synthetic, not analytic. See Hanna, "Kant's Theory of Judgment," and chapter 5 below.

[8] For a more explicit formulation, and critique, of Quine's distinction between apriority and aposteriority, see section 7.2.

effect, the standard version of the analytic-synthetic distinction in the contemporary, post-Quinean Analytic tradition.[9] So ironically enough, Quine not only mistakenly rejected Kant's analytic-synthetic distinction and purported to eliminate the analytic-synthetic distinction as he, Quine, originally understood it in "Two Dogmas"— namely, as the "modern Empiricist" or Logical Empiricist conception of the analytic-synthetic distinction—but he also created another and different distinction. This new Quinean distinction, however, even despite its being highly influential in contemporary Analytic philosophy, is significantly less intelligible and defensible than the original Kantian distinction, as I will argue later.

In this connection, it is directly relevant to note that the online *Philosophical Papers* survey of mainstream contemporary philosophers conducted by David Bourget and David Chalmers in November-December 2009 showed (i) that 71 percent of the philosophers who replied accepted the existence of a priori knowledge, and also (ii) that 65 percent accepted the analytic-synthetic distinction. In his editorial comments on the results, Bourget wrote that he was surprised by the high rate of acceptance of the analytic-synthetic distinction, and Chalmers wrote in reply that

[a]s for the analytic/synthetic distinction, it's worth noting that quite a few people said "yes" while also noting in the comments that they don't think the distinction does important philosophical work.[10]

That all seems correct to me. So in other words, although most mainstream contemporary philosophers believe in the existence of a priori knowledge and also believe in the analytic-synthetic distinction, many of those same philosophers also believe that the analytic-synthetic distinction itself does not do any important or serious philosophical work, even if they do continue to think that the notion of apriority does some important and serious philosophical work in epistemology and semantics. This includes Chalmers himself, and other proponents of "The Canberra Plan"[11] (e.g., Frank Jackson), under the rubrics of "a priori entailments" and "a priori intensions." I will explore some possible reasons for this (to me, frankly, bizarre) philosophical "disconnect" between the analytic-synthetic distinction and the a priori–a posteriori distinction later.

Fifth, and most importantly of all, no one has yet explained how Analytic philosophy itself can really be possible without adequate theories of

  (i) conceptual analysis,
 (ii) analyticity,
(iii) how to ground an intelligible and defensible distinction between
     (iiia) logically, conceptually, weakly metaphysically, or *analytically* necessary truths (i.e., truths about the kind of necessity that flows from the nature of concepts), and

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[9] See, e.g., Boghossian, "Analyticity Reconsidered."
[10] See Bourget and Chalmers, "Philosophical Papers Survey 2009."
[11] See, e.g., Chalmers, "From the *Aufbau* to the Canberra Plan"; and Jackson, *From Metaphysics to Ethics: A Defense of Conceptual Analysis.*

(iiib) non-logically, essentially non-conceptually, strongly metaphysically, or *synthetically* necessary truths (i.e., truths about the kind of necessity that flows from the nature of things in the manifestly real world, as represented by autonomous essentially non-conceptual content[12]),

(iv) a priori knowledge of logical truths and conceptual truths,

(v) a priori knowledge of non-logically, essentially non-conceptually, strongly metaphysically, or synthetically necessary truths, especially including mathematical truths, and finally

(vi) the nature and status of logic.

So if Quine refuted the analytic-synthetic distinction, then in effect he refuted Analytic philosophy, too. But obviously Quine did not refute Analytic philosophy. Therefore he did not refute the analytic-synthetic distinction, either.

Equally without a doubt, the second greatest urban legend of post-Empiricism is that the analytic-synthetic distinction does not matter anyway. To many or even most contemporary philosophers, the analytic-synthetic distinction seems almost unbearably technical, tedious, and trivial. Nothing more quickly produces a grimace or nauseated look than to say "the analytic-synthetic distinction" out loud, without irony, in polite philosophical conversation. But on the contrary, it seems clear to me that if the analytic-synthetic distinction were either unintelligible or indefensible, then the very idea of a semantic content would go down. And then, like so many dominoes, the very ideas of belief, cognition, thought, understanding, justification, knowledge, intentionality, and human rationality—whether cognitive rationality or practical rationality—would all go down, too, since all these notions inherently involve and basically presuppose the notion of semantic content. More precisely, I will soon present what I call *A Transcendental Argument for the Existence of a Robust Analytic-Synthetic Distinction, From the Very Idea of a Semantic Content*.[13]

To be as clear as possible, here is what I mean by the notion of a transcendental argument. An *argument* is a set of sentences or statements Γ (and possibly Γ = the null set of sentences or statements)—the premises—such that a sentence or statement S (which may or may not be a member of Γ), in effect, the conclusion, is held to follow validly or soundly from Γ. Then an argument is a *transcendental argument* if and only if

(i) some version of transcendental idealism is assumed to be true,[14]—Weak or Counterfactual Transcendental Idealism—and

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[12] See, e.g., Kripke, "Identity and Necessity"; Kripke, *Naming and Necessity*; Fine, "Essence and Modality"; Fine, "The Varieties of Necessity"; Fine, "Senses of Essence"; Chalmers, *The Conscious Mind*, pp. 136–38; and Hanna and Maiese, *Embodied Minds in Action*, section 7.4.

[13] Many thanks to Ben Bayer for pushing me to make this argument more explicit.

[14] In a series of papers initiated by his "Transcendental Arguments," first published in 1968, Stroud famously argued that the soundness of transcendental arguments presupposes the truth of either verificationism or transcendental idealism. In my opinion, that is correct. For the purposes of argument, let us then assume that verificationism is false, and leave it aside. That leaves just the claim that the soundness of transcendental arguments presupposes transcendental idealism. But only if transcendental idealism is false is this actually an objection to transcendental arguments. And the version of transcendental idealism that Stroud considered was in fact old-school, Oxford-style, Conceptualist *Strong* Transcendental Idealism, which I completely agree is false. But if transcendental arguments are in fact supported by an arguably true

(ii) that argument advances from a sentence or statement *S*, taken as a single premise, to an a priori necessary presupposition *APNP* of *S*—"a condition of the possibility" of *S*—taken as a single conclusion, as follows:

(1) *S*.
(2) *S* presupposes *APNP*.
(3) Therefore, *APNP*.

Furthermore, by the notion of "a robust analytic-synthetic distinction" I mean a version of the analytic-synthetic distinction that explanatorily includes and fully preserves an essential difference between (i) analytic truths, which are inherently necessary and a priori, and (ii) synthetic truths, with the possibility also being explicitly left open of explanatorily including and fully preserving another essential difference between (iia) synthetic necessary and a priori truths, and (iib) synthetic contingent and a posteriori truths.

Now for the argument itself:

A Transcendental Argument for the Existence of a Robust Analytic-Synthetic Distinction, From the Very Idea of a Semantic Content

(1) Belief, cognition, thought, understanding, justification, knowledge, intentionality, and human rationality more generally, all inherently involve and a priori presuppose standard notions of reference, truth or falsity, and logical consequence, for example, as defined by Tarski, all of which are semantic content notions.

(2) Therefore the very ideas of belief, cognition, thought, understanding, justification, knowledge, intentionality, and human rationality more generally all inherently involve and a priori presuppose the very idea of a semantic content.

(3) Every semantic content is an intension of some sort, which inherently correlates with an actual or possible extension of some sort.

(4) The very idea of a difference between intension and extension inherently includes the distinction between

(4.1) normative intensional facts, including semantic facts about accurate reference, semantic facts about the truth of sentences or statements, and semantic facts about the validity or soundness of arguments, in what Sellars aptly calls the "logical space of reasons" on the one hand, and

(4.2) non-normative natural facts including natural facts about natural objects, natural facts about natural properties, natural facts about natural states of affairs, and natural facts about natural relations between natural objects, natural properties, and natural states of affairs, in what Sellars calls the "natural space of facts," on the other hand.[15]

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version of transcendental idealism—Kantian Non-Conceptualist Weak or Counterfactual Transcendental Idealism—then Stroud's objection is perfectly harmless. For a good survey of Stroud's papers and the Stroud-driven debate about transcendental arguments, see Stern, "Transcendental Arguments," section 3. See also note 14, ch. 3.

[15] See Sellars, "Empiricism and the Philosophy of Mind," p. 169, and more generally, §17 and §36. See also McDowell, *Having the World in View*. It is important to note in this connection that whereas Sellars and McDowell both hold that normative intensional facts flow from conceptual content alone, Kantian

(5) Only analytic a priori statements can truly pick out normative intensional facts such as:

    (5.1) the fact that '*a*' accurately refers to *a* if and only if '*a*' actually refers to *a* and never refers to anything else,

    (5.2) the fact that '*S*' is true if and only if *S*,

    (5.3) the fact that '*Q*' is a valid consequence of '*P*' if and only if there is no possible set of circumstances such that '*P*' is true and '*Q*' is false, and

    (5.4) the fact that '*Q*' is a sound consequence of '*P*' if and only if '*Q*' is a valid consequence of '*P*', and '*P*' is true,

and only synthetic a posteriori statements can truly pick out non-normative natural facts.

(6) Therefore, the very idea of a semantic content inherently involves and a priori presupposes a robust analytic-synthetic distinction.

In other words, how could there be intelligible and defensible notions of belief, cognition, thought, understanding, justification, knowledge, intentionality, and human rationality more generally, without the correlative notions of belief-content, cognitive content, and thought-content? The connection between the former and the latter is that the latter are all priori necessary presuppositions of the former, and in turn the latter all a priori presuppose a robust analytic-synthetic distinction. So in this way, the elimination or rejection of the analytic-synthetic distinction entails the elimination or rejection of the very idea of *human rationality*, and "it's the end of the world as we know it."

4.2 A Very Brief History of the Analytic-Synthetic Distinction

For most recent and contemporary Analytic philosophers, the analytic-synthetic distinction is merely an updated version of *Hume's Fork*, which in turn is the two-pronged epistemic and cognitive-semantic distinction between (i) trivial, merely stipulative, necessary, and a priori "relations of ideas," and (ii) substantive, empirical, contingent, and a posteriori "matters of fact."[16] But in fact *Kant's* original A–S distinction was a three-pronged *pitchfork* designed for philosophical digging in the real earth, that is, a threefold epistemic and cognitive-semantic distinction between (i) logically, conceptually, or weakly metaphysically necessary analytic a priori truths, (ii) non-logically, essentially non-conceptually, or strongly metaphysically necessary synthetic a priori truths, and (iii) contingent synthetic a posteriori truths (*CPR* A6–10/B10–24). In this way, the original Kantian analytic-synthetic distinction is nothing more and nothing less than the categorically sharp contrast between (i) necessary truth in virtue of conceptual content, such that this content is always taken together with some things in the manifestly real world beyond conceptual

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Non-Conceptualism insists that normative intensional facts flow not only from conceptual content but also from autonomous essentially non-conceptual content. See ch. **2** above.

[16] See, e.g., Hume, *Enquiry Concerning Human Understanding*, p. 15.

content, although its truth is never in virtue of those worldly things, and (ii) necessary or contingent truth in virtue of things in the manifestly real world beyond conceptual content, as represented by autonomous essentially non-conceptual content, such that this content is always taken together with some conceptual content, although its truth is never in virtue of conceptual content.

To be sure, there were anticipations of the original Kantian analytic-synthetic distinction in the writings of Locke, Hume, and Leibniz.[17] But since Kant is the official creator or discoverer of the original analytic-synthetic distinction—in the sense that he was the first to use that terminology, and the first to make it an absolutely central feature of his logic, semantics, epistemology, metaphysics, and ethics—then the question naturally arises: How did Kant's Pitchfork turn into Hume's Fork? Here is a much-simplified, blow-by-blow version of that deeply important historico-philosophical story.

In the 19th century, Bernard Bolzano and Frege claimed to have purified Kant's original tripartite analytic-synthetic distinction of its vitiating idealism and psychologism,[18] and then Frege tried to reduce arithmetic truths to logically analytic truths by deriving them a priori from general logical laws together with something he called "logical definitions."[19]

At the fin de siècle and during the first decade of the 20th century, G. E. Moore and Bertrand Russell attacked neo-Hegelian philosophy and Kant's transcendental idealism, and asserted *platonic atomism*, according to which concepts and other universals are the primitive, ultimate constituents of propositions and reality alike, and can be known directly and self-evidently by acts or states of cognitive acquaintance.[20]

In the 1920s and '30s, building on Wittgenstein's theory of logic and meaning in the *Tractatus Logico-Philosophicus*, Carnap and the other Logical Empiricists rejected the very idea of the synthetic a priori, and adopted the Conventionalist theory of analyticity.[21]

Also in the 1930s, in "Truth by Convention," Quine argued that the Conventionalist theory of analyticity fails because its definition of logical truth or analyticity covertly presupposes and uses non-conventional classical logic. Carnap responded to Quine in 1947.[22]

In 1951, in "Two Dogmas," Quine explicitly rejected the analytic-synthetic distinction as it was understood in "modern Empiricism," or Logical Empiricism, and proposed its elimination. Carnap responded to Quine again in 1954.[23]

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[17] See, e.g., Proust, *Questions of Form: Logic and the Analytic Proposition from Kant to Carnap*, pp. 3–39.

[18] See Hanna, "What Is a 'Representation-in-Itself'? Kant, Bolzano, and Anti-Psychologism"; see also Hanna, *Rationality and Logic*, ch. 1.

[19] See, e.g., Benacerraf, "Frege: The Last Logicist"; Coffa, *The Semantic Tradition from Kant to Carnap*; Frege, *Foundations of Arithmetic*; and Proust, *Questions of Form*, pp. 49–163.

[20] See, e.g., Baldwin, *G. E. Moore*, chs. 1–2; Moore, *Selected Writings*; Russell, *The Problems of Philosophy*; Hanna, *Kant and the Foundations of Analytic Philosophy*, ch. 1; and Hylton, *Russell, Idealism, and the Emergence of Analytic Philosophy*, parts I and II.

[21] See, e.g., Carnap, *Logical Syntax of Language*, Coffa, *The Semantic Tradition from Kant to Carnap*, chs. 9–17; Friedman, *Reconsidering Logical Positivism*, chs. 7–9; Proust, *Questions of Form: Logic and the Analytic Proposition from Kant to Carnap*, pp. 165–240; and Wittgenstein, *Tractatus Logico-Philosophicus*.

[22] Carnap, *Meaning and Necessity*.

[23] Carnap, "Meaning Postulates" and "Meaning and Synonymy in Natural Languages."

Quine trounced Carnap in *Word and Object* (which, ironically enough, is dedicated to "RUDOLPH CARNAP, Teacher and Friend") in 1960, and then again in "Carnap and Logical Truth" in 1963, and at the same time he strategically introduced the deflationary, ersatz, or epistemic-pragmatic version of the analytic-synthetic distinction between armchair beliefs (aka "the a priori") and experimental beliefs (aka "the a posteriori").

H. P. Grice and P. F. Strawson criticized Quine in 1956.[24]

Strawson alone criticized Quine in 1957.[25]

Arthur Pap criticized Quine and defended the analytic-synthetic distinction at length in 1958.[26]

And then Jerrold Katz criticized Quine in 1964.[27]

But for some reason, all this important philosophical work made no noticeable difference. By the end of the 1960s it had become the conventional wisdom that Quine had actually *refuted* the analytic-synthetic distinction, and not merely *rejected* it. Indeed, by 1992 Burge could write this with a confident expectation of general agreement:

No clear reasonable support has been devised for a distinction between truths that depend for their truth on meaning alone and truths that depend for their truth on meaning together with (perhaps necessary) features of their subject matter.[28]

What happened after that? Sadly, things went from bad to worse for Kant's Pitchfork.

In the 1960s, '70s, and '80s, Kripke and Putnam (assisted by Keith Donnellan) rejected the very idea of a necessary equivalence between necessity and apriority by arguing for the existence of necessary a posteriori statements such as

(WH)   Water is H_2O.
(GE)   Gold is the element with atomic number 79.
(CT)   Cicero is Tully.

and

(HP) Hesperus is Phosphorus.

and also contingent a priori statements such as

(SM)   Stick *S* is one meter long at t_0. [According to Kripke.]
(CA)   Cats are animals. [According to Putnam, but not Kripke.]
(WL)   Water is a liquid. [According to Putnam, but not Kripke.]

and

(WM)   Whales are mammals. [According to Donnellan, but not Kripke.][29]

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[24] Grice and Strawson, "In Defense of a Dogma."
[25] Strawson, "Propositions, Concepts, and Logical Truths."
[26] Pap, *Semantics and Necessary Truth*.
[27] Katz, "Some Remarks on Quine on Analyticity."
[28] Burge, "Philosophy of Language and Mind: 1950–1990," pp. 9–10.
[29] See, e.g., Donnellan, "Necessity and Criteria"; Kripke, "Identity and Necessity"; Kripke, *Naming and Necessity*; Putnam, "It Ain't Necessarily So"; Putnam, "The Analytic and the Synthetic"; Putnam, "The

At the same time Ruth Barcan Marcus, Kripke, Putnam, David Kaplan, and Gareth Evans collectively developed Direct Reference Semantics, also known at the time as "The New Theory of Reference." Direct Reference Semantics explicitly includes ostensive dubbings, causal-historical chains of name-use, division of linguistic labor, contexts of utterance, and perceptual demonstration acts as "meta-semantic" reference-determining mechanisms. All of this, in turn, entails that the linguistic knowledge—including knowledge of the referent itself as well as knowledge of the operating rules of the language—possessed by a competent user of directly referential terms, is minimal and often a posteriori.[30]

Moreover, as a part of his logic of demonstratives and other indexicals, Kaplan also argued for the existence of analytic contingent sentences in the logic of indexicals, for instance,

(KAP)   I am here now.

In turn, "I am here now" is, of course, strongly reminiscent of Descartes's famous proposition in *Meditations* 2:

So after considering everything very thoroughly, I must finally conclude that this proposition, *I am, I exist*, is necessarily true whenever it is put forward by me or conceived in my mind.

Descartes's famous proposition then seemingly yields another analytic contingent statement that Katz very usefully dubs "The *Existo*":

(EXISTO)   I am, I exist.[31]

And as if things were not already bad enough for Kant's Pitchfork, in the 1980s and '90s, Graham Priest developed and defended the notion of radically non-classical or "deviant" dialetheic paraconsistent logics. In such logics, contradictions can occur as theorems, and some sentences or statements—known as "truth value gluts" or "true contradictions"—are assigned both the truth-value T and also the truth-value F, although contradictions are not permitted to "explode" and entail any sentence or statement whatsoever.[32] But in any case it began to look as if even the seemingly self-evident universally necessary and analytic a priori law of non-contradiction could not hold up under critical scrutiny.

Then in the 1990s and early 2000s, some renegade Analytic philosophers like the later Putnam and John McDowell began to wonder what was left of the "Analytic" in "Analytic philosophy," what it was all coming to, and whether it really was the end of the world as we know it.[33]

Meaning of 'Meaning'"; and Putnam, "Meaning and Reference." Kripke defends the necessity of "Cats are animals" but not its analyticity, and presumably would say the same thing about "Whales are mammals"; see Kripke, *Naming and Necessity*, pp. 122–26.

[30] See notes 88–9, ch. 2 and 29, this chapter. See also Marcus, "Modalities and Intensional Languages"; and Evans, *Varieties of Reference*.

[31] Katz, *Cogitations*, chs. 7–9 and 11–12.

[32] See, e.g., Priest, *In Contradiction;* and Priest, "What Is So Bad about Contradictions?"

[33] See, e.g., McDowell, *Mind and World*; Putnam, *Realism with a Human Face*; and Putnam, *Words and Life*.

Other mainstream Analytic philosophers just shrugged their shoulders, however, took their cue from the reductive, scientistic sides of Quine's and Sellars's work, and became scientific naturalists or proponents of "Experimental Philosophy," aka X-Phi, in the tradition of Hume and Mill.[34]

But at the same time, some other leading Analytic philosophers started what might be called a *Copernican Devolution*—by going back behind the historical Kant to pre-Kantian *noumenal* metaphysics for guidance and inspiration—particularly as developed by David Lewis at Princeton and by other Lewis-influenced philosophers (e.g., Chalmers, Jackson, Ted Sider, and Williamson) at the Australian National University, Cornell, New York University, or Oxford,[35] by Kripke, and by Kit Fine.[36] They called this "Analytic metaphysics," a strategic label that nicely hides its epistemically and metaphysically naïve, pre-Kantian origins. In any case, Analytic metaphysics unabashedly includes metaphysically robust versions of Leibniz's conception of possible worlds, Meinongian ontology, Frege's sense-reference distinction, Scientific Essentialism, or Aristotelian essentialism. Moreover, and for my purposes in this chapter, most importantly, Analytic metaphysics self-professedly employs a rigorously "analytic" methodology. Yet at the same time it also avoids discussing the analytic-synthetic distinction with remarkable tenacity, even despite its using the notions of "a priori intensions," "a priori entailments," and more generally a priori conceptual and modal-logical thinking, with remarkable liberality.

Even so, in the wake of Quine's critique, and since the 1940s, at least nine important attempts have been made to reconsider, re-evaluate, re-interpret, re-criticize, or re-defend the analytic-synthetic distinction:

(i) Carnap's *Meaning and Necessity* in 1947,
(ii) Grice's and Strawson's "In Defense of a Dogma" in 1956,
(iii) Pap's *Semantics and Necessary Truth* in 1958,
(iv) Paul Boghossian's "Analyticity Reconsidered" in 1996,
(v) Katz's "The New Intensionalism" in 1992, and then five years later,
(vi) his "Analyticity, Necessity, and the Epistemology of Semantics," in 1997,
(vii) Timothy Williamson's *The Philosophy of Philosophy* in 2007,
(viii) Gillian Russell's *Truth in Virtue of Meaning* in 2008, and finally
(ix) Cory Juhl's and Eric Loomis's *Analyticity* in 2010.

As I noted earlier in commenting on the critical responses to Quine up through the mid-'60s, for some reason all this important philosophical work has not made any noticeable difference—at least so far. And that's the way we live now.

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[34] See, e.g., Alexander, *Experimental Philosophy: An Introduction*; Appiah, *Experiments in Ethics*; Horvath and Grundmann (eds.), *Experimental Philosophy and Its Critics*; and Knobe and Nichols (eds.), *Experimental Philosophy*.

[35] See, e.g., Lewis, *On the Plurality of Worlds*; Lewis, *Philosopical Papers I and II*; Chalmers, "The Foundations of Two-Dimensional Semantics"; Chalmers, *Constructing the World*; Chalmers and Jackson, "Conceptual Analysis and Reductive Explanation"; Sider, *Writing the Book of the World*; and Williamson, *Modal Logic as Metaphysics*.

[36] See, e.g., Fine, *Modality and Tense: Philosophical Papers*.

4.3 Why the Analytic-Synthetic Distinction *Really* Matters

Leaving aside the conventional wisdom of contemporary mainstream Analytic philosophy, however, it seems to me that there are at least six very good reasons why the analytic-synthetic distinction is not just philosophically important, but also *really* matters.

First, if the analytic-synthetic distinction is intelligible and defensible, then an adequate theory of it provides an explanation of (1) necessary truth and a priori knowledge, and (2) contingent truth and a posteriori knowledge.

Second, if the analytic-synthetic distinction is intelligible and defensible, and you are also a contemporary Kantian, then an adequate theory of it provides explanations of (1A) analytically necessary truth and a priori knowledge of it, (1B) synthetically necessary truth and a priori knowledge of it, and (2A) synthetically contingent truth and a posteriori knowledge of it. In short, it provides an explanation of Kant's Pitchfork.

Third, if the analytic-synthetic distinction is intelligible and defensible, then an adequate theory of it provides explanations of (1Ai) logical analytically necessary truth and a priori logical knowledge of it, (1Aii) conceptual analytically necessary truth and a priori conceptual knowledge of it, hence also an explanation of (1Aiii) the nature and status of logic, and (1Bi) non-logically, essentially non-conceptually, strongly metaphysically or synthetically necessary truth, whether a priori knowable or a posteriori knowable.

Fourth, if the analytic-synthetic distinction is intelligible and defensible, then it provides a foundation for classical Analytic philosophy as conceived by Frege, Moore, Russell, early Wittgenstein, and Carnap.

Fifth, if the analytic-synthetic distinction were either unintelligible or indefensible, then it is very difficult to see how contemporary Analytic metaphysics would be possible, since it requires, at the very least, explanations of (1Ai), (1Aii), (1Aiii), and (1Bi).

Sixth and finally, if the analytic-synthetic distinction were either unintelligible or indefensible, then the very ideas of (1Ai), (1Aii), (1Aiii), and (1Bi) would all go down, and as I argued earlier, then the very idea of a *semantic content* would also go down, and correspondingly, domino-style, the very ideas of belief, cognition, thought, understanding, justification, knowledge, intentionality, and human rationality more generally would all go down, too, since all these inherently involve and a priori presuppose the very idea of semantic content. In other words, if the analytic-synthetic distinction were either unintelligible or indefensible, then what I call *postmodernist anti-rational nihilist skepticism* would be true—or in Michael Stipe's stirring, half-serious, half-ironic words:

> It's the end of the world as we know it and I feel fine.

But quite frankly, if postmodernist anti-rational nihilist skepticism were true, then I would rather be dead. Or to put it more precisely and less bombastically: If postmodernist anti-rational nihilist skepticism were true, then there would be no rational human animals or real human persons whatsoever, so I would not actually

exist, and you, the sentient, sapient reader of this sentence, would not actually exist either. There would not be anyone around who could feel fine and also know it.

Luckily, as Descartes pointed out, we exist and also can know that we exist. Even more to the point, I think that it is simply impossible to see how one could ever formulate, defend, or establish postmodernist anti-rational nihilist skepticism without also presupposing categorically normative human cognitive and practical rationality in the form of logical reasoning and moral justification according to minimal principles of consistency, validity, soundness, and consistent universalizability. This presupposition, in turn, self-undermines postmodernist anti-rational nihilist skepticism. I am vividly reminded here of the nihilist thugs in the cult-favorite Coen brothers' movie *The Big Lebowski*, who loudly complain that *it's not fair!* that The Dude has lied to them.[37] In point of fact, only a rational minded animal or real person could ever doubt or attempt to refute rationality, or morally justify doing so. Or in other and plainer words, postmodernist anti-rational nihilist skepticism is cognitive suicide by logico-rational and moral self-stultification.[38]

My overall conclusion so far, then, is that in order to make both contemporary Kantian and also contemporary mainstream Analytic philosophy possible, and in order to save the world as we know it, an intelligible and defensible version of the analytic-synthetic distinction is now absolutely required. In other words, we have no rational choice but to bring about the return of the analytic-synthetic distinction.

Furthermore, and in defense of Kant's Pitchfork, I also want to reject and refute what I will call *The Ultimate Dogma of Empiricism*, which says that

There is one and only one basic kind of necessity, and thus only one basic kind of necessary truth (= *modal monism*).

This is because, on the contrary, I believe that

There are two essentially different and basic kinds of necessity—namely, the kind of necessity that flows from the nature of concepts (logical, conceptual, weak metaphysical, or analytic necessity), and the kind of necessity that flows from the immanent structures of things in the manifestly real world, via formal autonomous essentially non-conceptual content (non-logical, essentially non-conceptual, strong metaphysical, or synthetic necessity)—and these in turn directly correspond to the two essentially different and basic kinds of mental content, namely, conceptual content and autonomous essentially non-conceptual content, and thus there are two essentially different kinds of necessary truth (= *content-and-rationality-based modal dualism*).

So in the rest of this chapter, I will, **first**, explicate and criticize Quine's, Kripke's, Putnam's, and Kaplan's criticisms of the analytic-synthetic distinction, and then, **second**, explicate and defend what I (unfortunately, somewhat long-windedly) call *The Content-and-Rationality Theory of the Analytic-Synthetic Distinction and Modal Dualism*. In chapter 5, I will directly address the deep problem of the nature and

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[37] (Directed by J. Coen, 1998).
[38] See Hanna, *Rationality and Logic*, ch. 7; and also BonJour, *In Defence of Pure Reason*, esp. chs. 1,3, and 4.

status of logic. And in chapters 6 to 8, I will work out a corresponding theory of rational intuitions and a priori knowledge in mathematics, logic, and philosophy.

4.4 Quine's Critique of the Analytic-Synthetic Distinction, and a Critique of Quine's Critique

For the rest of this book, for convenience's sake, I am going to stipulate that the notions of *statement*, *meaningful indicative sentence*, *sentence-on-an-interpretation*, *sentence-on-a-reading*, *sentence-according-to-a-constative-use*, and *proposition* are all mutually necessarily equivalent, unless otherwise noted. Finer distinctions could be made between each term in the multiple equivalence, if needed. But at a suitable level of generality, it seems clear that they all convey the same basic notion. So nothing special should turn on this stipulation. At the same time, however, I also want to re-emphasize a classical distinction between (i) *sentences*—grammatically and syntactically well-formed indicative complete-thought-expressing units of some natural language L—and (ii) *statements*—logically structured, linguistically expressed, inter-subjectively shareable semantic contents with respect to L that are also inherently truth-bearers with respect to L.[39] It follows directly from this classical distinction, together with the semantic theory that I am proposing, that one and the same sentence will always be able to express two or more distinct statements. More precisely, the semantic theory I am proposing is a systematic *dual-content* semantics. But this is intended to be smoothly consistent with the stipulation I made at the beginning of this paragraph. Thus the following six notions are also all mutually equivalent:

   (i) two or more distinct statements made with the same sentence,
  (ii) two or more distinct meanings of the same indicative sentence,
 (iii) two or more distinct interpretations of the same sentence,
 (iv) two or more distinct readings of the same sentence,
  (v) two or more distinct constative uses of the same sentence, and
 (vi) two or more distinct propositions expressed by the same sentence.

Foregrounded against that theoretical backdrop, here are Quine's working definitions of logical truth and analyticity:

A statement S is a logical truth if and only if S is true under every distinct uniform assignment of values to the non-logical constants of S.[40]

A statement S is a logical truth if and only if S is true and only logical constants occur essentially in S.[41]

A statement S is analytic if and only if S is true by virtue of meaning, independently of fact.[42]

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[39] By saying that propositions are inherently truth-bearers, I mean that propositions are inherently the sort of things that *can be* assigned truth-values, not that they are *always* assigned truth-values. There can be propositions that are not assigned truth-values under some interpretations—truth-value *gaps*.

[40] See, e.g., Quine "Truth by Convention," p. 81; and Quine "Two Dogmas of Empiricism," p. 22.

[41] See, e.g., Quine, "Truth by Convention," p. 81; and Quine, "Carnap and Logical Truth," p. 110.

[42] See, e.g., Quine, "Two Dogmas of Empiricism," p. 20.

A statement S is analytic if and only if S is either (i) true by virtue of (monadic) elementary logic, or (ii) translatable into a truth of (monadic) elementary logic by replacing synonyms by synonyms.[43]

A statement S is analytic if and only if S is necessary.[44]

A statement S is analytic if and only if S is a priori.[45]

Correspondingly, in view of those working definitions, here are what I take to be the six basic Quinean arguments against the analytic-synthetic distinction, and also eighteen critical replies to the six basic Quinean arguments.

1. The Carnap-Schlick-Ayer arguments against the synthetic a priori,[46] assumed by Quine, even if not explicitly defended by him.

> **1.1** A statement S is meaningful if and only if S is either analytic or empirically verifiable (= The Verifiability Principle). But synthetic a priori statements are neither analytic nor empirically verifiable. So synthetic a priori statements are meaningless.
>
> **1.2** Synthetic a priori statements presuppose transcendental idealism. But transcendental idealism is either analytically false or meaningless. So it is impossible for synthetic a priori statements to exist.

3 Critical Replies:

(1) The Verifiability Principle is itself neither analytic nor empirically verifiable; hence The Verifiability Principle is deemed meaningless by The Verifiability Principle itself. Of course, this is a classical objection to Verificationism.[47] One equally classical Verificationist reply is to claim that The Verifiability Principle is a meta-linguistic principle, not a first-order statement, and that The Verifiability Principle is intended to apply to all and only first-order statements, and not to itself.[48] But obviously, that still leaves open the following worry: What is the precise semantic status of *meta-linguistic principles*? Verificationists have never been able to answer this question satisfactorily, and thus have never been able to rule out the possibility that The Verifiability Principle is *itself* synthetic a priori. But if The Verifiability Principle itself is or at least might be synthetic a priori, then it cannot coherently be used in order to rule out the meaningfulness (or for that matter, the truth) of synthetic a priori statements.

(2) All forms of transcendental idealism hold that the world we directly perceive must conform to the non-empirical structures of our innately specified cognitive capacities, in some or another substantive sense of "must conform." The Carnap-Schlick-Ayer argument against the synthetic a priori assumes that every Kantian theory of the synthetic a priori is committed to Strong Transcendental Idealism. In turn, Strong Transcendental Idealism makes the following three claims.

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[43] See, e.g., Quine, "Two Dogmas of Empiricism," pp. 22–3.

[44] See, e.g., Quine, "Two Dogmas of Empiricism," pp. 29–30.

[45] See, e.g., Quine, "Two Dogmas of Empiricism," pp. 41–43.

[46] See, e.g., Ayer, *Language, Truth, and Logic*, chs. I and IV; Carnap, "The Elimination of Metaphysics through Logical Analysis of Language"; Carnap, *Philosophy and Logical Syntax*, pp. 9–38; and Schlick, "Is There a Factual A Priori?"

[47] See, e.g., Ayer, *Language, Truth, and Logic*, p. 16.

[48] See, e.g., Hempel, "The Empiricist Criterion of Meaning," pp. 123–26.

(i) Things-in-themselves (aka "noumena," or Really Real things—things as they could exist in a "lonely" way, altogether independently of rational human minds or anything else, by virtue of their intrinsic non-relational properties) really exist and cause our perceptions, although rational human cognizers only ever perceive mere appearances or subjective phenomena.

(ii) Rational human cognizers actually impose the non-empirical structures of their innate cognitive capacities onto the manifestly real world they cognize— necessarily, all the essential forms or structures of the proper objects of human cognition are literally type-identical to the a priori forms or structures that are non-empirically generated by our innately specified spontaneous cognitive capacities.

(iii) Necessarily, if all rational human cognizers went out of existence, then so would the manifestly real world they cognize.

But the Carnap-Schlick-Ayer assumption is false. At least some contemporary Kantian theories of the synthetic a priori—for instance, this one, the one I am defending in *Cognition, Content, and A Priori*—are committed instead just to Weak or Counterfactual Transcendental Idealism, which makes the following four claims.

(i) Things-in-themselves are logically possible, but at the same time it is a priori knowably unknowable and unprovable whether things-in-themselves/nou-mena exist or not, hence for the purposes of an adequate anthropocentric or "human-faced" metaphysics, epistemology, and ethics, they can be ignored (= **radical agnosticism and methodological eliminativism about things-in-themselves/noumena**).

(ii) Necessarily, all the proper objects of rational human cognition have the same forms or structures as—they are isomorphic to—the forms or structures that are non-empirically generated by our innately specified spontaneous cognitive capacities, but at the same time those manifestly real worldly forms or structures are not literally type-identical to those a priori cognitive forms or structures (= **the isomorphism-without-type-identity thesis**).

(iii) It is a necessary condition of the existence of the manifestly real world that if some rational human animals were to exist in that world, then they would veridically cognize that world, via either autonomous essentially non-conceptual content or conceptual content, at least to some extent (= **the counterfactual cognizability thesis**).

(iv) The manifestly real world has at some earlier times existed without rational human minded animals, or any other minded beings, to cognize it veridically, and could exist even if no rational human minded animals, or any other minded beings, ever existed to cognize it veridically, even though some rational human animals now actually exist in that world— for instance, I (R. H.) now actually exist in the manifestly real world—who do in fact cognize it veridically, at least to some extent (= **the existential thesis**).

So even if it were correct that Strong Transcendental Idealism is either analytically false or meaningless, it would nevertheless be a serious *non sequitur* to extend this to Weak or Counterfactual Transcendental Idealism without further substantive justification.

(3) After the fall of classical Logicism and in the light of Gödel's incompleteness theorems, Kripke's modal essentialism, and Fine's non-modal essentialism, it is clear that there are some consistently deniable, non-logical, essentially non-conceptual, strongly metaphysical, or synthetic necessities that are also knowable a priori, for instance, mathematical truths. So it is clear that there are at least some synthetic a priori truths in that sense. Hence, at the very least, it is not impossible for synthetic a priori statements to exist, since clearly some synthetic a priori statements in that sense exist.

Now, it is true that Gödel himself held that the undecidable, unprovable mathematical truths whose existence is entailed by his first incompleteness theorem are consistently deniable, non-logical, and a priori, yet still analytic or conceptual truths.[49] Nevertheless, that, of course, does not show that the Gödel sentences are not synthetic a priori statements, but rather only that they can be called "analytic" according to a notion of "so-called analyticity" that deviates significantly from all the classical conceptions of analyticity. The problem here is partly historical, and partly terminological. If a philosopher belongs to the Logical Empiricist tradition or one of its successors, then if any non-logically, essentially non-conceptually, or strongly metaphysically necessary truths are held to exist, they must nevertheless be called "analytic" or "conceptual" truths. That is because, according to that tradition and its successors, there simply cannot be synthetic a priori statements. Hence they will be called "analytic" or "conceptual" truths according to the vacuous line of reasoning which question-beggingly assumes that all a priori necessity is analytic or conceptual necessity. Then any statements that are discovered to be a priori and necessary "must be" analytic or conceptual necessities, even if they do not fit any classical profile of analytically or conceptually true statements, and even if in fact they also satisfy the classical criteria of synthetic apriority.[50] But such statements are "analytic" or "conceptual" truths only in a misnomer-based, Pickwickian, or so-called sense, simply because they deviate importantly from all the classical conceptions of analyticity and conceptual truth, and because they also satisfy the classical criteria for synthetic a priority. Strictly speaking, then, they should be called "synthetic a priori statements," although it would perhaps be even more accurate to call them "schmanalytic" statements. I will come back again to this issue about so-called analyticity, so-called conceptual truth, or *schmanalyticity*, in section 4.5.

2. Quine's logical regress argument against the conventionalist theory of the analytic-synthetic distinction in either **2(i*)** the epistemic version or **2(ii*)** the metaphysical version.

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[49] See, e.g., Hanna, "Logic, Mathematics, and the Mind: A Critical Study of Richard Tiezen's *Phenomenology, Logic, and the Philosophy of Mathematics*."

[50] See, e.g., Juhl and Loomis, *Analyticity*, chs. 1–3 and 5.

According to Conventionalism, a meaningful sentence S is logically necessarily true by convention if and only if we stipulate that S is logically necessary within some logical system L, and also assert S to be true, come what may. Then according to the Conventionalist theory of analyticity, a meaningful sentence S is analytic if and only S is true by convention. In criticizing Conventionalism, as I noted in section 1.1, Quine famously says:

In a word, the difficulty is that if logic is to proceed *mediately* from conventions, logic is needed for inferring logic from the conventions. Alternatively, the difficulty which appears thus as a self-presupposition of doctrine can be framed as turning upon a self-presupposition of primitives. It is supposed that the *if*-idiom, the *not*-idiom, the *every*-idiom, and so on, mean nothing to us initially, and that we adopt the conventions . . . by way of circumscribing their meaning; and the difficulty is that communication of [the conventions] themselves depends on free use of those very idioms which we are attempting to circumscribe, and can succeed only if we are already conversant with the idioms.[51]

Quine's argument here is clearly intimately related to what is nowadays called *The Logocentric Predicament*:

Logic cannot be justified or explained without presupposing and using logic. So logic, it seems, is both unjustifiable and inexplicable.[52]

Now, The Predicament can be construed either (i) epistemically, as a puzzle about justifying logical beliefs, or (ii) metaphysically, as a puzzle about the nature of logic. Correspondingly, Quine's critique of Conventionalism can be naturally read in these two distinct ways: (i*) as an epistemic argument against Conventionalism, or (ii*) as a metaphysical argument against Conventionalism. I will present and then criticize both versions of Quine's argument.

2(i*) In order to justify our belief in meaningful sentences that are logically necessary or analytic by convention, we must presuppose and use non-conventional classical logical truths and logical notions. So not all our beliefs in logical or analytic truths are conventionalistically justified beliefs. Therefore Conventionalism cannot support an intelligible or defensible analytic-synthetic distinction.

2(ii*) In order to explain the existence and specific character of meaningful sentences that are logically necessary or analytic by convention, we must presuppose and use non-conventional classical logical truths and logical notions. So not all analytic truths are truths by convention. Therefore Conventionalism cannot support an intelligible or defensible analytic-synthetic distinction.

2 Critical Replies:

(1) I fully concede to Quine that Conventionalism cannot support an intelligible or defensible analytic-synthetic distinction. From this, of course, it does not follow that there cannot be an intelligible or defensible version of the analytic-synthetic

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[51] Quine, "Truth by Convention," p. 104.   [52] See Hanna, *Rationality and Logic*, ch. 3.

distinction, period. Indeed, I am going to argue later in this chapter that there is at least one intelligible and defensible version of the analytic-synthetic distinction—namely, precisely that version which is provided by The Content-and-Rationality Theory of the Analytic-Synthetic Distinction and Modal Dualism.

(2) The epistemic version of The Logocentric Predicament argument says that our belief in meaningful sentences that are logically necessary or analytic by convention cannot be justified without also believing in non-conventional classical logic. And the metaphysical version of The Logocentric Predicament argument says that in order to explain the existence and specific character of meaningful sentences that are logically necessary or analytic by convention, we must presuppose and use non-conventional classical logical truths and logical notions. But can Quine himself avoid The Logocentric Predicament?

There are very good reasons to think that he cannot. In "Two Dogmas," as everyone knows, Quine says that no statement is immune from revision, including the laws of logic, and correspondingly that no belief—no matter how firmly it is held to be true come what may (i.e., no matter how a priori it seems)—is infallible, including beliefs in logical truths and logical laws:

No statement is immune from revision. Revision even of the logical law of excluded middle has been proposed as a means of simplifying quantum mechanics; and what difference is there in principle between such a shift and the shift whereby Kepler superseded Ptolemy, or Einstein Newton, or Darwin Aristotle?[53]

I will call Quine's thesis that no statement or belief is immune from revision *The Universal Revisability Principle*. One clear implication of The Universal Revisability Principle is that even the logical law of non-contradiction must be revisable. But here is what Quine says in *Philosophy of Logic* about the revisability of the law of non-contradiction:

[Deviant logic] is not just a change of demarcation, either, between what to call logical truth and what to call extra-logical truth. It is a question rather of outright rejection of part of our logic as not true at all. It would seem that such an idea of deviation in logic is absurd on the face of it. If sheer logic is not conclusive, what is? What higher tribunal could abrogate the logic of truth functions or of quantification? . . . Here, evidently, is the deviant logician's predicament: when he tries to deny the doctrine [of the law of non-contradiction] he only changes the subject.[54]

So according to Quine, the law of non-contradiction is unrevisable because its acceptance partially constitutes the very idea of a logic. A deviant logician's attempted rejection of the law of non-contradiction is then "absurd on the face of it," for "when he tries to deny the doctrine he only changes the subject," and thereby gives up doing logic altogether. But on the contrary, says Quine, the law of non-contradiction is "sheer logic,"—essentially logic—and if sheer logic is not "conclusive,"

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or true and "obvious,"[55] then nothing ever is conclusive. I will call this *The Sheer Logic Principle*.

Obviously, The Universal Revisability Principle and The Sheer Logic Principle are flat-out mutually inconsistent. Given The Universal Revisability Principle, it follows that no statement is unrevisable, therefore the law of contradiction is revisable; whereas given The Sheer Logic Principle, it follows that the law of non-contradiction is unrevisable, therefore some statements are unrevisable. So, given The Universal Revisability Principle and The Sheer Logic Principle, no statements are unrevisable and yet some statements are unrevisable, and the law of non-contradiction is both revisable and unrevisable. I will call this inconsistency *Quine's Predicament*.

I want to emphasize that Quine's Predicament is not just an unfortunate but philosophically forgivable howler or merely verbal inconsistency—as it were, Quine forgivably nodding off occasionally, thirty years after "Two Dogmas." On the contrary, I think that Quine's Predicament goes like a dagger into the very heart of Quine's overall critique of the analytic-synthetic distinction. More precisely, Quine's Predicament is not about Quine just making a simple mistake or slip of the pen—instead, Quine's Predicament is about the deeply puzzling nature and status of logic. Quine's argument against Conventionalism's theory of the analytic-synthetic distinction says that logic cannot be justified or explained without presupposing and using logic. So when Quine asserts The Sheer Logic Principle, since he is thereby telling us precisely how our belief in the law of non-contradiction is to be justified and also how the semantic status of the law of non-contradiction is to be explained, he must also be presupposing and using logic. But then when Quine asserts The Universal Revisability Principle, which contradicts The Sheer Logic Principle, he is not only contradicting himself, but also is presupposing and using logic in order to doubt the justifiability of logical beliefs and to doubt the truth of logical principles. So, in effect, Quine's Predicament is Quine's committing cognitive suicide by logical self-stultification.[56] And that is very bad news indeed for his overall critique of the analytic-synthetic distinction.

But that also means that for us there is still more philosophical work to be done—we cannot merely leave Quine hanging, hoisted, as it were, on his own sheer logical petard. We still need to face up to the deeply puzzling nature and status of logic. So I will work out an explicit solution to Quine's Predicament in chapter 5.

3. Quine's circularity-of-synonymy argument against the analytic-synthetic distinction.

As we saw in section 4.0, right at the beginning of "Two Dogmas" Quine informally characterizes analyticity as truth "grounded in meanings independently of matters of fact." But then a little later in "Two Dogmas" he also more carefully defines analyticity in two steps, by first identifying two distinct classes of analytic truths, and then secondly basing analytic truths of the second class on analytic truths of the first class. Or to be more precise, **first**, he says that at least some truths of elementary logic

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[55] Quine, *Philosophy of Logic*, p. 82.
[56] See also Hanna, *Kant and the Foundations of Analytic Philosophy*, pp. 281–85; and Katz, *Realistic Rationalism*, pp. 72–74.

are analytic (the first class), and then, **second**, he says that all the other analytic truths result from the analytic truths of elementary logic by replacing synonyms by synonyms (the second class):

[Analytic statements] fall into two classes. Those of the first class, which may be called *logically true*, are typified by:

   (1) No unmarried man is married.

   The relevant feature of this example is that it not merely is true as it stands, but remains true under any and all reinterpretations of "man" and "married." If we suppose a prior inventory of *logical* particles, comprising "no," "un-," "not," "if," "then," "and," etc., then in general a logical truth is a statement which is true and remains true under all reinterpretations of its components other than the logical particles. But there is a second class of analytic statements, typified by:

   (2) No bachelor is married.

   The characteristic of such a statement is that it can be turned into a logical truth by putting synonyms for synonyms; thus (2) can be turned into (1) by putting "unmarried man" for its synonym "bachelor."[57]

Then he says, or at least he clearly implies, that although the first class of analytic truths is properly characterized, nevertheless the second class of analytic statements lacks a proper characterization:

We still lack a proper characterization of this second class of analytic statements, and therewith of analyticity generally, inasmuch as we have had in the above description to lean on a notion of "synonymy" which is in no less need of clarification than analyticity itself.[58]

This lack of proper characterization stems from the fact that, in order to explicate analyticity in terms of replacing synonyms by synonyms, we must also explicate synonymy. But according to Quine, there are three and only three ways of explicating synonymy, namely, in terms of (i) definition, (ii) interchangeability salva veritate, or (iii) semantic rules. And each of these explications either presupposes or uses the notions of synonymy, necessity, or apriority. So the explanation of the second class of analytic statements in terms of synonymy is implicitly circular:

Our argument is not flatly circular, but something like it. It has the form, figuratively speaking, of a closed curve in space.[59]

Therefore there is no intelligible or defensible analytic-synthetic distinction.

3 Critical Replies:

   (1) Quine clearly assumes that at least some truths of elementary logic are properly characterized as analytic in order to define synonymy-based analyticity, then claim that synonymy-based analyticity is not properly characterized, and then attack the very idea of it. So even if the characterization of the second class of analytic statements is circular by way of synonymy, the characterization of the first class of

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[57] Quine, "Two Dogmas of Empiricism," pp. 22–23.
[58] Quine, "Two Dogmas of Empiricism," p. 23.
[59] Quine, "Two Dogmas of Empiricism," p. 30.

analytic statements remains unchallenged by him. Therefore it seems clear enough that by Quine's own admission, there is an intelligible and defensible analytic-synthetic distinction after all, namely, between (i) analytically true statements of *elementary logic*, and (ii) all other truths.

(It is arguable that for Quine not every truth of elementary logic is analytic in a properly characterized sense. Indeed, there is good reason to believe that he held that only the *monadic* truths of elementary logic are analytic in a properly characterized sense. Monadic logic is a restricted classical logic that includes sentential logic and the logic of quantification into one-place predicates. So the monadic truths of elementary logic include all the truth-functional tautologies, and all the logical truths involving one-place predicates and one-place quantifiers only. For more on these seemingly abstruse but in fact crucially important points, see section 5.2.)

Now in a crucial footnote in *Word and Object*, Quine says:

> Those who talk confidently of analyticity have been known to disagree on the analyticity of the truths of arithmetic, but are about unanimous on that of the truths of logic. We who are less clear on the notion of analyticity may therefore seize upon the generally conceded analyticity of the truths of logic as a partial extensional clarification of analyticity; but to do this is not to embrace the analyticity of the truths of logic as an antecedently intelligible doctrine. I have been misunderstood on this score....[60]

It is easy enough to see why Quine had been "misunderstood on this score." What in Sam Hill is he actually saying here? One clear implication of the footnote is that he concedes "the generally conceded analyticity of the truths of logic." Therefore he concedes that there is a generally agreed-upon analytic-synthetic distinction between the analytic truths of elementary logic and all other truths. But "this is not to concede the analyticity of the truths of logic as an antecedently intelligible doctrine." That seems true enough on the face of it. But it does not follow from it that there is any reason whatsoever to believe that the analyticity of the analytic truths of elementary logic cannot be an *ultimately* intelligible doctrine. Indeed, Quine has offered no reason whatsoever to hold that the analyticity of analytic elementary logical truths is not perfectly intelligible at the end of the day. On the contrary, as we have seen, he himself offers a beautifully clear and intelligible characterization of logical truth in "Truth by Convention." Moreover, as we have also seen, he holds in *Philosophy of Logic* that anyone who tries to deny the law of non-contradiction is merely changing the subject, and that if sheer logic is not conclusive, then nothing is. Therefore Quine ultimately concedes both the intelligibility and also the defensibility of the analyticity of the analytic truths of elementary logic, even if he has not conceded this "antecedently," and thus he concedes that at the end of the day there is at least one intelligible and defensible analytic-synthetic distinction.

(2) As many critics have noted, Quine's circularity-of-synonymy argument makes no attempt to exhaust the different possible explications of synonymy. More precisely, it is an argument by cases, and Quine makes no attempt to show that the

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[60] Quine, *Word and Object*, p. 65, n. 3.

logical space of possible cases has been exhausted.[61] Thus he has not ruled out the possibility of a non-circular explication of synonymy. And in this way, he has not even ruled out the possibility of an intelligible and defensible analytic-synthetic distinction between (i) the union of the first and *second* classes of analytic statements, and (ii) all other truths.

(3) In the first four sections of "Two Dogmas," Quine clearly assumes that only reductive explanations of analyticity will suffice for an adequate explication of it. But then he explicitly adopts both *semantic holism* for the contents of statements and also *confirmation holism* for the assertion of statements, in the last two sections:

[O]ur statements about the external world face the tribunal of sense experience not individually but only as a corporate body.... The unit of empirical significance is the whole of science.... The totality of our so-called knowledge or beliefs, from the most casual matters of geography and history to the profoundest laws of atomic physics or even of pure mathematics and logic, is a man-made fabric which impinges on experience only along the edges. Or, to change the figure, total science is like a field of force whose boundary conditions are experience. A conflict with experience at the periphery occasions readjustments in the interior of the field. Truth values have to be redistributed over some of our statements. Reëvaluation of some statements entails reëvaluation of others, because of their logical interconnections—the logical laws being in turn simply certain further statements of the system, certain further statements of the field. Having reëvaluated one statement we must reëvaluate some others, which may be statements logically connected with the first or may be the statements of the logical connections themselves. But the total field is so undermined by its boundary conditions, experience, that there is much latitude of choice as to what statements to reëvaluate in the light of any single contrary experience. No particular experiences are linked with any particular statements in the interior of the field, except indirectly through considerations of equilibrium affecting the field as a whole.[62]

Now, it is obvious that any scientific or philosophical explanation of any fact or any phenomenon that could be offered by someone who is both a semantic holist and a confirmation holist, will be a holistic explanation. So to the extent that Quine is committed to the acceptability of any explanation at all, he must at least be committed to the acceptability of holistic explanations. Therefore as Grice and Strawson first pointed out in "In Defense of a Dogma," and as many others have also pointed out, Quine is thereby at least implicitly committed to the thesis that if a specifically holistic explanation of analyticity or more generally of the analytic-synthetic distinction can be given, then the analytic-synthetic distinction will be acceptable.

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[61] In September 1985, when I was still a graduate student at Yale, Jerrold Katz buttonholed me on a flight from New York to Pittsburgh, where we were both attending a conference (my very first), and vigorously pointed out to me, step by step, most of the major flaws in the argument of "Two Dogmas," including the argument-by-cases problem. Philosophically raised on the assumption that "Two Dogmas" was unchallengeable and written in stone, I was utterly floored, and then the Quinean scales fell from my eyes. More precisely, and in all seriousness, this encounter changed my philosophical life. It was not just that Quine could be effectively criticized, but also that the conventional wisdom of contemporary mainstream Analytic philosophy should be seriously questioned. Of course, Katz can't be held responsible for the back-to-kantian character of my conversion on the road to Pittsburgh.

[62] Quine, "Two Dogmas of Empiricism," pp. 42–43.

For the record, I myself strongly doubt, as against Grice and Strawson, that there can be an adequate holistic explanation of either analyticity or the analytic-synthetic distinction—although I do also argue later, in section 4.7, that one sub-type of analyticity depends on a special localized semantic holism with respect to the contents of certain concepts. But that is not the critical point I am concerned with here. The critical point I am currently concerned with is about Quine's global holism with respect to meaning, confirmation, and explanation. And the point is just that since holism is inherently non-reductive, Quine's holding Frege, Carnap, or anyone else to the methodological standard of a strictly reductive explication or explanation of analyticity is rationally uncharitable at best and rationally self-stultifying at worst. In the end, for my purposes, it is non-reductive philosophical explanations that really matter, not holistic explanations. Indeed, later in this chapter, also in section 4.7, I will offer a detailed non-reductive but also non-holistic—except for the special localized concept-holism I parenthetically mentioned earlier—explanation of the analytic-synthetic distinction. But in any case, given Quine's global holism, certainly nothing he says in "Two Dogmas" can be used against non-reductive explanations per se, methodologically speaking.

4. Quine's argument against the analytic-synthetic distinction from confirmation holism and universal revisability.

In "Two Dogmas," the second Dogma of Empiricism is "the Verification Theory and Reductionism," hence *Verificationist Reductionism*, which says that truths are either analytic, hence unrevisable, or else semantically reducible to primitive observation sentences plus logical operations on them (compositional atomicity). And according to Quine, this is ultimately the same as the analytic-synthetic distinction: "The two dogmas are, indeed, at root identical."[63] But on the contrary, all statements are necessarily related to one another via their contents (i.e., semantic holism), and all statements are confirmed collectively, not individually (i.e., confirmation holism). Furthermore, no statement is immune from revision (i.e., The Universal Revisability Principle). So Verificationist Reductionism is not only false, but also incoherent. Therefore there is no intelligible or defensible analytic-synthetic distinction.

4 Critical Replies:

(1) If The Universal Revisability Principle is true, then The Universal Revisability Principle is itself revisable. If The Universal Revisability Principle is itself revisable, then either (i) the denial of The Universal Revisability Principle is true (if The Universal Revisability Principle means that it is unrevisably true that every statement is revisable), or at the very least (ii) the denial of The Universal Revisability Principle is possibly true (if The Universal Revisability Principle means that it just so happens to be unrevisably true that every statement is revisable). So The Universal Revisability Principle either, on the one hand, deems the denial of itself to be true, which is flat-out paradoxical. Or, on the other hand, at the very least, The Universal Revisability Principle entails that it is possible that its own denial is true, which is virtually

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[63] Quine, "Two Dogmas of Empiricism," p. 41.

paradoxical. This is because there will then be some possible worlds accessible from the actual world—where, by hypothesis, The Universal Revisability Principle is strictly universally true—in which the denial of The Universal Revisability Principle is also true.

This obvious "Liar"-paradox style objection is also, of course, of the same general form as the classical objection to The Verifiability Principle, and it is hard to believe that Quine was not aware of it.[64] Assuming charitably that he *was* aware of it, he must have regarded The Universal Revisability Principle as a meta-statement and the rational result of an exercise in "semantic ascent."[65] But even so, The Universal Revisability Principle flat-out contradicts The Sheer Logic Principle. So the obvious "Liar"-paradox style objection to The Universal Revisability Principle also indirectly shows, again, just how philosophically dire Quine's Predicament is.

(2) Despite what Quine says, it is not true that Verificationist Reductionism and the analytic-synthetic distinction are "identical." It is clear that someone could deny Verificationist Reductionism, but also consistently assert the analytic-synthetic distinction. For example, semantic platonists like Katz can consistently hold that Verificationist Reductionism is false and that the analytic-synthetic distinction is both intelligible and defensible.[66] Hence rejecting Verificationist Reductionism has no critical impact on semantic platonist approaches to the analytic-synthetic distinction. Now, The Content-and-Rationality Theory of the Analytic-Synthetic Distinction and Modal Dualism that I will develop later in this chapter in fact rejects both Verificationist Reductionism and semantic platonism alike. Hence the most important philosophical moral of this story for my purposes is that the analytic-synthetic distinction is logically independent of Verificationist Reductionism and not affected by the latter's falsity.

(3) It is quite true that both confirmation holism and The Universal Revisability Principle would be well-supported by the truth of the fusion of Dewey's pragmatism and C. I. Lewis's pragmatism.[67] So if Deweyan/Lewisian pragmatism were in fact true, then there is no intelligible or defensible analytic-synthetic distinction. But what is Quine's actual argument for accepting the truth of Deweyan/Lewisian pragmatism? And even more to the point: How can Deweyan/Lewisian pragmatism ever adequately explain the nature of logic and logical knowledge?

(4) This rhetorical critical question leads us right back into Quine's Predicament. In the famous text quoted a few paragraphs earlier, which spells out Quine's confirmation holism, he says:

Reëvaluation of some statements entails reëvaluation of others, because of their logical interconnections—the logical laws being in turn simply certain further statements of the system, certain further statements of the field. Having reëvaluated one statement we must

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[64] See, e.g., Quine, "The Ways of Paradox."   [65] See Quine, *Word and Object*, pp. 270–76.
[66] See, e.g., Katz, *Language and Other Abstract Objects*; and Katz, *The Metaphysics of Meaning*.
[67] See Lewis, "A Pragmatic Conception of the A Priori"; and White, "The Analytic and the Synthetic: An Untenable Dualism."

reëvaluate some others, which may be statements logically connected with the first or may be the statements of the logical connections themselves.

Deweyan/Lewisian pragmatism together with confirmation holism jointly entail The Universal Revisability Principle. The Universal Revisability Principle together with confirmation holism jointly entail the revisability of the law of non-contradiction. But then the revisability of the law of non-contradiction together with The Sheer Logic Principle jointly entail Quine's Predicament. Clearly, Quine must give up Deweyan/Lewisian pragmatism, confirmation holism, The Universal Revisability Principle, or The Sheer Logic Principle, on pain of committing cognitive suicide by logical self-stultification. As long as this dire logical situation holds, and we still do not know which of the four theses Quine would actually give up, this means that any argument against the analytic-synthetic distinction that rests on one or more of them simply cannot be sound.

5. Quine's "flight from intensions" argument against the analytic-synthetic distinction.

Intensions or meanings, Fregean senses, and Kantian concepts are all nothing but Aristotelian essences fused to words, which, as obscure entities that mediate between the theory of synonymy and analyticity, on the one hand, and the theory of reference, on the other hand, should be eliminated:

The Aristotelian notion of essence was the forerunner, no doubt, of the modern notion of intension or meaning. . . . Things had essences for Aristotle, but only linguistic forms have meanings. Meaning is what essence becomes when it is divorced from the object of reference and wedded to the word. For the theory of meaning a conspicuous question is the nature of its objects: what sort of things are meanings? A felt need for meant entities may derive from an earlier failure to appreciate that meaning and reference are distinct. Once the theory of meaning is sharply separated from the theory of reference, it is but a short step to recognizing as the primary business of the theory of meaning simply synonymy of linguistic forms and the analyticity of statements; meanings themselves, as obscure intermediary entities, may well be abandoned.[68]

It is true that, as Brentano and Chisholm argued, the notions of intentionality and intensionality are irreducible, interderivable, and mutually indispensable. But if one is personally inclined to believe that natural science limns the true and ultimate structure of reality, if one is a reductive physicalist, and if one is also a behaviorist, then one should also hold that intentionality and intensionality cannot be explained in scientific terms. So, again, one should eliminate intensions as well as intentionality:

The Scholastic word "intentional" was revived by Brentano in connection with the verbs of propositional attitude and related verbs . . . [such as] "hunt," "want," etc. The division between such idioms and the normally tractable ones is notable. . . . Moreover it is intimately related to the division between behaviorism and mentalism, between efficient cause and final cause, and between literal theory and dramatic portrayal. . . . [T]here remains a thesis of Brentano's, illuminatingly developed of late by Chisholm, that is directly relevant to our emerging doubts

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[68] Quine, "Two Dogmas of Empiricism," p. 22.

over the propositional attitudes and other intentional locutions. It is roughly that there is no breaking out of the intentional vocabulary by explaining its members in other terms. Our present reflections are favorable to this thesis. . . . Chisholm counts the semantical terms "meaning," "denote," "synonymous," and the like into the intentional vocabulary, and questions the extent to which such terms can be explained without the help of other semantical or intentional ones. . . . One may accept the Brentano thesis either as showing the indispensability of intentional idioms and the importance of an autonomous science of intention, or as showing the baselessness of intentional idioms and the emptiness of a science of intention. My attitude, unlike Brentano's, is the second. . . . Not that I would forswear daily use of intentional idioms, or maintain that they are practically dispensable. But they call, I think, for bifurcation in canonical notation. Which turning to take depends on which of the various purposes of a canonical notation happens to be motivating us at the time. If we are limning the true and ultimate structure of reality, the canonical scheme for us is the austere scheme that knows no quotation but direct quotation and no propositional attitudes but only the physical constitution and behavior of organisms.[69]

Therefore, there is no intelligible or defensible analytic-synthetic distinction.

4 Critical Replies:

(1) As Strawson very correctly pointed out, Quine's definition of a logical truth in "Truth by Convention"—a definition that Quine never renounced in later work, and in fact repeatedly cited—implicitly entails the existence of material concepts or material intensions, by way of its treatment of the semantic role of non-logical constants in logical truths.[70] But perhaps even more importantly, it is also the case that his definition of a logical truth implicitly entails the existence of *formal* concepts or *formal* intensions, by way of its treatment of the logical constants in logical truths. More precisely, for Quine logical constants are expressions that have an "essential occurrence" in true statements, as opposed to non-logical constants, which have a merely vacuous occurrence.[71] Otherwise put, in giving a proper characterization of a logical truth, he helps himself to intensional essences. Hence, even if he officially rejects the existence of material intensions, he also always implicitly accepts the existence of formal intensions, and thus never completely eliminates all intensions from his semantics.

(2) When Quine explicitly rejects intensions or meanings, Fregean senses, and Kantian concepts by saying that they are nothing but Aristotelian essences "divorced from the object of reference and wedded to the word," he is making a witty historical remark, and as such, this obviously carries no special rational force as a philosophical criticism. But it also indicates a much more serious point, pointedly developed by Quine elsewhere. So, for instance, in "Reference and Modality" and *Word and Object*, section §41, he explicitly holds that Aristotelian essences, and correspondingly the kind of necessity that flows from the nature of things in the world, are both unintelligible and indefensible.

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[69] Quine, *Word and Object*, pp. 219–21.
[70] Strawson, "Propositions, Concepts, and Logical Truths."
[71] Quine, "Truth by Convention," p. 80.

But now, more than sixty years on, and after groundbreaking work by Kripke, Fine, and others,[72] we know better. The doctrine of Aristotelian essentialism, and the doctrine that there exists a kind of necessity that is anchored in the nature of things in the world, are both at the very least intelligible, and I also think, defensible, doctrines. Moreover, one does not have to be a defender of Scientific Essentialism in order to hold this. Indeed, if I am correct, then the doctrine of Manifest Essentialism is also both intelligible and defensible.[73]

(3) In *Word and Object*, Quine explicitly accepts the Brentano/Chisholm thesis that the notions of intentionality and intensionality are irreducible, interderivable, and mutually indispensable. But then he himself also explicitly rejects the Brentano/Chisholm thesis and counsels the elimination of intentionality and intensionality, by way of adopting Scientific Naturalism. The basic outline of Quine's argument is this:

> Intentionality and intensionality are irreducible, interderivable, and indispensable. But they are unscientific notions, and the scientific attitude should be preferred. So given certain facts about contemporary human interests and purposes, it seems to Quine personally that science limns the true and ultimate structure of reality, that physicalism is true, and that behaviorism is the correct psychology. Therefore one should eliminate intensionality and intentionality. Therefore there is no intensionality or intentionality. Therefore there is no intelligible or defensible analytic-synthetic distinction.

This is clearly an unsound argument. In the **first** place, Quine offers no independent reasons for the thesis that natural science limns the true and ultimate structure of reality, that reductive physicalism is true, and that behaviorism is true, but argues only that from his own personal point of view, certain facts about contemporary human interests and purposes favor the ontological framework of natural science, reductive physicalism, and behaviorism. But **second**, and even more importantly, even if it were true that natural science limns the true and ultimate structure of reality, that reductive physicalism is true, and that behaviorism is the correct psychology, it still would not follow that there is no intentionality or intensionality. At best, all that would follow is that Quine is justified in asserting that from his own personal point of view, together with certain facts about contemporary human interests and purposes, one should eliminate intentionality and intensionality. Nevertheless, the step from "For my money—given my personal commitments to reductive physicalism and behaviorism, and given certain facts about contemporary human interests and purposes—we should eliminate intentionality and intensionality" to "There is no intentionality or intensionality" is clearly a fallacious inference from a pragmatic *ought* to a factual *is*.

(4) Suppose for a moment, however, that Quine is correct, and that a thoroughgoing eliminativism about intentionality and intensionality is true. As I argued earlier in section 4.1, it would follow directly from this semantic eliminativism that we would also have to eliminate every fact or phenomenon that includes or presupposes the existence of semantic content. Thus we would have to eliminate logical understanding, logical reasoning, conceptual understanding, conceptual reasoning,

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[72] See notes 12 and 36, this chapter.   [73] See, e.g., Hanna, *Kant, Science, and Human Nature*, part 1.

thinking, belief, cognition, knowledge, and human rationality itself. In short, we would have to assert the truth of postmodernist anti-rational nihilist skepticism. But as I also pointed out earlier, postmodernist anti-rational nihilist skepticism is, in effect, cognitive suicide by logico-rational and moral self-stultification, not to mention the end of the world as we know it. And in any case, Quine's own acceptance of The Sheer Logic Principle is flat-out inconsistent with postmodernist anti-rational nihilist skepticism. So Quine's Predicament strikes again.

6. Quine's argument against the analytic-synthetic distinction from the radical indeterminacy of radical translation.

In appendix D of *Meaning and Necessity*, "Meaning and Synonymy in Natural Languages," and in direct response to Quine's circularity-of-synonymy argument against the analytic-synthetic distinction in "Two Dogmas," Carnap worked out a pragmatic, behaviorist analysis of synonymy. Quine then replied to Carnap in *Word and Object* by developing his indeterminacy of translation argument against the analytic-synthetic distinction:

Philosophical tradition hints of three nested categories of firm truths: the analytic, the *a priori*, and the necessary. Whether the first exhausts the second, and the second the third, are traditional matters of disagreement, though none of the three has traditionally been defined in terms of detectable features of verbal behavior. Pressed nowadays for such a clarification, some who are content to take the three as identical have responded in this vein: the analytic sentences are those that we are prepared to affirm come what may. This comes to naught unless we independently circumscribe the "what may." Thus one may object that we would not adhere to "No bachelor is unmarried" if we found a married bachelor; and how are we to disallow his example without appealing to the very notion of analyticity we are trying to define? One way is to take "come what may" as "come what stimulation . . . may"; and this gives virtually the definition . . . of stimulus analyticity.

We have had our linguist observing native utterances and their circumstances passively, to begin with, and then selectively querying native sentences for assent and dissent under varying circumstances. Let us sum up the possible yield of such methods. (1) Observation sentences can be translated. There is uncertainty, but the situation is the normal inductive one. (2) Truth functions can be translated. (3) Stimulus-analytic sentences can be recognized. . . . (4) Questions of intrasubjective stimulus synonymy of native occasion sentences even of a non-observational kind can be settled if raised, but the sentences cannot be translated.

The indeterminacy I mean is . . . radical. It is that rival systems of analytical hypotheses can conform to all speech dispositions within each of the languages concerned and yet dictate, in countless cases, utterly disparate translations, not mere mutual paraphrases, but translations each of which would be excluded by the other system of translation. Two such translations might even be patently contrary in truth value, provided there is no stimulation that would encourage assent to the other.[74]

Here is a rational reconstruction of that Quinean argument. The existence of an intelligible and defensible analytic-synthetic distinction would entail that it is always

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[74] Quine, *Word and Object*, pp. 66, 68, and 73–74.

possible, for any natural language L, for the speakers of L to distinguish sharply between the analytic/necessary/a priori sentences of L and the synthetic/contingent/a posteriori sentences of L. This, in turn, presupposes that the intensions or meanings of most or all words can be fully individuated or determined—that there would be no general or universal semantic indeterminacy. But if we were linguistic anthropologists trying to figure what some tribe meant by "gavagai" by studying their uses of it, with no other relevant information about them other than that they are competent speakers of a natural language (i.e., the situation of "radical translation"), then there would be no way of translating the unfamiliar word "gavagai" into our language that would rule out intensionally distinct interpretations of it. That is because these interpretations would all be empirically equivalent in terms of the speech-behavioral and factual evidence in support of them. For example, "gavagai" in the natives' language might mean the same in stimulus-terms as "rabbit" or "a collection of undetached rabbit parts" or "rabbit-hood being instantiated now" in English. But it is easy enough to see how in English we could assent to any one of the applications of any one of these labels to objects of experience, while dissenting from the others. As linguistic anthropologists, we could then assert the existence of a "stimulus analyticity" or "stimulus synonymy" that is manifest in our use of such sentences as "Gavagai are rabbits," "Gavagai are collections of undetached rabbit parts," and so on. But this would not entail the existence of the analytic-synthetic distinction, precisely because it would not entail semantic determinacy, or the individuation of meanings or intensions. Hence it is generally or even universally the case that the intensions of words cannot be individuated or determined with certainty. Therefore there is no intelligible or defensible analytic-synthetic distinction.

2 Critical Replies:

(1) In order to show that different empirically equivalent translations of "gavagai" are possible, it has to be possible for us to discriminate sharply in English between the distinct intensions and distinct possible-worlds extensions of the different possible interpretations or translations of "gavagai." Otherwise we would have no reason for asserting that we could assent to the application of one term, and dissent from the other—since by hypothesis they are empirically equivalent. Hence, radically indeterminate radical translations presuppose normal determinate non-radical interpretations or translations of words in English, which in turn fully supports the thesis of an intelligible and defensible analytic-synthetic distinction.[75] Thus it is clearly a non sequitur for Quine to claim that the radical indeterminacy of radical translation entails the non-existence of an intelligible or defensible analytic-synthetic distinction. (2) Quine explicitly asserts that his radical indeterminacy result does not hold for words that express the classical truth-functional logical constants. Hence, even if Quine's radical indeterminacy of radical translation argument were sound, it would not show that the truths of classical sentential logic were not all analytic. On the contrary, there would still be a proper characterization of them, according to Quine's definition of a logical truth, and thus a proper characterization of them as

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[75] See also Katz, *The Metaphysics of Meaning*, ch. 5.

analyticities of the first class—see my reply (1) to Quinean argument **3**. Therefore, even if Quine's radical indeterminacy of radical translation argument were sound, there would still be a perfectly intelligible and defensible analytic-synthetic distinction holding between the truths of classical sentential logic and all other truths. Hence, again, it is clearly a non sequitur for Quine to claim that his argument entails that there is no intelligible or defensible analytic-synthetic distinction.

4.5 Three Dogmas of Post-Quineanism

In our critical examination of Quine's radical translation argument, we saw that he correctly pointed up an extremely important feature of the traditional conception of analyticity:

Philosophical tradition hints of three nested categories of firm truths: the analytic, the *a priori*, and the necessary. Whether the first exhausts the second, and the second the third, are traditional matters of disagreement.

Indeed, for classical or contemporary Kantians, the connection between apriority and necessity is even tighter than nesting: they analytically entail each other.[76] Therefore, even if one were to accept my critique of Quine's critique, there would still be reasons for rejecting the existence of an intelligible or defensible analytic-synthetic distinction, if it could be shown that analyticity, apriority, and necessity can be detached from one another. As is well-known, Kripke and early Putnam offer widely influential arguments for the detachability of the necessary and the a priori, in both directions, from the existence of necessary a posteriori statements and contingent a priori statements. And Kaplan also offers a slightly less well-known but equally challenging argument for the detachability of analyticity and necessity, from the existence of analytic contingent statements.

Importantly, however, Kripke did not himself think that his arguments for the existence of necessary a posteriori and contingent a priori statements actually undermine either the notion of analyticity or the analytic-synthetic distinction:

I am presupposing that an analytic truth is one which depends on *meanings* in the strict sense and therefore is necessary as well as *a priori*. If statements whose a priori truth is known via the fixing of reference [e.g., "Stick S is one meter long at t_0"] are counted as analytic, then some analytic truths are contingent; this possibility is excluded in the notion of analyticity adopted here. . . . I have not attempted to deal with the delicate problems regarding analyticity in these lectures, but I will say that some (though not all) of the cases often adduced to discredit the analytic-synthetic distinction, especially those involving natural phenomena and natural kinds, should be handled in terms of the apparatus of fixing a reference invoked here.[77]

Moreover, the later Putnam explicitly rejects the necessity of "Water is H_2O" and also explicitly defends the existence of at least one analytic a priori necessary truth.[78]

[76] See Hanna, *Kant and the Foundations of Analytic Philosophy*, section 5.2, pp. 245–55.
[77] Kripke, *Naming and Necessity*, n. 63, pp. 122–23.
[78] See Putnam, "Is Water Necessarily H_2O?"; and Putnam, "There Is at Least One A Priori Truth."

I will come back to those important facts later. Nevertheless, certainly most other post-Quinean philosophers actually did and still do take Kripke's, early Putnam's, and Donnellan's arguments to show that the analytic-synthetic distinction is unintelligible or indefensible. So in order to understand and to criticize the post-Quinean tradition, we must adopt the logical fiction of a conjoined philosopher called Kripke-Putnam, who, along with the real-life Donnellan and Kaplan, collectively hold that Kripke's, early Putnam's, Donnellan's, and Kaplan's arguments for the existence of the necessary a posteriori, the contingent a priori, and the analytic contingent, do indeed jointly undermine the intelligibility or defensibility of the analytic-synthetic distinction.

Now, one possible response to the Kripke-Putnam, Donnellan, and Kaplan arguments would be simply to concede the detachability of the "three nested categories" and then try to develop a theory of analyticity that is unaffected by the claims made by Kripke-Putnam, Donnellan, and Kaplan. And in fact, that is what the leading post-Quinean defenders and theorists of the analytic-synthetic distinction have done.

For example, impressed by arguments for the existence of necessary a posteriori statements, contingent a priori statements, and analytic contingent statements, Katz and Gillian Russell both explicitly concede that necessity does not entail apriority, that apriority does not entail necessity, and that analyticity does not entail necessity. Russell goes even one better than Katz and claims that there are analytic a posteriori statements (e.g., "Mohammed Ali is Cassius Clay"[79]), although Katz always held the line on that one, and consistently asserted that analyticity entails apriority.

It seems to me, however, that the concessive strategy has deep difficulties. According to *all* the classical theories of analyticity, including Kant's, Frege's, and Carnap's theories, no matter how much they may otherwise differ, nevertheless it is still the case that (i) analyticity generally entails necessity, (ii) analyticity generally entails a priori knowability, (iii) analyticity specifically entails either logically necessary truth or conceptually necessary truth, (iv) the properly conducted rational activity of either logical analysis or conceptual analysis entails knowledge of analytic a priori necessary truth, and (v) a correct theory of analyticity entails an adequate explanation of the nature and status of logic. Only entailment (ii) holds according to Katz's theory of analyticity.[80] By contrast, none of these entailments holds according to Gillian Russell's theory of analyticity.[81]

Similarly, none of these entailments holds according to Boghossian's theory of analyticity, although for very different reasons, since he agrees with Quine and eliminates the very idea of a semantic (or what he calls "metaphysical") conception of analyticity in favor of an epistemic conception of analyticity, and more specifically in favor of the Quinean ersatz epistemic-pragmatic conception of analyticity, and thus simply replaces analyticity with epistemic-pragmatic apriority.[82] As I mentioned in section 4.1, the Quinean ersatz epistemic-pragmatic version of the analytic-synthetic distinction that arises from this replacement runs as follows: (i) an asserted

[79] Russell, *Truth in Virtue of Meaning*, pp. 67, 82–83, 200.
[80] See, e.g., Katz, "Analyticity, Necessity, and the Epistemology of Semantics."
[81] Russell, *Truth in Virtue of Meaning*, chs. 1–3.
[82] Boghossian, "Analyticity Reconsidered," pp. 363–68.

statement or belief B is analytic a priori if and only if B stubbornly resists recalcitrant experience and can be acquired without experiential evidence and inquiry (i.e., B is an "armchair belief"), and (ii) an asserted statement or belief B is synthetic a posteriori if and only if B is flexibly sensitive to recalcitrant experience and cannot be acquired without experiential evidence and inquiry (i.e., B is an "experimental belief").

But on the one hand, given this "armchair belief" criterion of analyticity, there is nothing that would intrinsically rule out the adoption of *completely crazy* empirical-evidence-resistant beliefs as analytic a priori, provided that they came to be sufficiently well-entrenched in the scientific community and the larger society. Take, for example, the following claims:

The thought screen helmet scrambles telepathic communication between aliens and humans. Aliens cannot immobilize people wearing thought screens nor can they control their minds or communicate with them using their telepathy. When aliens can't communicate or control humans, they do not take them.[83]

One can easily imagine a society, together with its own "scientific" community, that accepted these beliefs about alien-thought-screen-helmets as analytic a priori. In other words, my worry here is that, given the "armchair belief" criterion of analyticity, then there are no inherent constraints on the theoretical content of analyticity. But on the contrary, it seems that there must be, at the very least, a set of minimal rational constraints on the theoretical content of analyticity, such that basic logical principles, basic mathematical principles, and basic natural-scientific principles are never arbitrarily flouted or violated. How else could an analytic statement ever plausibly purport to be rationally acceptable as such?

On the other hand, given this "experimental belief" criterion of synthetic aposteriority, beliefs in the truths of elementary arithmetic such as "7+5=12" would count as synthetic a posteriori and subject to empirical counterexample, if occasional failures of calculating this correctly were allowed by experimentalists to stand as falsifications, again provided that these so-called falsifications of "7+5=12" again came to be sufficiently well-entrenched in the scientific community and the larger society. In other words, my worry here is that, given the "experimental belief" criterion of synthetic aposteriority, there is nothing that would intrinsically rule out the completely crazy conversion of obviously necessary truths into contingent truths: hence my worry is that there are no inherent constraints on the theoretical content of synthetic aposteriority. But on the contrary, it seems clear that there must be, at the very least, a set of minimal constraints on the theoretical content of synthetic aposteriority, such that basic logical principles, basic mathematical principles, and basic natural-scientific principles are never open to arbitrary conversion into contingent truths. So again, and now with appropriate changes for the shift in context, how else could a synthetic a posteriori statement ever plausibly purport to be rationally acceptable as such?

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[83] See, e.g., Menkin, "Stop Alien Abductions."

Either way, then, the Quinean ersatz epistemic-pragmatic conception of the analytic-synthetic distinction is deeply problematic. To be sure, Boghossian's own account is rigorously developed and subtly detailed in many ways. So my objection is not internal to Boghossian's own philosophically deft and highly interesting working-out of a Quinean ersatz epistemic-pragmatic conception of analyticity. Instead, it is an external objection to Quinean ersatz epistemic-pragmatic accounts generally, and Boghossian's account just happens to be one of these. Moreover, and in any case, there is an even more general objection I want to make to post-Quinean accounts of analyticity, applicable to Katz, Russell, Boghossian, and Juhl and Loomis alike, that I will develop shortly.

Williamson, by contrast to Katz, Russell, and Boghossian, concludes from the same basic philosophical data—the Kripke-Putnam, Donnellan, and Kaplan arguments—that the very idea of analyticity, whether construed metaphysically or epistemically, is largely philosophically uninteresting, since it fails to meet any of the basic aims specified by the Fregean or Carnapian theories of analyticity.[84] Williamson's conclusion, I think, nicely captures the philosophical rationale lying behind the empirical data reported in the Bourget-Chalmers Philosophical Papers survey that I mentioned earlier in section 4.1. Moreover, I am also in complete agreement with Williamson that *if* we start with the Frege-Carnap conception of the analytic-synthetic distinction as basic, and *if* we accept some or all of the Quinean, Kripke-Putnamian, Donnellanian, and Kaplanian arguments against the analytic-synthetic distinction, *then* the very idea of analyticity, whether construed metaphysically or epistemically, is indeed largely philosophically uninteresting. But ultimately I want to reject both antecedents of this conditional. I think that the Kantian conception of the analytic-synthetic distinction, not the Frege-Carnap conception, is basic; and I think that Quinean, Kripke-Putnamian, Donnellanian, and Kaplanian arguments are unsound.

Finally, Juhl and Loomis take Quine's critical arguments, as refined and reformulated by Gilbert Harman,[85] to constitute a set of serious objections to all the classical conceptions of analyticity, as well as conceding the force of Williamson's reasonable worries about the philosophical uninterestingness of the very idea of analyticity. But in the face of all that, Juhl and Loomis also propose a significantly different conception of analyticity, which they call "analyticity*," based on the notion of *stipulation*, that apparently avoids several of the philosophically unhappy implications of the Quinean/Harmanian, Kripke-Putnamian, Donnellanian, and Kaplanian arguments, while also conceding the critical force of these arguments against the classical conceptions.[86]

I have three worries about the stipulationist theory of analyticity*.

First, merely having a rational warrant for calling some statement "true" or "necessarily true" according to some individually or intersubjectively agreed-upon rule for the use of the terms "true" and "necessarily true" does not thereby make

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[84] Williamson, *The Philosophy of Philosophy*, chs. 3–4.
[85] Harman, "Quine on Meaning and Existence I"; Harman, "Quine on Meaning and Existence II"; and Harman, "Analyticity Regained?"
[86] Juhl and Loomis, *Analyticity*, esp. chs. 4–6.

those statements true, much less necessarily true. Rule-justification is all about us; truth and necessary truth are about relations between statements and the way the world is. For example, in my community, we can adopt a rule according to which everything that is said sincerely about alien-thought-screen-helmets by alien-thought-screen-helmet-experts is not only called "true" but also "necessarily true." But the experts' claims about alien-thought-screen-helmets are still false. So stipulationism does not adequately connect the concept of analyticity* with the classical Tarskian concept of truth.

Second, the very idea of stipulation presupposes and uses the unreduced notion of intentionality: to stipulate is just to resolve that statements be taken in a certain way. But every resolution necessarily includes an intention. So it is very unclear whether appealing to stipulation in order to explain analyticity*, in the end, is any more explanatory than simply appealing to intentionality in order to explain analyticity*. But then Juhl and Loomis must either provide a good argument against Quine's reductive physicalist rejection of Brentano's thesis or else concede that the non-reductive metaphysics of intentionality is more basic than stipulationism.

Third, and now harking back to my worries about the Quinean ersatz epistemic-pragmatic conception of the analytic-synthetic distinction, taken together with my first worry about stipulationism, it seems to me that the stipulationist theory will have essentially the same problem that the Quinean ersatz epistemic-pragmatic conception of the analytic-synthetic distinction has. More precisely, I cannot see how stipulationism will be able to prevent either completely crazy stipulated statements counting as analytic* or the completely crazy conversion of obviously necessary truths into contingent truths. In other words, it seems to me that stipulationism introduces neither inherent constraints on the theoretical content of analyticity* nor inherent constraints on the theoretical content of synthetic aposteriority. But that is not rationally defensible.

I hasten to add that I certainly have no philosophical objection to the development of various conceptions of analyticity which are "akin" to the classical Fregean and Carnapian conceptions,[87] but deviate from them in other ways, in order to concede the force of standard objections to the classical Frege-Carnap conception of analyticity. Let a hundred or even a thousand philosophical flowers bloom, I say. My basic critical question for all of these recent and contemporary defenses and theories of analyticity is simply this: "How many classical criteria of analyticity can be denied by them, without actually changing the philosophical subject?" What I mean is that it seems to me that an adequate theory of the analytic-synthetic distinction must defend *all* of (i) through (v)—that (i) analyticity generally entails necessity, (ii) analyticity generally entails a priori knowability, (iii) analyticity specifically entails either logically necessary truth or conceptually necessary truth, (iv) the properly conducted rational activity of either logical analysis or conceptual analysis entails knowledge of analytic a priori necessary truth, and (v) a correct theory of analyticity entails an adequate explanation of the nature and status of logic—for otherwise one is failing to keep rational faith with the basic aims and standards of the classical theories

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[87] Juhl and Loomis, *Analyticity*, p. 212.

of analyticity from Kant to Frege and Carnap. Moreover, as far as I can tell, both Kripke himself and the later Putnam himself would actually agree with me. Therefore, at the end of the day, it seems to me very clear that Russell's, Katz's, Boghossian's, and Juhl's and Loomis's theories of analyticity are merely theories of schmanalyticity, not theories of analyticity.

Juhl and Loomis do explicitly consider this worry, and respond to it as follows:

It is true that our notion of analyticity* does not solve all of the epistemic problems that beset the logical empiricists who thought that a single notion of analyticity could be deployed for mathematics, logic, many theoretical principles such as F = ma, and various seemingly a priori bits of knowledge such as color exclusion principles. We remain agnostic as to whether some accounts that generalize the notion of analyticity* can be adapted to illuminate a wider range of apparently a priori knowledge. We are hopeful on this front, but we are not in a position to provide accounts of logic, and some difficult examples of a priori knowledge such as color exclusion, in particular. Thus our defense of analyticity* might be thought of as a defense of one variety of analyticity, rather than of analyticity in general.[88]

Fair enough. But analyticity* is still schmanalyticity, *not* analyticity. So my most general worry about the post-Quinean accounts of analyticity is that Russell, Katz, Boghossian, and Juhl and Loomis, for all their philosophical ingenuity, insight, and rigor, have simply changed the subject. And for the reasons I gave in sections 4.2 and 4.3, I think that all contemporary Kantian philosophers and also all contemporary mainstream Analytic philosophers should be deeply committed to defending some or another version of the classical analytic-synthetic distinction in the Kant-Frege-Carnap tradition, and not—or at least not primarily—concerned about defending some postclassical or even postmodern *schmanalytic*-synthetic distinction. This, again, is just because, otherwise, without an intelligible and defensible analytic-synthetic distinction, the very idea of a semantic content will go down, and correspondingly the very ideas of belief, cognition, thought, understanding, justification, knowledge, intentionality, and human rationality more generally will all go down, too, since all these inherently involve the notion of semantic content.

If I am correct in pursuing this line of criticism, then of course it shifts the burden of proof back onto the defender of an intelligible and defensible classically oriented analytic-synthetic distinction in the Kant-Frege-Carnap tradition, and therefore, in particular, it shifts the burden of proof onto me. I then have to show, in addition to refuting all the Quinean criticisms, as well as directly addressing the deep problem of the nature and status of logic (see, e.g., *Rationality and Logic*, and also ch. **5** below), under the rubric of what I have been calling "Quine's Predicament," not only that all the arguments offered for the existence of necessary a posteriori statements, contingent a priori statements, and analytic contingent statements are unsound, but also that there are really no such things as the necessary a posteriori, the contingent a priori, and the analytic contingent. All three of these pseudo-concepts must be eliminated.

[88] Juhl and Loomis, *Analyticity*, pp. 237–38.

I will freely and fully admit that this contemporary Kantian eliminativist project in particular is a very strenuous task, given the canonical—indeed, almost biblical—status of the fictional conjoined philosopher Kripke-Putnam's writings in recent and contemporary Analytic philosophy, and especially Analytic metaphysics.[89] But if they're wrong, they're wrong, and somebody needs to point out that the Emperor is actually wearing no clothes.

7. The Kripke-Putnam argument against the analytic-synthetic distinction from the existence of the necessary a posteriori.

It can be shown that if an identity statement S between directly referential terms (e.g., natural kind terms or proper names) is true at all, then S is necessarily true, even if S is not known a priori:

An argument like the following can be given against the possibility of contingent identity statements: First, the law of the substitutivity of identity says that, for any objects x and y, if x is identical to y, then if x has a certain property F, then so does y:

$$(x)(y)[(x=y) \supset (Fx \supset Fy)] \tag{1}$$

On the other hand, every object surely is necessarily self-identical:

$$(x)\square(x=x) \tag{2}$$

But

$$(x)(y)(x=y) \supset [\square(x=x) \supset \square(x=y)] \tag{3}$$

is a substitution-instance of (1), the substitutivity law. From (2) and (3), we can conclude that, for every x and y, if x equals y, then, it is necessary that x equals y:

$$(x)(y)((x=y) \supset \square(x=y)) \tag{4}$$

This is because the clause $\square(x=x)$ of the conditional drops out because it is known to be true.[90]

We have concluded that an identity statement between names, when true at all, is necessarily true, even though one may not know it *a priori*.[91]

For example, the statements

(WH)   Water is H_2O.
(GE)   Gold is the element with atomic number 79.

and many other similar statements expressing true essential identities between natural kind terms, are necessary but also a posteriori because they are believed (or known) to be true empirically, through contemporary microphysics and chemistry. Also, the statements

(CT)   Cicero is Tully.
(HP)   Hesperus is Phosphorus.

[89] See, e.g., Soames, *Philosophical Analysis in the Twentieth Century.*
[90] Kripke, "Identity and Necessity," pp. 162–63.
[91] Kripke, *Naming and Necessity*, p. 108.

are necessary and a posteriori, because it is possible to believe (or know) that Cicero is Cicero or that Hesperus is Hesperus but not believe (or know) that Cicero is Tully or that Hesperus is Phosphorus. Therefore, necessity does not entail apriority. But according to the classical conception of the "three nested categories," analyticity, necessity, and apriority all entail one another. Therefore there is no intelligible or defensible analytic-synthetic distinction.

4 Critical Replies:

(1) In the first *Critique*, Kant says that

Although all our cognition commences **with** experience, yet it does not on that account all arise **from** experience. (*CPR* B1)

I think that this remark expresses a deep insight. In what follows, by *empirical facts* I mean inner or outer sensory experiences and/or contingent natural objects or facts. Now let us take it as a given that necessarily, all human cognition begins in causally triggered, direct, non-conceptual, non-inferential sense perception of empirical. Then Kant's deep insight is that apriority is the necessary and constitutive under-determination of the semantic content, truth, or justification of a statement S by any and all empirical facts, or what is the same thing, that the semantic content, truth, and/or justification of S is neither strongly supervenient on nor grounded by any and all empirical facts. This is not the *exclusion* of empirical facts by the content, truth, or justifiability of S.

Correspondingly, to say that a statement S is a posteriori is to say that the semantic content, truth, or justifiability of S is necessarily or constitutively determined by any or all empirical facts, or what is the same thing, that the semantic content, truth, and/or justification of S is strongly supervenient on or grounded by any or all empirical facts. So aposteriority does not mean that S's content must bear a relation to empirical facts, that the truth of S must be learned or confirmed by means of empirical facts, or that S's justification must be supported by empirical facts. To be sure, these are all fully consistent with and normally associated with S's aposteriority. But the crucial point is that S can still be a priori even if S's content must bear a relation to empirical facts, even if the truth of S must be learned or confirmed by means of empirical facts, and even if S's justification must be supported by empirical facts. Otherwise put, Kant's deep insight is that there is no such thing as semantic content, truth, or knowledge (sufficiently justified belief) that altogether excludes empirical facts; nevertheless it does not follow from this that either classical Lockean Humean Empiricism or radical Quinean Empiricism is true—it does not follow that semantic content, truth, and justifiability are either necessarily or constitutively determined by or (even more radically) reducible to any or all empirical facts. That is clearly and simply a non sequitur.

Corresponding to Kant's deep insight, then, here are three important Empiricist fallacies:

The Fallacy of Empirical Content: The semantic content of statement S necessarily includes a relation to empirical facts, therefore the content of S is necessarily or constitutively determined by empirical facts and is a posteriori.

The Fallacy of Empirical Confirmation: The truth of statement *S* must be confirmed or learned by means of sense experiences of empirical facts, therefore the truth of *S* is necessarily or constitutively determined by empirical facts and is a posteriori.

The Fallacy of Empirical Justification: Justified belief in statement *S* must be supported by empirical evidence, therefore the justification of belief in *S* is necessarily or constitutively determined by empirical facts and is a posteriori.

More specifically, as I indicated one paragraph back, not every necessary truth with significant empirical content, or every statement that must be learned or confirmed by means of sense experiences of empirical facts, or every statement, belief in which must be supported by empirical evidence, is a posteriori.

And here is an argument for that claim, which in turn shows that the three fallacies I just formulated are indeed fallacies. Following the classical semantic tradition, I will call terms that have both intension or meaning and also extension or reference, *categorematic* terms. Now consider these two statements—

(KB)   If Kant is a bachelor, then Kant is unmarried.

$(S+F=T_{beer\ bottles})$ Seven beer bottles plus five beer bottles equals twelve beer bottles.

Everyone will grant, I think, that "If Kant is a bachelor, then Kant is unmarried" and "Seven beer bottles plus five beer bottles equals twelve beer bottles" are not only necessarily true but also (i) such their semantic contents must bear a relation to empirical facts, via the categorematic terms *Kant, bachelor*, *beer*, and *bottles*, (ii) such they must be confirmed and learned by means of sense experience of empirical facts, and (iii) such justified belief in them must be supported by empirical evidence. Yet both "If Kant is a bachelor, then Kant is unmarried" and "Seven beer bottles plus five beer bottles equals twelve beer bottles" are obviously a priori. The real presence of empirical facticity in those statements is inessential to their semantic, epistemic, and modal a priori status. Or otherwise put, what matters for apriority is just that their semantic, epistemic, and modal status is not necessarily or constitutively determined by the real presence of empirical facticity. Correspondingly, it is obviously correct that these two statements—

(WH)   Water is H_2O.
(GE)   Gold is the element with atomic number 79.

—are (i) such that their semantic contents must bear a relation to empirical facts, via the categorematic terms *water*, H_2O, *gold*, and *element with atomic number 79*, (ii) such that they must be confirmed and learned by means of sense experience of empirical facts, and (iii) such that justified belief in them must be supported by empirical evidence. Yet the inference from *that* to the conclusion that they are a posteriori remains fallacious, for the same reason that obtained in the cases of "If Kant is a bachelor, then Kant is unmarried" and "Seven beer bottles plus five beer bottles equals twelve beer bottles."

Now, apriority is a statement's failed necessary or constitutive determination by any or all empirical facts. Then it is clear that "Kant is a bachelor" and "Seven beer bottles plus five beer bottles equals twelve beer bottles" are a priori, according to the following three-step test.

(1) Suppose that the categorematic terms *Kant, bachelor, unmarried, beer,* and *bottles* retain their original actual-world reference, so that the necessary-or-constitutive-determination-base of content, truth, and justification is held fixed. (2) Then consider other possible worlds in which the actual-world referents of *Kant, bachelor, unmarried, beer,* and *bottles* either (i) fail to exist, (ii) radically change their empirical specific character, or (iii) radically change their essence or nature, whether this is a natural essence or only a social-functional essence. For example, consider possible worlds in which Kant never was born, in which Kant and all the other actual-world bachelors are married and have large families, in which beer tastes like orange juice, or in which bottles are porous and do not retain liquid. (3) In those worlds, nevertheless, "If Kant is a bachelor, then Kant is unmarried" and "Seven beer bottles plus five beer bottles equals twelve beer bottles" are necessarily true, and known or believed with sufficient justification.

In this way, the semantic, alethic, and epistemic character of actual-world-anchored terms *Kant, bachelor, unmarried, beer,* and *bottles* in "If Kant is a bachelor, then Kant is unmarried" and "Seven beer bottles plus five beer bottles equals twelve beer bottles" is what I will call *robustly persistent with respect to changes in empirical facts*. Their maximal semantic, alethic, and epistemic character emerges in all other worlds beyond the actual world, even while "letting the empirical chips fall as they may" in those worlds. Or, in other words, the very fact that confers maximal meaningfulness, truth, or justifiability on "If Kant is a bachelor, then Kant is married" and "Seven beer bottles plus five beer bottles equals twelve beer bottles" in the actual world, also semantically, alethically, and epistemically robustly persists even in possible worlds in which the actual-world referents of their categorematic terms fail to exist, radically change their empirical specific character, or radically change their natural or social-functional essence or nature.

Here is a relevant side-comment in this connection. Strictly speaking, it is possible for a semantic, alethic, or epistemic feature to be what I will call *relatively but non-robustly persistent with respect to changes in empirical facts*. For example, mere conventions, decisions, or stipulations with respect to meaning, truth, belief, or knowledge are relatively but non-robustly persistent with respect to changes in empirical facts. You or your community can opt to take any statement to be meaningful, true, believable, or knowable "come what may." But this is not robust persistence, because it is inherently subject to the variable idiosyncrasies, interests, or whims of the individual or community that carries out the convention, decision, or stipulation. Relative persistence with respect to changes in empirical facts but without robustness is the mark of what I will call the *voluntaristic a priori* that is defended by the Logical Empiricists and C. I. Lewis,[92] which, in turn, is clearly the ancestral origin of Quine's deflationary, ersatz epistemic-pragmatic conception of the a priori.

These important points about the a priori-a posteriori distinction will be more carefully spelled out and fully justified in sections 7.1 and 7.2. For the moment, the crucial point is that in order to establish the aposteriority of a statement *S*, what needs to be shown is that the very fact which confers meaningfulness, truth, or justifiability

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[92] See, e.g., Lewis, "A Pragmatic Conception of the A Priori."

on S is nothing but an empirical fact, or that the fact is solely and wholly empirical. In other words, the rational criterion of aposteriority for any statement is the failure of semantic, alethic, or epistemic robust persistence in possible worlds in which the actual world referents of its categorematic terms fail to exist, radically change their empirical specific character, or radically change their natural or social-functional essence or nature. In worlds that are importantly empirically different from the actual world, then the semantic, alethic, or epistemic characters of a posteriori statements change. Their semantic, alethic, and epistemic characters, like the wind, "bloweth where it listeth." This demonstrates that the statement's semantic, alethic, and epistemic character is necessarily or constitutively determined by its existential, specific empirical, or essential profile in the actual manifest world, and that it is semantically, alethically, and epistemically non-robust and non-persistent with respect to changes in empirical facts. Therefore the statement is a posteriori.

For example, the very facts that are the meaningfulness-makers, truth-makers, and justification-makers for the true statements

(KP)   Kant is a philosopher.
(PM)   All philosophers are mortal.

are nothing but empirical facts. Hence "Kant is a philosopher" (KP) and "All philosophers are mortal" (PM) are a posteriori. And this can be proven by using the same three-step test as described earlier.

(1) Assume that *Kant*, *philosopher*, and *mortal* all retain their original actual world reference.

(2) Now consider possible worlds in which those actual-world referents either do not exist, radically change their empirical specific character, or radically change their natural or social-functional essence or nature. For example, consider worlds in which Kant never was born, or in which Kant is an insurance salesman, or in which philosophers live forever. (3) In those worlds, "Kant is a philosopher" and "All philosophers are mortal" are either meaningless (due to local reference-failure in that world), false, or unjustified. So "Kant is a philosopher" and "All philosophers are mortal" are semantically, alethically, and epistemically non-robust and non-persistent with respect to changes in empirical facts. Therefore, (KP) and (PM) are both a posteriori.

Now, what about "Water is H_2O" and "Gold is the element with atomic number 79"? As before, (1) let us assume that all their categorematic terms retain their original actual-world reference. (2) Now consider other possible worlds in which the actual-world referents of *water*, H_2O, *gold*, or *element with atomic number 79* do not exist, radically change their empirical specific character, or radically change their natural or social-functional essence or nature. Does that change the meaningfulness, truth, or justifiability of either "Water is H_2O" and "Gold is the element with atomic number 79"? By Kripke's own admission, the answer is definitively "no." Since *water*, H_2O, *gold*, and *element with atomic number 79* are all stipulated to be cases of the special class of directly referential terms that Kripke calls "rigid designators," they refer to the very same actual-world stuff in every world in which that stuff exists, and never refer to anything else otherwise.[93] Suppose that H_2O in that world looked and

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[93] Kripke, *Naming and Necessity*, pp. 3–15, 48–49, and 55–60.

felt like sand does in the actual manifestly real world. Or suppose that the element with atomic number 79 in that world looked blue instead of looking yellow, the way it does in the actual manifestly real world. Or suppose that the element with atomic number 79 in that world was not a metal, instead of being metallic, the way it is in the actual manifestly real world. Nevertheless, both "Water is H_2O" and "Gold is the element with atomic number 79" would still be fully meaningful and necessarily true (or at least, would never be false[94]), and would be believed with sufficient justification. In this way, "Water is H_2O" and "Gold is the element with atomic number 79" are both robustly persistent with respect to changes in empirical facts, and therefore they are both a priori.

(2) Something that is thoroughly ambiguous in the texts in which Kripke argues for the aposteriority of some statement S or another, is whether he is saying that it is merely belief in S that is being taken to be a posteriori, or instead *knowledge* of S. This may seem trivial. But in fact it is crucial, for the following reason. It is very plausible to hold that to know a statement S entails knowing the very fact that confers upon S its specific modal status as necessary or contingent. Now let us suppose that we know both "Water is H_2O" and "Gold is the element with atomic number 79," and that this entails knowing the very facts which confer not only meaning and truth but also necessity on these two true identity statements. This is the same as knowing essential facts, namely the essential identity of water and its chemical microstructure, and the essential identity of gold and its chemical microstructure.

But it seems clear that knowing the essential identity of a natural kind and its chemical microstructure is knowing something over and above knowing facts that merely confer truth on either "Water is H_2O" or "Gold is the element with atomic number 79." That is because, obviously, an empirical fact can confer truth on a given statement, without also conferring necessary truth on that statement. And all that it takes to know such a fact is a posteriori perceptual knowledge. It also seems clear, moreover, as of course it also seemed clear to Kant, that knowing the very fact which confers necessary truth on a given statement is a priori knowledge, not a posteriori knowledge. Furthermore, Kripke himself also explicitly points out that the knowledge of either "Water is H_2O" or "Gold is the element with atomic number 79," at the very least, requires analytic a priori knowledge of the fact that *if* an identity statement is true, *then* it is necessarily true:

Certain statements—and the identity statement is a paradigm of such a statement on my view—if true at all must be necessarily true. One does know *a priori*, by philosophical analysis, that *if* such an identity statement is true it is necessarily true.[95]

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[94]   We can consider possible worlds in which the essence or nature of, for example, the actual-world stuff called 'gold', changes due to a constitutive dependence on, for example, natural laws. Let's call that stuff 'schmold'. Then the relevant statement expressed at that schmoldy world, for example, "Gold is the element with atomic number 79," is a *truth-value gap*, simply because all the actual-world gold has gone schmoldy in the new world and provides no counter-model to the synthetic a priori truth "Gold is the element with atomic number 79." For more details on the cognitive semantics of necessity in my modal dualist framework, see also section 8.4.

[95]   Kripke, *Naming and Necessity*, p. 109.

In other words, the complete epistemic reason that sufficiently justifies belief in either "Water is H$_2$O" or "Gold is the element with atomic number 79" is thoroughly a priori. So it is clear that knowing the very fact that confers both truth and necessary truth on "Water is H$_2$O" and "Gold is the element with atomic number 79"—namely, the essential identity of a natural kind and its chemical microstructure—when it is also seamlessly combined with the background analytic fact that identity statements are necessarily true if true at all, must be a priori knowledge, not a posteriori knowledge.

Similarly, knowing the very fact that confers not merely meaning and truth but also necessity on the statements

(CT)   Cicero is Tully.
(HP)   Hesperus is Phosphorus.

is the same as knowing an essential fact, namely the *classical identity* of a thing with itself. And when this essential fact is seamlessly combined together with the background analytic fact that classical identity statements are necessarily true if true at all, then again this knowledge must be a priori knowledge, not a posteriori knowledge.

By the notion of "classical identity" I mean the relation of necessary numerical identity, including the properties of symmetry, transitivity, and reflexivity, plus satisfaction of Leibniz's Laws for all non-modal, non-normative, and more generally non-intensional properties. Now, according to the three Empiricist Fallacies of Content, Confirmation, and Justification, it would obviously be a mistake to think that from the mere facts that the statements

(CC)   Cicero is Cicero.
(HH)   Hesperus is Hesperus.

are (i) such that their semantic contents must bear a relation to empirical facts, via the categorematic terms *Cicero* and *Hesperus*, (ii) such that they must be confirmed and learned by means of sense experiences of empirical facts, and (iii) such that justified belief in them must be supported by empirical evidence, it thereby follows that they are a posteriori. On the contrary, it is obvious that "Cicero is Cicero" and "Hesperus is Hesperus" are a priori. This is shown by the fact that in natural deduction systems of classical first-order polyadic predicate logic with identity, any statement that is a substitution-instance of the "free" or quantifier-unbound formula '$x=x$' can be written on any line of a proof as following directly from the empty set of premises, hence "Cicero is Cicero" and "Hesperus is Hesperus" would be instances of elementary logical truths. But by the same reasoning, the very same point holds for "Cicero is Tully" and "Hesperus is Phosphorus" alike. They are both a priori, precisely because knowing the very fact that confers not just truth but also necessity upon them—the classical identity fact—is a priori knowledge.

This may seem like a shocking claim. So someone might well object as follows:

How could the statements *Cicero is Tully* and *Hesperus is Phosphorus* possibly be a priori? Didn't Frege show us, once and for all, that *Hesperus is Phosphorus* is an informative identity statement?

I would reply as follows. Yes, of course, I concede that Frege was absolutely correct that "Hesperus is Phosphorus" is an informative identity statement, precisely because

its two categorematic terms have the same reference but different senses.[96] Never-theless, the fact that it is informative to know that Cicero is Tully or that Hesperus is Phosphorus does not, by itself, confer aposteriority on either "Cicero is Tully" or "Hesperus is Phosphorus." The informativeness of a statement is one thing, and its aposteriority is quite another thing. Suppose that Goldbach's Conjecture—which says that every even number greater than 2 is the sum of two primes—is true and provable. Everyone admits that *if* Goldbach's Conjecture is true, *then* it is necessarily true and also a priori. So anyone who comes to know that every even number greater than 2 is the sum of two primes by actually proving it, will also gain some very important new information, namely a knowledge of the very fact which confers truth, necessity, and apriority upon Goldbach's Conjecture. So informativeness alone does not entail aposteriority. The statements "Cicero is Tully" and "Hesperus is Phos-phorus," just like Goldbach's Conjecture—assuming that it really is true and know-able by proof—are both a priori.

(3) As we just saw under criticism (2), the thesis that *if* a true identity statement between rigid designators is true, *then* it necessarily true, is a necessary a priori truth of philosophical analysis. So even if the necessary a posteriori exists, it presup-poses that at least some statements are analytic, necessary, and a priori. Therefore even if the necessary a posteriori did exist, its existence could not be consistently used to cast universal doubt on the analytic-synthetic distinction. Indeed, as we also saw earlier, Kripke himself argued for the existence of the necessary a posteriori and also holds a classical view about the relationship among analyticity, necessity, and apriority.

(4) Some post-Quinean philosophers other than Kripke himself might find the Kripke-Putnam argument for the necessary a posteriori status of "Water is H_2O" and "Gold is the element with atomic number 79" to be highly compelling with respect to its undermining the analytic-synthetic distinction, even if they have also accepted the argument I gave in (2) for the necessary a priori status of "Cicero is Tully" and "Hesperus is Phosphorus." This is because the argument for the necessary aposteri-ority of "Water is H_2O" and "Gold is the element with atomic number 79" presup-poses the truth of Scientific Essentialism, and it may well be that the compellingness of the thesis of the necessary aposteriority of these two statements is largely based on the assumption that Scientific Essentialism is true.

Scientific Essentialism says that there exist necessary a posteriori truths about theoretical identities, based on microphysical essences of natural kinds, that are discovered via the contemporary natural sciences. And many or even most recent and contemporary philosophers who are Scientific Realists are also Scientific Essen-tialists. Nevertheless, I think that Scientific Essentialism is independently question-able.[97] Indeed, even Putnam himself later rejected Scientific Essentialism in "Is Water Necessarily H_2O?"

Putnam's basic criticism of Scientific Essentialism is this. The truth of the state-ment "Water is H_2O" depends on a special set of causal laws that all obtain in the

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[96] Frege, "On Sense and Meaning."
[97] See, e.g., Hanna, *Kant, Science, and Human Nature*, ch. 4.

actual world, and which jointly determine the microstructure of physical matter in that world. But this special set of laws does not hold in every logically possible world. Hence in worlds in which the causal laws are very different, and therefore in which the microstructure of physical matter is also very different, "Water is H_2O" can be false. The same goes for "Gold is the element with atomic number 79." Therefore, "Water is H_2O" and "Gold is the element with atomic number 79" are not true in every logically possible world in which the stuff that is identical to H_2O and to the element with atomic number 79 in the actual manifestly real world also exist. But according to the doctrine of necessary truth held by defenders of the necessary a posteriori, if an identity statement S between rigidly designating natural kind terms fails to obtain in every world in which the stuff designated by those terms exists, then S is not necessary. So according to the doctrine of necessity held by defenders of the necessary a posteriori, neither "Water is H_2O" nor "Gold is the element with atomic number 79" is necessary, and thus by the very standards held by defenders of the necessary a posteriori, "Water is H_2O" and "Gold is the element with atomic number 79" do not qualify as genuine counter-examples to the classical thesis that necessity entails apriority. That line of criticism seems to me wholly cogent. Thus despite its philosophical popularity, Scientific Essentialism is false.

8. The Kripke-Putnam argument against the analytic-synthetic distinction from the existence of the contingent a priori.

According to Donnellan, Kripke, and Putnam, these statements are all a priori but also contingent:

(SM) Stick S is one meter long at t_0. [According to Kripke.]
(WL) Water is a liquid. [According to Putnam, but not Kripke.]
(CA) Cats are animals. [According to Putnam, but not Kripke.]
(WM) Whales are mammals. [According to Donnellan, but not Kripke.]

This can be shown in the following way. If stick S is the standard meter bar in Paris, then stick S is stipulated by someone to be one meter long because it is the paradigm of a meter, hence it is known a priori to be one meter long by the person who makes the stipulation. Nevertheless it is conceivable and logically possible that stick S could have been longer or shorter than a meter at t_0. In the case of the other three examples, as Kant held, the predicate concept is intensionally contained in the subject concept. So anyone possessing the concept WATER, CAT, or WHALE is also able to infer a priori that water is a liquid, that cats are animals, and that whales are mammals. Nevertheless, it is conceivable and logically possible that water is dry, that cats are robots, and that whales are non-mammals, in possible worlds in which the causal laws of nature are different and in which matter has a very different physical microstructure from that of the actual world. Therefore apriority does not entail necessity. But according to Kant's conception of the analytic-synthetic distinction, necessity and apriority entail each other. And even according to the classical Logical Empiricist conception of the "three nested categories," analyticity entails apriority, and apriority entails necessity. Therefore there is no intelligible or defensible analytic-synthetic distinction.

2 Critical Replies:

(1) It is plausibly arguable that "Stick S is one meter long at t_0" is analytic, necessary, and a priori, precisely because the statement "Stick S is one meter long at t_0" captures at least one natural interpretation or reading of the sentence 'Stick S is one meter in length at t_0' that is analytic, necessary, and a priori. This can be seen in the following four-step way.

First, as I noted earlier, we must distinguish carefully between (i) *sentences*— grammatically and syntactically well-formed indicative complete-thought-expressing units of some natural language L—and (ii) *statements*, or logically structured, linguistically expressed, intersubjectively shareable semantic contents with respect to L that are also inherently truth-bearers with respect to L, such that the one and the same sentence will, as a trivial, internal consequence of the systematic dual-content semantics I am proposing, always be able to express two or more distinct statements. Correspondingly, we must also remember that I am treating the notions of *meaningful indicative sentence*, *sentence-on-an-interpretation*, *sentence-on-a-reading*, *sentence-according-to-a-constative-use*, and *proposition* as all mutually necessarily equivalent with one another, and that as a consequence, these six notions are also all mutually necessarily equivalent:

  (i)   two or more distinct statements made with the same sentence,
  (ii) two or more distinct meanings of the same indicative sentence,
  (iii) two or more distinct interpretations of the same sentence,
  (iv) two or more distinct readings of the same sentence,
  (v)   two or more distinct constative uses of the same sentence, and
  (vi) two or more distinct propositions expressed by the same sentence.

Second, as Kripke explains, the statement "Stick S is one meter long at t_0" means the same as the following statement:

(SM*) The stick now stipulated by someone to be the standard meter bar is one meter in length at t_0.

But "The stick now stipulated by someone to be the standard meter bar is one meter in length at t_0" has the same overall logico-semantic structure—"The F is (a) G"—as the following statements:

(PP)   The current president of the US is a president.
(RR)   The runner is a runner.

Now, each of the sentences used to express these statements has at least one natural interpretation or reading that makes the corresponding statement expressed by that sentence analytically true and a priori. This can be seen if one appends to each of the aforementioned sentences another clause that simply forcibly induces the natural analytic reading:

(PP$_{analytic}$)   The current president of the US is a president, *because it is utterly obvious that every president is a president—what else would a president be?*

(RR*analytic*)   The runner is a runner, *because it is utterly obvious that every runner is a runner—what else would a runner be and do?*

Correspondingly, appending the same sort of "forcible inducing clause" to "The stick now stipulated by someone to be the standard meter bar is one meter in length at t_0" (i.e., SM*) yields the following analytic a priori statement:

(SM*analytic*)   The stick now stipulated by someone to be the standard meter bar is one meter in length at t_0, *because it is utterly obvious that every standard meter bar is a bar that is one meter in length—what other length would a standard meter bar be?*

Therefore, *the sentence* which expresses the statement "Stick S is one meter long at t_0" has at least one natural reading which is analytic a priori—the forcibly induced reading that is represented by

(SM*analytic*)   The stick now stipulated by someone to be the standard meter bar is one meter in length at t_0, *because it is utterly obvious that every standard meter bar is a bar that is one meter in length—what other length would a standard meter bar be?*

But then "Stick S is one meter long at t_0" is also necessary, precisely because it is analytic, just as Kripke says:

I am presupposing that an analytic truth is one which depends on *meanings* in the strict sense and therefore is necessary as well as *a priori*.

Third, it is true, as Kripke also says, that there is *another* natural reading of the sentence 'Stick S is one meter long at t_0' which expresses a contingent statement. According to such a reading, 'Stick S' is interpreted to express a rigid designator. One paradigm of a rigid designator is a proper name. So let us arbitrarily choose a proper name, for instance, 'Zaphod'. Then the contingent statement which expresses the rigid designator reading of 'Stick S is one meter long at t_0' can be represented by:

(SM*rigid designator: 'stick S' = 'Zaphod'*)   Zaphod is one meter in length.

Similarly, 'The current president' and 'The runner' might have been read so as to express rigidly designating definite descriptions, so that the sentences 'The current president of the US is a president' and 'The runner is a runner' then are used to express different, contingent statements. Or, alternatively, those phrases could have been read so as to express definite descriptions, and again express different, contingent statements. But that does *not* justify us in holding that "The current president of the US is a president" and "The runner is a runner" are anything other than analytic, necessary, and a priori, which is made obvious when we forcibly induce the natural analytic readings of the sentences 'The current president of the US is a president' and 'The runner is a runner,' as represented by

(PP*analytic*)   The current president of the US is a president, *because it is utterly obvious that every president is a president—what else would a president be?*

(RR*analytic*)   The runner is a runner, *because it is utterly obvious that every runner is a runner—what else would a runner be and do?*

Similarly, the contingent statement that would be expressed by using 'Stick S' as a rigid designator, namely,

($SM_{rigid\ designator:\ 'stick\ S'\ =\ 'Zaphod'}$)   Zaphod is one meter in length.

obviously and simply is not the same statement as

($SM_{analytic}$)   The stick now stipulated by someone to be the standard meter bar is one meter in length at t_0, *because it is utterly obvious that every standard meter bar is a bar that is one meter in length—what other length would a standard meter bar be?*

Fourth and finally, it follows from the preceding three points that we have no sufficient reason to believe that there is any single statement whatsoever that is both contingent and also a priori. Indeed, by very much the same sort of argument I just used, Kripke concludes that we have no sufficient reason to believe that there is any single statement whatsoever that is both analytic and also contingent:

If statements whose a priori truth is known via the fixing of reference [e.g., "Stick S is one meter long at t_0"] are counted as analytic, then some analytic truths are contingent; this possibility is excluded in the notion of analyticity adopted here.

Therefore if, like Kripke, our conception of analyticity is classical, then there is no sufficient reason for us to believe that "Stick S is one meter long at t_0" is contingent a priori. If "Stick S is one meter long at t_0" is counted as a priori, then it simply has to be analytic and necessary.

(2) The same four-part argument strategy I used in the last few paragraphs can also be used to argue for a precisely analogous conclusion in the other putative cases of the contingent a priori, namely,

(WL)   Water is a liquid.
(CA)   Cats are animals.
(WM)   Whales are mammals.

Here is how that argument will go.

First, we distinguish carefully again between sentences and the statements (meanings, interpretations, readings, constative uses, propositions) expressed by means of those sentences, and recall that according to my systematic dual-content semantics, one and the same sentence will always be able to express two or more distinct statements.

Second, the sentences used to express "Water is a liquid," "Cats are animals," and "Whales are mammals"—namely, 'Water is a liquid,' 'Cats are animals,' and 'Whales are mammals'—each has a natural reading according to which the statement expressed by that sentence is analytic, necessary, and a priori. This can easily be shown by the method of appending the appropriate forcibly inducing sentences in order to yield the natural analytic readings, as follows:

($WL_{analytic}$)   Water is a liquid, *because it is utterly obvious that water is one of the many specific kinds of things that are liquids—how else is water supposed to be identified?*

(CA$_{analytic}$) Cats are animals, *because it is utterly obvious that cats are one of the many specific kinds of things that are animals—how else are cats supposed to be identified?*

(WM$_{analytic}$) Whales are mammals, *because it is utterly obvious that whales are one of the many specific kinds of things that are mammals—how else are whales supposed to be identified?*

Third, the sentences used to express "Water is a liquid," "Cats are animals," and "Whales are mammals" also have a distinct natural rigid-designator reading according to which the statement expressed by that sentence is contingent. Now, the other paradigm of a rigid designator is a natural kind term, and each natural kind term has the same meaning as an arbitrary demonstrative complex mass-term-cum-predicate *that kind of stuff (or: creatures of that kind), normally identified as being such-and-such.* So we can represent the rigid-designator readings of the sentences that express "Water is a liquid," "Cats are animals," and "Whales are mammals," as follows:

(WL$_{rigid\ designator:\ 'water'\ =\ 'that\ kind\ of\ stuff,\ normally\ identified\ as\ being\ a\ wet,\ drinkable,\ etc.,\ liquid'}$) That kind of stuff, normally identified as being a wet, drinkable, and so on, liquid, is a liquid.

(CA$_{rigid\ designator:\ 'cats'\ =\ 'creatures\ of\ that\ kind,\ normally\ identified\ as\ being\ small\ soft-furred\ four-legged\ domesticated\ animals\ of\ the\ species\ Felis\ catus'}$) Creatures of that kind, normally identified as being small soft-furred four-legged domesticated animals of the species *Felis catus*, are animals.

(WM$_{rigid\ designator:\ 'whales'\ =\ 'creatures\ of\ that\ kind,\ normally\ identified\ as\ being\ any\ of\ the\ larger\ marine\ mammals\ of\ the\ order\ Cetacea,\ having\ streamlined\ body\ and\ horizontal\ tail,\ and\ breathing\ through\ a\ blowhole\ on\ the\ head'}$) Creatures of that kind, normally identified as being any of the larger marine mammals of the order Cetacea, having streamlined body and horizontal tail, and breathing through a blowhole on the head, are mammals.

Fourth and finally, according to these two different natural readings—the analytic reading and the rigid-designator reading—the statements expressed in each case are obviously different, hence there is never any single statement whatsoever such that it is both contingent and also a priori.

9. Kaplan's argument against the analytic-synthetic distinction from contingent analyticity in the logic of indexicals.

The interpreted sentences 'I am here now' and 'I am, I exist' are analytic truths of the logic of indexicals. This is because every speech context in which the first-person singular indexical word 'I' is assigned a referent according to the semantic rule for the use of that word—its "indexical character" or semantic role,[98] which can be made explicit as *whoever is here now and using this token of the word-type 'I'*—is also such that it automatically delivers that referent in the very same place and time. Similarly,

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[98] See, e.g., Kaplan, "Demonstratives: An Essay on the Semantics, Logic, Metaphysics, and Epistemology of Demonstratives and Other Indexicals" and "Afterthoughts," pp. 505–07, 520–21, 523–24, 597–99; see also Perry, "The Problem of the Essential Indexical."

every speech context in which 'I' is assigned a referent according to the character of 'I' is also such that it automatically delivers an existing referent. But although it is actually true that, for instance, R. H. is in Seaside, Oregon, on November 26, 2014, and that R. H. is in Oxford, UK, on January 16, 2015, this is also obviously not necessarily the case. Instead, somewhat distressingly, R. H. could have been in Winnipeg, Canada, on any of those days. Or, perhaps even more distressingly, R. H. might not have existed on any of those days. Nevertheless, on both of these days, just in virtue of the logic of indexicals, R. H. says "I am here now" and this comes out true. So even though the statements

(KAP)   I am here now.
(EXISTO)   I am, I exist.

are both *analytic truths* of the logic of indexicals, they are also *contingent* truths. But according to Kant, necessity and apriority entail each other. And according to the classical Logical Empiricist conception of the "three nested categories," analyticity entails apriority, and apriority entails necessity. Therefore there is no intelligible or defensible analytic-synthetic distinction.

2 Critical Replies:

(1) Indexicals are directly referential terms, and so, too, are reference-fixing rigid designators. For this reason, I can directly appeal to the authority of Kripke for an argument against the very idea of analytic contingent statements. As we saw previously, Kripke disallows the semantic category of analytic contingent statements (i) because he accepts the classical conception of analyticity, and (ii) because he also sharply distinguishes between analytic statements and statements that express rigid-designator readings of referring words in the sentences that express those statements:

I am presupposing that an analytic truth is one which depends on *meanings* in the strict sense and therefore is necessary as well as *a priori*. If statements whose a priori truth is known via the fixing of reference are counted as analytic, then some analytic truths are contingent; this possibility is excluded in the notion of analyticity adopted here.... I have not attempted to deal with the delicate problems regarding analyticity in these lectures, but I will say that some (though not all) of the cases often adduced to discredit the analytic-synthetic distinction, especially those involving natural phenomena and natural kinds, should be handled in terms of the apparatus of fixing a reference invoked here.

In a precisely analogous way, I hold that no sentence that is used so as to include an *indexical* interpretation or reading of one of its referring words can possibly ever express an analytic statement. Therefore there cannot be any analytic contingent statements.

(2) I can also smoothly extend my argument-strategy in the two critical replies under **8**, to the case of Kaplan's argument from analytic contingent statements. Here is how that extension will go.

First, we distinguish carefully again between *sentences* and the *statements* (meanings, interpretations, readings, constative uses, propositions) expressed by means of those sentences, and we also recall that according to my systematic dual-content

semantics, one and the same sentence will always be able to express two or more distinct statements. Relatedly, we must also distinguish carefully between indexical *words* and indexical *terms*. A word is a sub-sentential, sub-phrasal grammatical and syntactical unit in a natural language, and an indexical word is a word that at least sometimes plays an indexical role in the language. An indexical term, by contrast, is what results from a directly referential interpretation or reading of a given indexical word, and the same indexical word can always receive two or more distinct interpretations or readings; hence there can always be two or more distinct indexical terms associated with the same indexical word.

Second, each of the sentences used to express the statements "I am here now" and "I am, I exist"—namely, 'I am here now' and 'I am, I exist'—has a natural interpretation or reading according to which the statement expressed by that sentence is analytic, necessary, and a priori. This can again be shown by the method of appending appropriate forcibly inducing sentences to those sentences in order to yield the natural analytic readings. The only difference in the case of natural analytic readings of sentences containing indexical words is that the appropriate forcibly inducing sentence is also directly derivable from the indexical character or semantic role of the first-person singular indexical word. So here they are:

> (KAP$_{analytic}$)   I am here now, *because it is utterly obvious that whoever is here now and is using a token of the word-type 'I' is at the very same place and time—where else and when else would the user of that token be?*

> (EXISTO$_{analytic}$)   I am, I exist, *because it is utterly obvious that whoever is here now and is using a token of the word-type 'I' also exists—how else could that token have a user?*

Third, each of the sentences used to express the statements "I am here now" and "I am, I exist" also has a distinct natural indexical reading according to which the statement expressed by that sentence is contingent. As before, the character of the first person singular indexical provides a semantic guide. In order to represent the indexical reading of 'I,' we need only substitute the proper name of the relevant user of the relevant token of the word-type 'I' in the relevant speech-context, and also to make the appropriate grammatical adjustments, as follows:

> (KAP$_{indexical}$)   R. H. is here now.
> (EXISTO$_{indexical}$)   R. H. is, R. H. exists.

Fourth and again finally, according to these two different natural readings—the analytic reading and the indexical reading—the statements expressed in each case are obviously different, hence there is never any single statement whatsoever such that it is both analytic and also contingent. Kaplan's basic mistake was to assert the following false claim about the meaning of indexicals, with the false-making bit underlined:

> **(D3)**   'I' is, <u>in each of its utterances</u>, directly referential.[99]

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[99] Kaplan, "Demonstratives: An Essay on the Semantics, Logic, Metaphysics, and Epistemology of Demonstratives and Other Indexicals," p. 520, underlining added.

It is true that 'I' is, in some of its utterances, directly referential. Indeed, this may even be mostly the case—but only in some of its utterances, and not in each and every one of its utterances. On the contrary, as I have shown, in at least some of its utterances, the first-person singular indexical word 'I' instead expresses an indexical term that means the same thing as its indexical character or semantic role, which is included in a natural analytic reading of the whole sentence in which it occurs, and thus does not mean the referent of the directly referential use of 'I.'

I have now completed my critique of the three post-Quinean dogmas: namely, that there are necessary a posteriori statements, that there are contingent a priori statements, and that there are analytic contingent statements. In fact, there are no such things. Or in other words, to play two short riffs—the riffs are indicated in italics—on Quine's lovely phrases:

For all its a priori reasonableness, a gap between *analytic, necessary, and a priori* statements simply has not been established. That there is such a gap to be established at all is an unsupported dogma of *post-Quinean followers of the fictional conjoined philosopher Kripke-Putnam and/or the real-life philosophers Donnellan and Kaplan*, a metaphysical article of faith.

4.6 Back to Kant! All Over Again

"Back to Kant!" was the rallying cry of the mid-to-late 19th- and early 20th-century neo-Kantians.[100] Contemporary Kantian philosophy, as I am practicing it, is not "neo-Kantianism" in this classical, historical sense. But I *am* claiming that contemporary mainstream Analytic philosophy can critically engage with, learn from, and profit by Kantian doctrines and insights. So it is important to see that Kant's original theory of the analytic-synthetic distinction[101] had five goals.

First, he wanted to use the categorically sharp analytic-synthetic distinction in order to justify his content dualism, which holds that there are two essentially distinct but complementary kinds of intentional content or mental content, namely, (i) concepts (*Begriffe*), and (ii) intuitions (*Anschauungen*). Kantian "intuitions" are, for our purposes, the same as what I have been calling "autonomous essentially non-conceptual contents." Correspondingly, analyticity is grounded on conceptual content and syntheticity is grounded on intuitional content.

Second, Kant wanted to explain the nature of necessary truth in terms of the notion of truth in all possible worlds, where a "possible world" is just a complete consistent set of different conceivable ways the actual world could have been.

Third, Kant wanted to explain the inherent modal difference, or modal dualism, between (3.1) logically, conceptually, or weakly metaphysically necessary truths (aka "analytic a priori truths"), for example, the necessary truths of pure general logic and conceptual analysis, and (3.2) non-logically, essentially non-conceptually, or strongly metaphysically necessary truths (aka "synthetic a priori truths"), for example, the necessary truths of arithmetic, geometry, natural science, and metaphysics. More precisely, he wanted to explain modal dualism in terms of the inherent difference

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[100] See, e.g., Köhnke, *The Rise of Neo-Kantianism*.
[101] See Hanna, *Kant and the Foundations of Analytic Philosophy*, esp. chs. 3–5.

between (3.1.1) necessary truth in virtue of pure concepts or empirical concepts—truths about the kind of necessity that flows from the nature of concepts—and (3.1.2) necessary truth in virtue of non-empirical/pure/a priori formal autonomous essentially non-conceptual contents—truths about the kind of necessity that flows from the immanent structures of things in the manifestly real world, as represented by formal autonomous essentially non-conceptual contents.

Fourth, Kant wanted to explain the nature of a priori or non-empirical knowledge of both analytic a priori and synthetic a priori propositions in terms of the innately specified cognitive capacities, or "faculties" (*Vermögen*), required to generate and grasp concepts and autonomous essentially non-conceptual contents—in terms of sensibility, understanding, apperception, reason, imagination, and judgment, which (along with the faculty of desire, or the will, and practical reason) are jointly constitutive of human rationality.

Finally, **fifth**, Kant wanted to explain the nature and status of logic in terms of analytic a priori propositions, analytic a priori knowledge, and human cognitive and practical rationality.

In short, then, Kant held that his theory of the analytic-synthetic distinction in terms of mental content and human rationality would also yield adequate explanations and/or vindications of (i) content dualism, (ii) necessary truth, (iii) modal dualism, (iv) a priori knowledge, and (v) the nature and status of logic.

What I want to argue now, in the rest of this chapter and in chapter 5, is that a contemporary Kantian theory of the analytic-synthetic distinction, as truth in virtue of either conceptual content (analytic truth) or else autonomous essentially non-conceptual content (synthetic truth), together with a robust theory of human cognitive and practical rationality, can coherently and defensibly perform all five explanatory and/or vindicatory jobs. As I mentioned earlier, I call this The Content-and-Rationality Theory of the Analytic-Synthetic Distinction and Modal Dualism. Then, in chapters 6 to 8, I will add to The Content-and-Rationality Theory of the Analytic-Synthetic Distinction and Modal Dualism a corresponding categorical-epistemology-based, contemporary Kantian neo-rationalist theory of rational intuitions and a priori knowledge in mathematics, logic, and philosophy. And that will complete the arc of basic issues and topics in this book, from the nature of rational human cognition and its mental or intentional content, through the nature of a priori truth and knowledge, and back again.

4.7 The Content-and-Rationality Theory of the Analytic-Synthetic Distinction and Modal Dualism

From a contemporary Kantian point of view, the analytic-synthetic distinction, as I have said, is nothing more and nothing less than the categorically sharp contrast between (i) necessary truth in virtue of conceptual content, such that this content is always taken together with some things in the manifestly real world beyond conceptual content, although its truth is never in virtue of those worldly things, and (ii) necessary or contingent truth in virtue of things in the manifestly real world beyond conceptual content, as represented by autonomous essentially non-conceptual

content, such that this content is always taken together with some conceptual content, although its truth is never in virtue of conceptual content. The Content-and-Rationality Theory of the Analytic-Synthetic Distinction and Modal Dualism, in a nutshell, thus says that conceptual content constitutes only one part of intentional content or mental content, and that the necessary truth of statements happens in two inherently different ways: **first**, as necessary truth in virtue of conceptual content (analyticity), and **second**, as necessary truth in virtue of non-empirical/pure/a priori formal autonomous essentially non-conceptual content (synthetic necessity), both of which are knowable a priori by us.

Now, material autonomous essentially non-conceptual content directly refers to things in the manifestly real world as such, and formal autonomous essentially non-conceptual content directly refers to the immanent structures of things in the manifestly real world. Hence synthetically necessary statements, which are true in virtue of non-empirical/pure/a priori formal autonomous essentially non-conceptual content, are truths about the necessity that flows from the nature of the immanent structures of things in the manifestly real world, via autonomous essentially non-conceptual content. Correspondingly, analytic statements, which are true in virtue of conceptual content, are truths about the necessity that flows from the nature of concepts. And both analytically and synthetically necessary statements are knowable a priori by us. By contrast, synthetic a posteriori true statements, which, like synthetic a priori statements, are also true in virtue of autonomous essentially non-conceptual content, are truths about the brute contingent facts that are just "given" by things in the manifestly real world, as represented by autonomous essentially non-conceptual content, Such truths are High-Bar perceptually knowable by us by means of direct, veridical sense perception, according to the radically naïve realism I developed and defended in chapter 3.

My defense of The Content-and-Rationality Theory of the Analytic-Synthetic Distinction and Modal Dualism consists in my unpacking, explaining, and justifying the truth of four basic claims:

(1) The Content-and-Rationality Theory of the Analytic-Synthetic Distinction and Modal Dualism provides an adequate explanation of the analytic-synthetic distinction that fully supports both Kant's Pitchfork and Modal Dualism.

(2) The Content-and-Rationality Theory of the Analytic-Synthetic Distinction and Modal Dualism is strongly supported by all twenty-six of the critical replies to the nine Quinean and post-Quinean arguments against the analytic-synthetic distinction.

(3) All other recent theories of analyticity—and in particular, Boghossian's, Katz's, Gillian Russell's, and Juhl's and Loomis's theories—are merely theories of *schmanalyticity*, not theories of analyticity.

(4) The Content-and-Rationality Theory of the Analytic-Synthetic Distinction and Modal Dualism provides an adequate explanation of the nature and status of logic.

It is essential to note that I am not arguing here that The Content-and-Rationality Theory of the Analytic-Synthetic Distinction and Modal Dualism is true because

Kant's Pitchfork and Modal Dualism are true, and that Kant's Pitchfork and Modal Dualism are true because The Content-and-Rationality Theory of the Analytic-Synthetic Distinction and Modal Dualism is true. That obviously would be viciously circular. What I am arguing here, rather, is that if Kant's Pitchfork and Modal Dualism are true, then The Content-and-Rationality Theory of the Analytic-Synthetic Distinction and Modal Dualism is at least partially confirmed by its being able to explain and/or vindicate them. That is certainly not viciously circular. And if it is in any sense circular, it is only the "virtuous circularity" of a sound inference to the best philosophical explanation, which in turn, I will argue, is a transcendental explanation. Furthermore, I have already argued for the truth of Kant's Pitchfork and Modal Dualism in *Kant and the Foundations of Analytic Philosophy* (chapters 4–5), *Kant, Science, and Human Nature* (chapter 5), and *Embodied Minds in Action* (chapter 7). But in any case, if the four basic claims I listed at the beginning of this paragraph are all true, then I can legitimately infer the truth of The Content-and-Rationality Theory of the Analytic-Synthetic Distinction and Modal Dualism by a sound inference-to-the-best-philosophical-explanation, which non-accidentally turns out to be, as I will argue, a sound transcendental explanation.

Claims (2) and (3) have already been explicitly supported in full detail. All that remains, then, is for me to provide explicit, fully detailed support for (1) and (4). In the rest of this chapter I will do this for (1) by carefully presenting The Content-and-Rationality Theory of the Analytic-Synthetic Distinction and Modal Dualism in eight steps, and then applying it to some examples. A leading feature of The Content-and-Rationality Theory of the Analytic-Synthetic Distinction and Modal Dualism is that the notion of a synthetic a priori truth provides the semantic foundations of a new and plausible theory of inference-to-the-best-explanation, itself, which completes my attempt to fuse together the very ideas of sound inferences-to-the-best-explanation, sound transcendental arguments, and sound transcendental explanations. My fundamental thesis in this connection is that, necessarily, every sound transcendental explanation is the result of a sound inference-to-the-best-explanation, and every sound inference-to-the-best-explanation is the result of a sound transcendental explanation. Then in chapter 5, as an instance of a sound inference-to-the-best-philosophical-explanation, I will also provide explicit, fully detailed support for (4), against the backdrop of the theory of logic I presented in *Rationality and Logic*.

Step 1, A Theory of Concepts.

The theory of concepts I am proposing is The Logical Cognitivist Theory of Concepts, as I spelled it out and defended it in section 2.3.

Step 2, A Theory of Essentially Non-Conceptual Content.

Corresponding to The Logical Cognitivist Theory of Concepts, the theory of essentially non-conceptual content that I am proposing is Kantian Non-Conceptualism, as I spelled it out and defended it in sections 2.4 to 2.9.

For the purposes of Step 3, it will be convenient to repeat my analysis of an essentially non-conceptual content of perception as I presented it in section 2.4. According to this analysis, X is an essentially non-conceptual content of perception if and only if X

is a mental content such that: (i) *X* is *not* a conceptual content, as defined by The Logical Cognitivist Theory of Concepts. (ii) *X* is included in a mental state, act, or process that directly refers to some or another causally efficacious, actual individual, macroscopic material being *B* in the local or distal natural environment of the minded animal subject of *X*. (iii) *B* can be identical to the minded animal whose mental state, act, or process includes *X*—that is, *X* can directly self-refer. (iv) *X* thereby both uniquely (if not always perfectly accurately) locates *B* in three-dimensional Euclidean orientable space and also uniquely (if not always perfectly accurately) tracks *B*'s thermodynamically asymmetric and temporally irreversible causal activities in time. (v) This location and tracking is undertaken in order to individuate, normatively guide, and informationally mediate the subject's conscious intentional desire-driven body movements for the purposes of cognitive and practical intentional agency. And finally (vi) *X* is an inherently context-sensitive, egocentric or first-person-perspectival, spatiotemporally structured content that is not ineffable, but instead is shareable or communicable in a special way. More precisely, this special kind of shareability or communicability obtains only to the extent that another ego or first-person is in a cognitive position to be actually directly perceptually confronted, or otherwise essentially non-conceptually confronted (say, in episodic memory or episodic imagination), by the same causally efficacious actual individual macroscopic material being *B*, in a spacetime possessing the same basic three-dimensional Euclidean orientable, thermodynamically asymmetric, and temporally irreversible structure. Then in section 2.5, I argued step by step for a crucial corollary thesis I called *The Autonomy of Essentially Non-Conceptual Content*:

Whether in the intentional states of non-human animals, human infants, or rational human cognizers, some essentially non-conceptual content that is altogether concept-free (where concepts are understood as per The Logical Cognitivist Theory of Concepts) really exists.

Step 3, A Theory of Material Autonomous Essentially Non-Conceptual Contents vs. Formal Autonomous Essentially Non-Conceptual Contents.

Kant's Transcendental Aesthetic provides a general theory of *empirical intuitions* and *pure intuitions*.[102] Corresponding to that, in my account there is a basic distinction between *material* (i.e., empirical/a posteriori) autonomous essentially non-conceptual contents and *formal* (i.e., non-empirical/a priori) autonomous essentially non-conceptual contents. This distinction, in turn, obviously parallels the distinction between material concepts and formal concepts in The Logical Cognitivist Theory of

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[102] Kant draws a subtle distinction, within the total class of pure intuitions, between *forms of intuition* and *formal intuitions*. See Hanna, *Kant, Science, and Human Nature*, chs. 2 and 6. Forms of intuition are autonomous essentially non-conceptual representations of space and time that do not imply the existence of a further capacity for self-consciousness, whereas formal intuitions are essentially non-conceptual representations of space and time that *do* imply the existence of a further capacity for self-consciousness: hence formal intuitions are *non*-autonomous essentially non-conceptual contents, and presuppose the categories. That difference, which is crucial to the Transcendental Deduction of the Categories in the B edition of the first *Critique*, will not matter for purposes of The Content-and-Rationality Theory of the Analytic-Synthetic Distinction and Modal Dualism. But for an in-depth discussion of that difference, see Onof and Schulting, "Space as Form of Intuition and as Formal Intuition. On the Note to B160 in Kant's *Critique of Pure Reason*."

Concepts, or in Kant's terminology, the distinction between *empirical concepts* and *pure concepts*.

Drawing directly on material I presented in section 2.5, here is an explicit version of the distinction between material autonomous essentially non-conceptual contents and formal autonomous essentially non-conceptual contents:

A mental content C is *material*, empirical, or a posteriori if and only if the existence and specific character of C are necessarily or constitutively determined by any or all empirical facts.

A mental content C is *formal*, non-empirical, or a priori if and only if the existence and specific character of C are necessarily and constitutively underdetermined by, and in effect, neither necessarily nor constitutively determined by, any or all empirical facts.

X is a *material autonomous essentially non-conceptual content* if and only if (i) X is a material mental content as defined earlier, and (ii) X is an autonomous essentially non-conceptual content of perception, as defined in Step 2.

X is a *formal autonomous essentially non-conceptual content* if and only if (i) X is a formal mental content as defined immediately above, (ii) X is an autonomous essentially non-conceptual content, as defined in Step 2, and (iii) X is a formal modifier of or operator on some material autonomous essentially non-conceptual contents, including spatial modifiers/operators, temporal modifiers/operators, dynamic spacetime modifiers/operators, and mathematical modifiers/operators, such that X directly refers to some determinate spatial structure, temporal structure, causal-dynamic structure, or mathematical structure. In particular, formal autonomous essentially non-conceptual contents include Kaplan's indexical characters and Perry's semantic roles.

Step 4, A Systematic Dual-Content Semantics that Postulates Two Basic Kinds of Linguistic Use, Two Basic Kinds of Semantic Content, and Three Basic Kinds of Semantic Terms.

According to The Content-and-Rationality Theory of the Analytic-Synthetic Distinction and Modal Dualism, linguistic use determines the interpretations or readings of words and sentences. Use, in turn, can in principle be determined by the practices of actual individual users of a natural language (whether speaker or audience), by the practices of actual natural language communities, or by the practices of generic, idealized users.

But in any case, there are two basic kinds of use, and two basic kinds of semantic content:

X is **a conceptual (aka "non-acquaintive" or "purely descriptive") use** of some grammatically well-formed word or phrase or sentence if and only if X maps that word or phrase or sentence to a material concept or formal concept as its linguistic meaning.

X is **an essentially non-conceptual (aka "acquaintive" or "directly referential") use** of some grammatically well-formed word or phrase or sentence if and only if X maps that word or phrase or sentence to a material autonomous essentially non-conceptual content or formal autonomous essentially non-conceptual content as its linguistic meaning.

Correspondingly, there are three different basic kinds of terms built up from the two basic kinds of content, by means of the two basic kinds of use and one "combinatory" use:

 (i) **descriptive terms**, or language used according to the conceptual or purely descriptive use—
for instance, predicate terms like "hand," "philosopher," or "red,"

 (ii) **directly referential terms**, or language used according to the essentially non-conceptual or directly referential use—
for instance, proper names like "Kant," or indexical terms like "this" and "I," and

 (iii) **hybrid terms**, or language such that its use is a systematic combination of the conceptual or purely descriptive use and the essentially non-conceptual or directly referential use—thus the meaning of a hybrid term is a *semantic composite* consisting of both a purely descriptive component and a directly referential component—
for instance, **natural kind terms** like "water" or "cats," **indexical predicates** like "that color" or "that animal," Kripke's **reference-fixing rigidly designating descriptions** like "stick *S*," and **mathematical terms** like "prime number," and "orientable three-dimensional space."

Descriptive terms taking material concepts as meanings are called *descriptors*, including definite descriptions, indefinite descriptions, mass terms, predicates, and verbs. Descriptive terms taking formal concepts as meanings are called *functors*, including logical functors and natural language functors.

Directly referential terms taking material autonomous essentially non-conceptual contents as meanings are called *indicators*, including proper names, plural names, demonstratives, and other indexicals. And directly referential terms taking formal autonomous essentially non-conceptual contents as meanings are called *relators*, including spatial words, temporal words, causal words, words about change, development, force, or motion, and mathematical words.

As I indicated earlier, the class of hybrid terms is somewhat of a big tent. More precisely however, the class of hybrid terms includes:

 (i) **natural kind terms**, which mix demonstratives, mass terms, and indefinite descriptions, and mean the same as *that kind of stuff (or: creatures of that kind), normally identified as being such-and-such*—
for instance, "water," which means the same as *that kind of stuff, normally identified as being a wet, drinkable, and so on, liquid*, or "cats," which means the same as *creatures of that kind, normally identified as being small soft-furred four-legged domesticated animals of the species Felis catus*,

 (ii) **indexical predicates**, which mix demonstratives and indefinite descriptions, and mean the same as *that kind of F*—
for instance, "that color" or "that animal,"

 (iii) Kripke's **reference-fixing rigidly designating descriptions**, which are the same as Donnellan's referential definite descriptions,[103] and also as Kaplan's "dthat" descriptions,[104] which mix indexicals and definite descriptions—
for instance, "stick *S*," "the man with the martini," or "dthat [the man with the martini]," and

 (iv) **mathematical terms**, which mix mathematical relators and logical functors—
for instance, "prime number," and "orientable three-dimensional space."

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[103] See Donellan, "Reference and Definite Descriptions."   [104] See Kaplan, "Dthat."

Finally, **statements** are the composite, logically structured, linguistically expressed, intersubjectively shareable contents that are inherently bearers of truth-values and are systematically built up out of descriptive terms (descriptors and functors), directly referential terms (indicators and relators), and hybrid terms (natural kind terms, indexical predicates, Kripke's reference-fixing rigidly designating descriptions, and mathematical terms) as proper parts, according to universal a priori categorically normative grammatical, logical, and semantic rules.[105] As I have mentioned already, for my purposes here, statements are also the same as the meanings of indicative sentences, interpretations-of-sentences, sentences-on-readings, constative uses of sentences, and propositions.

Step 5, A Theory of Truth with Special Application to the Analytic-Synthetic Distinction.

In his discussion of the analytic-synthetic distinction, Williamson compellingly argues that the nature of truth is exactly the same, or unitary, across analytic truth and synthetic truth.[106] Let us assume that this is so, and then ask, what is this unitary phenomenon called 'truth'?

Tarski wrote two fundamental papers about the semantic conception of truth.[107] In the more formally rigorous of these, he proposes this by way of an informal explication of the nature of truth:

a true sentence is one which says that the state of affairs is so and so, and the state-of-affairs indeed is so and so.

He then says, by way of qualification:

From the point of view of formal correctness, clarity, and freedom from ambiguity of the expressions occurring in it, the above formulation leaves much to be desired. Nevertheless its intuitive meaning and general intention seem to be quite clear and intelligible.[108]

Tarki's remarks here seem to me to be entirely correct. Now, a state of affairs' indeed-being-so-and-so is the same as a state of affairs' *obtaining*. Therefore, both for Tarski and for me (assuming my earlier caveats about the notion of a statement), the following formulation provides a clear and intelligible intuitive characterization of the nature of truth:

(**TRUTH**)   The statement "S" is true if and only if the state of affairs that S obtains.

A state of affairs that S is whatever is precisely described or otherwise precisely picked out by a meaningful statement "S." Then the state of affairs that S, together with its obtaining, jointly constitute what I will call *the truth-maker of a statement "S."* In turn, I will also say that a true statement *corresponds to* the truth-maker of that statement. Since this notion of a truth-maker and this notion of correspondence are

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[105] See Hanna, *Rationality and Logic*, esp. chs. 4–7.
[106] See Williamson, *The Philosophy of Philosophy*, ch. 3.
[107] See Tarski, "The Concept of Truth in Formalized Languages"; and Tarski, "The Semantic Conception of Truth and the Foundations of Semantics."
[108] Tarski, "The Concept of Truth in Formalized Languages," p. 155.

each merely re-wordings of what is originally specified by (**TRUTH**), they add no further information to the classical Tarskian informal characterization of the nature of truth, and in particular, they add no further information whatsoever of a meta-physical or epistemic character. So all that I am talking about here are the classical Tarskian truth-maker and the classical Tarskian correspondence-relation.

According to this classical Tarskian conception of states of affairs, truth, truth-makers, and the correspondence-relation, there is no significant difference between "positive" states of affairs and "negative" states of affairs. That is, if the statement we are considering is the statement (Cpos) "Cats grow on trees," then the application of (**TRUTH**) to (Cpos) yields

The statement "Cats grow on trees" is true if and only if the state of affairs that cats grow on trees obtains.

And if the statement we are considering is (Cneg) "Cats do not grow on trees," then the application of (**TRUTH**) to (Cneg) yields

The statement "Cats do not grow on trees" is true if and only if the state of affairs that cats do not grow on trees obtains.

It is entirely unproblematic for classical Tarskian reasons, I think, that positive states of affairs can obtain in the world and that negative states of affairs can obtain in the world, and also that positive and negative statements, respectively, can truly describe them, and thus correspond to them. Hence it is entirely unproblematic for classical Tarskian reasons, I think, that there can be positive truth-makers and negative truth-makers. Obviously, when a statement is false, that is because a certain state of affairs, as described by that statement, just fails to obtain in the world, and precisely nothing in the world corresponds to that false statement.

It thus seems to me obvious that, assuming the soundness of Williamson's argument, the property of being a state of affairs remains exactly the same across analytic truth and synthetic truth, just as it remains exactly the same across the truth of positive statements and the truth of negative statements. It also seems to me obvious that the property of obtaining also remains exactly the same. Therefore, as a type, the truth-maker of analytic truths and synthetic truths remains exactly the same, and also as a type, the correspondence of analytic truths and synthetic truths to their truth-makers remains exactly the same. Now, the basic constituents of states of affairs—and thereby also the basic constituents of truth-makers—include manifestly real individuals, events, properties, relations, and structures. These manifestly real individuals, events, properties, relations, and structures can be small-scale or large-scale; and the manifestly real properties, relations, and structures in which manifestly real individuals and events stand can be either positive or negative. This basic constituency, too, as a type, it seems to me, remains exactly the same across analytic truths and synthetic truths. The only thing that differs as between analytic truths and synthetic truths is that the basic constituents of their truth-makers are related to one another in two categorically different ways, such that these two categorically different ways are none other than precisely those ways that are specified by the differing semantic contents of true analytic statements and true synthetic statements.

So to summarize and repeat what I have just argued: According to (**TRUTH**), truth is a statement's correspondence to an obtaining state of affairs—to its truth-maker—whether

that obtaining state of affairs or truth-maker is positive or negative. Not only the nature of truth, but also the nature of the truth-makers of true statements, the nature of the correspondence-relation, as well as the nature of the basic constituents of the truth-makers, all remain exactly the same across the analytic-synthetic distinction. The only difference between analytic truth and synthetic truth is how the categorically different kinds of semantic content of true analytic statements and true synthetic statements differently specify the relations between the basic constituents of the truth-makers to which true analytic statements and true synthetic statements correspond.

For example, in the case of the true analytic statement "Bachelors are un-married," the basic constituent properties of its truth-maker are so related that a manifest property P_1 (= being unmarried) is a "determinable" and a manifest property P_2 (= being a bachelor) is one of P_1's "determinates." Or in other words, P_1 is necessarily "contained in" P_2. And in the case of the true analytic statement "Cats are animals," the basic constituent properties of its truth-maker are so related that the cross-possible-worlds extension, or "comprehension," of a manifest property P_2 (= being a cat) is a proper part of the cross-possible-worlds extension or comprehension of a manifest property $P1$ (= being an animal). Or in other words, P_2 is necessarily "contained under" P_1. In both of these cases, although for different reasons, either property P_1 logically supervenes on property P_2 or property P_2 logically grounds property P_1 and this modal-metaphysical relation between them thereby adequately explains the specific truth-making character of the truth-makers of which they are basic constituents. And it also partially vindicates the classical containment-theory of analyticity. As we will see immediately, however, although "containment" (whether "containment-in" or "containment-under") is indeed a sufficient condition of analyticity, nevertheless "containment" is not a necessary condition of analyticity.

Step 6, A Theory of Analytically (aka "Logically," "Conceptually," or "Weakly Metaphysically") Necessary A Priori Truth.

The basic notion of analyticity, as I have mentioned already, is that analytically necessary truth is truth about the kind of necessity that flows from the nature of concepts, and the primary implication of this basic notion for our purposes is that analyticity is knowable a priori by rational human minded animals. Now, conceptual content, obviously, immediately connects us to our concepts and to our conceptual capacities. So analytic necessity is necessary truth in virtue of conceptual content, and this is knowable a priori by means of the conceptual capacities of rational human minded animals—real human persons.

Here is what I will call the *content-based* definition of analyticity according to The Content-and-Rationality Theory of the Analytic-Synthetic Distinction and Modal Dualism:

A statement S is an analytic truth if and only if S is necessarily true either in virtue of the material concepts belonging to S's content (whether by **intensional containment** or by **holistic networking**) or in virtue of the formal concepts belonging to S's content (i.e., by **logic**), regardless of the other semantic constituents of S, and regardless of the logical form of S.[109]

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[109] Many thanks to Stephen Steward for helping me get clearer, in this connection, on the role of logical form.

The notion of **intensional containment** means that in propositions of categorical (subject-predicate) form, either

(i) the subject concept is a *determinate concept* under the predicate-concept, which in turn is its *determinable concept*,[110] such that either the predicate concept logically supervenes on the subject concept or the subject concept logically grounds the predicate concept— for instance, BACHELOR and MALE,

or

(ii) there is an essential set-theoretic[111] relation between the cross-possible worlds extension or comprehension of the subject-concept and the comprehension of the predicate-concept, such that either

(iia) the comprehension of the subject-concept and the predicate-concept are identical—

for example, FURZE and GORSE,

or else

(iib) the comprehension of the subject-concept is a proper part of the comprehension of the predicate—

for example, CAT and ANIMAL.

Here it should be particularly noted that I am identifying material concepts with material conceptual intensions, or fine-grained conceptual intensions, which in turn directly and uniquely pick out properties in the manifestly real world, whether formal properties or material properties. So the mapping from concepts to manifestly real properties is one-to-one. For other logico-semantic purposes, it is useful to extend the notion of a concept to modes of presentation of properties, and for these purposes to identify concepts with hyper-fine-grained conceptual intensions, so that the mapping from concepts to properties is many-to-one.

But the crucial point here is that no material concepts have null comprehensions, hence no genuine analytic statements true by **intensional containment** can be correctly formed using constituent cognitive-semantic items, purporting to be genuine material concepts, that have null comprehensions, even despite superficial cognitive-semantic appearances to the contrary. For example, *none* of the following statement-like items, despite superficial cognitive-semantic appearances to the contrary, count as genuine analytic statements:

Cats that are not cats, are cats.
Non-cats that are cats, are cats.
Cats that are not cats, are not cats.

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[110] The distinction between "determinables" and "determinates" derives from W. E. Johnson's *Logic*, part I, ch. 11. See also Sandford, "Determinates vs. Determinables."

[111] For me, sets are the same as partial or complete comprehensions of concepts, and also of the properties corresponding to those concepts. Conceptual intensions strictly determine their comprehensions; therefore comprehensions logically supervene on concepts. This means that sets, as partial or complete comprehensions, are *conceptually determined* entities, and thereby they are also *intensional* entities, without strictly speaking *being* concepts or conceptual intensions. This peculiar "in between" status of sets has led to many deep problems and puzzles in the philosophy of set theory. See, e.g., Potter, *Set Theory and Its Philosophy*.

Non-cats that are cats, are non-cat cats.
Round squares are round.
Round squares are square.
Round squares are round and square.
Two-sided polygons are two-sided.
Two-sided polygons are polygons.
Two sided polygons are two-sided polygons.
Colorless green ideas are colorless.
Colorless green ideas are green.
Colorless green ideas are ideas.
Colorless green ideas are colorless green ideas.
Quadruplicity that drinks procrastination, is quadruplicitous.
Quadruplicity that drinks procrastination, drinks procrastination.
Quadruplicity that drinks procrastination, drinks.
Quadruplicity that drinks procrastination, is quadruplicity that drinks procrastination.
And so on.

More generally, given the cognitive-semantic definitions of a material concept and of analyticity by **intensional containment**, no syntactically well-formed statement-like item that contains a cognitive-semantic item, purporting to be a material concept, in either its subject-place or its predicate-place, that has null comprehension, whether due to logical impossibility, conceptual impossibility, metaphysical impossibility, or sortal incorrectness (or some combination of those, like "colorless green ideas," which is both conceptually impossible via "colorless green" and sortally incorrect via "green ideas") will count as analytic. This is due to condition (vic) on concepts in The Logical Cognitivist Theory of Concepts, **the world-anchoring condition**, according to which "every material concept picks out at least one *in rebus* manifest property or relation." To prevent confusions, I will call merely purported material concepts that fail this condition *pseudo-material concepts* and such merely statement-like items *pseudo-analytic*. Given (**TRUTH**), as spelled out in Step 5 of The Content-and-Rationality Theory of the Analytic-Synthetic Distinction and Modal Dualism, and in view of the fact that pseudo-material concepts fail to specify any states of affairs or truth-makers whatsoever, it follows that pseudo-analytic items lack a truth-value, and thereby count as "truth-value gaps."

The tricky issue of pseudo-material concepts and truth-value gaps in relation to analyticity also raises the perhaps even trickier issue of how to think about apparent analytic statements of categorical form containing material concepts that lack an actual-world extension but also have a non-null cross-possible-worlds extension or comprehension—fictional material concepts. Consider, for example,

Cats that grow on trees, are cats.
Cats that grow on trees, grow on trees.
Cats that grow on trees, are cats that grow on trees.
Flying pigs fly.
Flying pigs are pigs.
Flying pigs are flying pigs.
And so on.

A similar problem arises for cases of apparent analytic statements containing fictional or otherwise non-referring singular terms and definite descriptions, for example,

(PB)   If Mr. Pickwick is a bachelor, then he is unmarried.
(PKFB)   If the present king of France is a bachelor, then he is unmarried.
And so on.

What I want to say is that each of these sentences has at least one natural reading, namely the reading that is according to their conceptual or purely descriptive use, that makes them into genuine analytically true statements. The fictionality of a material concept does not itself violate **the world-anchoring condition** and consequently it also does not itself undermine the meaningfulness of material concepts. Correspondingly, in the special cases I just cited of the two apparent analytic statements "If Mr. Pickwick is a bachelor, then he is unmarried" and "If the present king of France is a bachelor, then he is unmarried" containing fictional or otherwise non-referring singular terms and definite descriptions, according to the conceptual or purely descriptive use of the sentences used to express those statements, they can be read as roughly synonymous, or at least necessarily equivalent, with the following:

If anything pickwickian is a bachelor, then it is unmarried.
If anything presently alive and a king and French and also uniquely such, is a bachelor, then it is unmarried.

Of course it is *also* possible to give "If Mr. Pickwick is a bachelor, then he is unmarried" and "If the present king of France is a bachelor, then he is unmarried" either (i) a classical Fregean fictionalist reading, which would assign those statements a merely fictional truth-value, or (ii) a classical Strawsonian presuppositional reading, which would assign the corresponding statements a truth-value gap, or (iii) a classical Russellian definite-description reading, which would assign the corresponding statements the value of contingent falsity. But the real possibility of those readings is not itself directly germane to the theory of analyticity, since none of them yields a statement that purports to be either analytically true or analytically false.

The notion of **holistic networking** also needs to be explained. This, in turn, will require three small sub-steps of explication.

First, I will say that concepts C_1, C_2, $C_3 \ldots Cn$ all *belong to the same holistic conceptual network N* if and only if (i) all of the C_i are ordered in N, and (ii) each C_i completes its conceptual content only in the context of all the other conceptual members of N, and in the very same order as its occurrence in N—which is the same as to say that each C_i is *completed by N*.

Second, I will say that a concept C is *rejected by a holistic conceptual network N* if and only if (i) C does not belong to N, and (ii) either C's contrary negation not-C belongs to N or C's contradictory negation non-C belongs to N.

And **third**, I will say that a concept C is *accepted by a holistic conceptual network N* if and only if C neither belongs to N nor is rejected by N.

Then the definition of analyticity in terms of **holistic networking** runs as follows.

A statement S is analytic in virtue of **holistic networking** if and only if (i) S is necessarily true, and (ii) each of S's constituent concepts C_i either (iia) belongs to the same holistic conceptual network N, or (iib) is accepted by N.

Here is an example. Consider this statement:

(BEATLES)   If John is taller than Paul, and Paul is taller than George, and George is taller than Ringo, then Ringo is shorter than John.

The conceptual network corresponding to (BEATLES) is

<X_1'S BEING TALLER THAN X_2, X_2'S BEING TALLER THAN X_3, X_3'S BEING TALLER THAN X_4, X_4'S BEING SHORTER THAN X_1>.

Clearly, each C_i is completed, in the order in which it occurs, by the (BEATLES) conceptual network, hence each C_i belongs to the (BEATLES) network, and (BEATLES) is obviously necessarily true. So (BEATLES) is analytic.

Corresponding to the content-based definition of analyticity is the criterion of analyticity. So here is the criterion of analyticity according to the Content-and-Rationality Theory:

A statement S is an analytic truth if and only if the denial of S entails either an **intensional contradiction** or **a logical contradiction in first-order monadic logic** (see section 5.2 for the definition of "first-order monadic logic"), regardless of the other semantic constituents of S, and regardless of the logical form of S.

The notion of an **intensional contradiction** means two things. **First**, it means that in statements of categorical form, there is either (i) a formal contradiction between the intensional attributes of the subject and the predicate, both of which are material concepts—

e.g., BACHELOR vs. NOT-MALE, or BACHELOR vs. NON-MALE,

or (ii) a set-theoretic relation between the comprehensions of the subject-concept and the predicate-concept, both of which are material concepts, such that they *formally exclude* each other by some form of negation—

e.g., FURZE vs. NOT-GORSE, or FURZE vs. NON-GORSE, or NOT-FURZE vs. GORSE, or NON-FURZE vs. GORSE, or CAT vs. NOT-ANIMAL, or CAT vs. NON-ANIMAL,

or (iii) a set-theoretic relation between the comprehensions of the subject-concept and the predicate-concept, both of which are material concepts, such that they *materially exclude* each other by never sharing any parts of their comprehensions in any logically possible world—

e.g., (All or some) squares are circles, (All or Some) circles are squares, (All or some) triangles have five sides, (All or some) five-sided polygons are triangles, (All or some) polygons are single straight lines, (All or some) single straight lines are polygons, (All or some) bachelors are married, (All or some) married people are bachelors, (All or some) cats are inanimate, (All or some) inanimate things are cats.

And **second**, it means that in statements of relational form, one or more of the concepts contained in the statement S is rejected by a holistic conceptual network N that orders some of the other concepts contained in S and that completes them,

and *all* of the concepts involved are material concepts. For example, consider this statement:

(BEATLES*)   If John is taller than Paul, and Paul is taller than George, and George is taller than Ringo, then Ringo is not shorter than John.

In (BEATLES*), clearly the concept

X_4'S BEING NOT SHORTER THAN X_1

is rejected by the other ordered concepts belonging to the (BEATLES*) network.

Here is an alternative, *possible-worlds-based* definition of an analytic truth:

A statement *S* is an analytic truth if and only if *S* is true in every logically possible world.

This definition can also be reformulated, mutatis mutandis, for analytic falsehoods. Now, the possible-worlds-based definition of an analytic truth, in order to be properly understood, requires the brief explications of the following two notions. **First**, a *logical possibility* is a logically consistent different conceivable way the actual world could be (or could have been), such that the logical standard for consistency is set by first-order monadic logic (again, for the definition of "first-order monadic logic," see section 5.2). And **second**, a *logically possible world* is a maximal consistent set of logical possibilities.

This allows me, in turn, to formulate a general principle about necessary truth, *The Necessary Truth Principle*:

A statement *S* is necessarily true if and only *S* is true in every member of a complete class of logically possible worlds, and never false in any other logically possible world, which is to say that *S* is either true in every other logically possible world (hence analytic) or else truth-valueless in every other logically possible world (hence synthetically necessarily true—see below).

The Necessary Truth Principle can be reformulated, mutatis mutandis, for necessary falsehoods.

Closely related to the notion of necessity is the notion of apriority, and its contrastive notion, aposteriority. Here we need to distinguish carefully between **semantic apriority and aposteriority**, on the one hand, and **epistemic apriority and aposteriority**, on the other, as follows.

Semantic Apriority: A statement *S* is semantically a priori if and only if the meaning and truth-value of *S* are necessarily and constitutively underdetermined by any and all empirical facts.

As I noted earlier, the semantic apriority of *S* entails that the categorematic terms in *S* are all robustly persistent with respect to empirical change.

Semantic Aposteriority: A statement *S* is semantically a posteriori if and only if either the meaning or truth-value of *S* is necessarily or constitutively determined by any or all empirical facts.

As I also noted earlier, the semantic aposteriority of *S* entails that at least some of the categorematic terms in *S* are non-robust and non-persistent with respect to empirical change.

Epistemic Apriority: A statement S is epistemically a priori if and only if any sufficiently justified (i.e., High-Bar justified) true belief in S is necessarily and constitutively underdetermined by any and all empirical facts.

Epistemic Aposteriority: A statement S is epistemically a posteriori if and only if any sufficiently justified (i.e., High-Bar justified) true belief in S is necessarily or constitutively determined by any or all empirical facts.

These distinctions, in turn, allow us to formulate *The Apriority of Analytic Truth Principle*:

If a statement S is analytically true, then S is both semantically a priori and also epistemically a priori.

The Apriority of Analytic Truth Principle can also be reformulated, mutatis mutandis, for the apriority of analytic falsehoods.

<u>Step 7, A Theory of Synthetically (aka "non-logically," "strongly metaphysically," or "essentially non-conceptually") Necessary A Priori Truth.</u>

The basic notion of synthetically necessary truth, as I have mentioned already, is that it is truth about the kind of necessity that flows from the immanent structures of things in the manifestly real world, as represented by formal autonomous essentially non-conceptual content. And the primary implication of this basic notion is that synthetic necessity is knowable a priori by rational human minded animals. Now, formal autonomous essentially non-conceptual content connects us directly and veridically to the immanent structures—the orientable spatial properties, the irreversible temporal properties, the asymmetric thermodynamic properties, and, more generally, the specifically mathematical properties—of all causally efficacious macroscopic material things in the manifestly real world. So synthetic necessity is necessary truth in virtue of non-empirical/pure/a priori formal autonomous essentially non-conceptual content, and this is knowable a priori by means of the *rational intuitional* capacities of human knowers. In chapters 6 to 8, I will work out a categorical-epistemology-oriented and contemporary Kantian neo-rationalist theory of rational intuition and a priori knowledge in mathematics, logic, and philosophy, that is also grounded on the theory of cognition and content presented in chapters 1 to 5. So the claims I am making here about a priori knowledge will be converted from IOUs to real currency in the last three chapters.

In any case, here is the content-based definition of synthetically necessary truth according to The Content-and-Rationality Theory of the Analytic-Synthetic Distinction and Modal Dualism:

A statement S is synthetically necessarily true if and only if S is necessarily true in virtue of the formal autonomous essentially non-conceptual contents contained in the content of S, regardless of the other semantic constituents of S, and regardless of the logical form of S.

Corresponding to the content-based definition of synthetic necessity is the criterion of synthetically necessary truth:

A statement S is synthetically necessarily true if and only if S is such that (i) S's denial is intensionally consistent and logically consistent, and (ii) S is necessarily true.

And here is the possible-worlds-based definition of synthetically necessary truth, according to The Content-and-Rationality Theory:

A statement S is synthetically necessarily true if and only if (i) S is true in all the logically possible worlds that contain the same basic spacetime structure, the same basic causal-dynamic structure and also the same basic mathematical structure as our actual manifestly real world, (ii) S is truth-valueless in every other logically possible world.

In turn, S is truth-valueless in all and only the logically possible worlds that lack the basic spacetime structure of the actual manifestly real world, lack the basic causal-dynamic structure of the actual manifestly real world, or lack the basic mathematical structure of the actual manifestly real world.

In a closely related way, but on the contrary, I will call any logically possible world that lacks none of these structures, and thus contains the same basic spacetime structure, the same basic causal-dynamic structure, and also the same basic mathematical structure, as our actual manifestly real world, *a synthetically possible world*. Thus a statement S is synthetically necessarily true if and only if S is true in all and only the synthetically possible worlds, and a "truth-value gap" otherwise. This definition can also be reformulated, mutatis mutandis, for synthetically necessary falsehoods.

In view of the distinctions I spelled out earlier between semantic apriority and aposteriority, and epistemic apriority and aposteriority, we can now also formulate *The Apriority of Synthetically Necessary Truth Principle*:

If a statement S is synthetically necessarily true, then S is both semantically a priori and also epistemically a priori.

This principle can also be reformulated, mutatis mutandis, for the apriority of synthetically necessary falsehoods.

It is of course the case that "the very idea" of a synthetically necessary a priori truth was vigorously challenged by the originators of Logical Empiricism, especially Carnap and Schlick. And it is also of course the case that in post-Empiricist philosophy, the unintelligibility and indefensibility of the very idea of a synthetically necessary a priori truth are often assumed without argument and without critical re-examination. Or more subtly, when the intelligibility and defensibility of the synthetic a priori are admitted by philosophers in the post-Empiricist, the kind of truth in question usually turns out to be only a disguised kind of conceptual truth—as it were, analyticity in sheep's clothing—and therefore, in effect, it is nothing but *the schmynthetic a priori*.[112]

I strongly believe, however, that these are fundamental mistakes, with far-reaching philosophical implications. That strong belief led me to work out a historical defense of the synthetic a priori in *Kant and the Foundations of Analytic Philosophy*, chapters 4 and 5. I have also presented a brief, purely systematic defense of the synthetic a priori in relation to the mind-body problems in *Embodied Minds in Action*, section 7.4. Here I will not attempt to recapitulate or repeat those arguments—whose

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[112] See, e.g., Sellars, "Is There a Synthetic A Priori?"

arguable soundness I still want to stand by, however—but will instead offer what I think is an importantly different argument for the existence of the synthetic a priori.

My thought here is that the very idea of a synthetic a priori truth provides the semantic, metaphysical, and epistemic foundations of a new, intelligible, and defensible theory of inference-to-the-best-explanation, and also that this is one very strong reason for accepting the existence of the synthetic a priori.

The doctrine of inference-to-the-best-explanation has its historical roots in C. S. Peirce's notion of the non-classical inferential pattern of *abduction*, as opposed to the classical inferential patterns of either induction or deduction. Induction, broadly speaking, is inference from facts to lawlike generalizations, and deduction, again broadly speaking, is inference according to the laws of pure logic.[113] Peirce's notion of abduction was itself rooted in Kant's notion of a "reflecting" or reflective judgment, as opposed to that of "determining" judgment, in the *Critique of the Power of Judgment* (*CPJ* 20: 211). Determining judgments either assert complete identities of concepts (as in "Bachelors are adult unmarried males"), or else they assertorically bring narrower concepts under wider concepts, thereby bringing determinates under determinables (as in "Bachelors are unmarried" or "Bachelors are males"), or else they assertorically bring objects under concepts (as in "Kant is a bachelor"). By contrast, reflecting or reflective judgments start with objects, whether individuals or diverse collections, and seek out concepts that adequately classify them. Moreover, reflecting judgments are non-assertoric, and based on the subjunctive assumption, or supposition, of the cognitive presentation of these objects or collections. For example, the reflecting judgment "This is beautiful" means "Supposing that this object were presented to my cognitive faculties in such a way that I subjectively experience a disinterested satisfaction in the mutual harmonizing of my imagination and understanding, along with a further implicit claim that anyone possessed of the same faculties ought to agree with me, then this object would be adequately classified as beautiful."

After Peirce, the theory of inference-to-the-best-explanation was developed in the context of recent and contemporary philosophy of science in the post-Empiricist tradition, most notably by Gilbert Harman, Paul Thagard, and Peter Lipton.[114] The basic thought behind inference-to-the-best-explanation, as Harman, Thagard, and Lipton have articulated it, is that there is a distinctive class of rationally justified inferences that do not follow the formal patterns of either induction or deduction. More precisely, according to them, a theory T is *the best explanation* of a phenomenon or set of phenomena X if and only if it is the case that from the existence of X and the principle of sufficient reason, it is rationally justified to infer the truth of T. At the present time there is no adequate theory of inference-to-the-best-explanation,[115] although in fact inference-to-the-best-explanation is widely appealed to both inside and outside of philosophy and the sciences.

Granting all that as philosophical backdrop, here is a working proposal for a new and adequate theory of inference-to-the-best-explanation: namely, that we explain

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[113] Peirce, *Collected Papers*, vol. 5, pp. 1801–05 and 1889.
[114] See Harman, "The Inference to the Best Explanation"; Thagard, "The Best Explanation: Criteria for Theory Choice"; and Lipton, *Inference to the Best Explanation*.
[115] See, e.g., Lipton, "Inference to the Best Explanation."

inference-to-the-best-explanation in terms of the synthetic a priori. More specifically, however, the proposal has five steps.

First, I define the concept of *synthetic a priori entailment*:

Statement P synthetically entails statement Q if and only if there is no synthetically possible world in which P is true but Q is false.

Second, I define the concept of *the ideally best explanation*:

A theory T of X is the ideally best explanation of a phenomenon or set of phenomena X if and only if: (i) all the basic facts about X are synthetic a priori entailed by T, (ii) T contains only true statements, and (iii) no other existing theory satisfies both conditions (i) and (ii).

Third, I define the concept of *being a closer approximation to being the ideally best explanation*:

A theory T_1 of X is a closer approximation to being the ideally best explanation of X than another theory T_2 if and only if (i) there are some good reasons to think that all the basic facts about X are synthetic a priori entailed by T_1, (ii) there are some good reasons to think that T_1 contains only true statements, (iii) there are some good reasons to think that no other existing theory satisfies both conditions (i) and (ii), and (iv) T_1 is more empirically adequate than T_2, where (in Bas van Fraassen's formulation),

> a theory is empirically adequate exactly if what it says about the observable things and events in this world is true—exactly if it 'saves the phenomena'. A little more precisely: such a theory has at least one model that all the actual phenomena fit inside.[116]

Fourth, I define the concept of *the nonideally best explanation*:

A theory T of X is the nonideally best explanation of X if and only if T more closely approximates to being the ideally best explanation of X than any other existing theory.

Fifth and finally, I am now in a position to give a fairly precise formulation of the concept of an inference-to-the-best-explanation:

Suppose that there exists a phenomenon or set of phenomena X in the actual manifestly real world, and also a set of theories T_1, T_2, etc., that purport to explain X. Then we should infer the theory which is the nonideally best explanation of X—that is, we should infer the theory which is the closest approximation to being the theory that synthetic a priori entails X.

It should be clear enough why this new theory of inference-to-the-best-explanation is at the very least a good candidate for being an adequate theory of inference-to-the-best-explanation. It gives an explication of inference-to-the-best-explanation in terms of a substantive concept of entailment—namely, synthetic a priori entailment—that is significantly more modally strict than induction, but also significantly less modally strict than deduction. In particular, since the class of synthetically possible worlds is narrower than the class of logically possible worlds, synthetic a priori entailment explains the *non-monotonic* character of inference-to-the-best-explanation and/or abductive arguments. An argument is "monotonic" if and only

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[116]   Van Fraassen, *The Scientific Image*, p. 12.

if adding more premises does not reduce the number of entailments of the original premises. "Non-monotonicity," by contrast, is the logical fact that adding more premises to an argument can reduce the number of entailments of the original premises. So non-monotonicity is explained in terms of the inherent modal restrictedness of synthetic entailment.

But above all, explaining inference-to-the-best explanation in terms of the synthetic a priori not only invokes the special modal nature of synthetic a priori entailment but also the highly rationally intuitive notion of "empirical adequacy" or "saving the appearances." An inference-to-the-best-explanation, informally put, is nothing more and nothing less than an inference to the most empirically adequate or appearance-saving theory that also has a non-contingent and indeed synthetic a priori foundation in terms of the basic spacetime structure, the basic causal-dynamic structure, and the basic mathematical structure of the actual manifestly real world. This is quite clear, distinct, and plausible. Therefore, it provides a strong and new reason for accepting the existence of the synthetic a priori.

If this explanation of inference-to-the-best-explanation is correct, then it tells us, for instance, precisely why non-Euclidean geometry is to be inferred instead of its theoretical competitor classical Euclidean geometry, precisely why Relativity or Quantum Mechanics is to be inferred instead of their theoretical competitor classical Newtonian mechanics, precisely why Darwinian evolutionary biology is to be inferred instead of its theoretical competitor the classical "fixity of the species" theory, and so on. In each case, the theory to be inferred is the most empirically adequate or appearance-saving theory that also has a non-contingent and synthetic a priori foundation in terms of the basic spacetime structure, the basic causal-dynamic structure, and the basic mathematical structure of the actual manifestly real world. Or in still other words, it is the theory that comes closest to carving the manifestly real natural world at the joints.[117] Ironically enough, then, the failure of recent and contemporary philosophers of science in the post-Empiricist tradition to give an adequate account of inference-to-the-best-explanation stems primarily from their unjustified and even dogmatic aversion to the synthetic a priori.

Step 8, A Theory of Synthetic A Posteriori Statements.

As I have mentioned already, the basic idea behind synthetic a posteriori true statements is that they are truths about the brute contingent facts that are just "given" by things in the world, as represented by autonomous essentially non-conceptual content. And the basic implication of this basic idea is that such truths are High-Bar perceptually knowable by us through direct, veridical sense perception and, of course, autonomous essentially non-conceptual content. The theory of direct, veridical sense perception and perceptual knowledge that adequately supports this basic implication, as I argued in chapter 3, is a digestivist, disjunctivist, direct or naïve

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[117] Here I'm putting a Kantian spin on a phrase favored by contemporary scientific and metaphysical realists in a decidedly anti-Kantian context. See, e.g., Sider, *Writing the Book of the World*. My point is just that robust scientific and metaphysical realists don't have to be *noumenal* realists. See Hanna, *Kant, Science, and Human Nature*, part 1.

perceptual manifest realism—radically naïve realism—which in turn presupposes Kantian Non-Conceptualism, for which I argued in chapter 2.

I will define the general notion of a synthetic a posteriori statement in three steps.

First, here is the content-based definition of a synthetically contingent statement, according to The Content-and-Rationality Theory of the Analytic-Synthetic Distinction and Modal Dualism:

A statement S is synthetically contingent if and only if (i) S is neither necessarily true nor necessarily false, and (ii) S is either true or false in virtue of the material autonomous essentially non-conceptual contents contained in the content of S, regardless of the other semantic constituents of S, and regardless of the logical form of S.

Second, here is the possible-worlds-based definition of a synthetically contingent statement, according to The Content-and-Rationality Theory:

A statement S is synthetically contingent if and only if (i) S is true in some of the logically possible worlds that contain the same basic spacetime structure, the same basic causal-dynamic structure, and also the same basic mathematical structure as our actual manifestly real world, and (ii) S is false in some of the logically possible worlds that contain the same basic spacetime structure, the same basic causal-dynamic structure, and also the same basic mathematical structure as our actual manifestly real world.

Third, and in light of the notions of semantic aposteriority and epistemic aposteriority that I spelled out earlier, here is *The Aposteriority of Synthetic Contingency Principle*:

If a statement S is synthetically contingent, then S is both semantically a posteriori and also epistemically a posteriori.

This principle can also be reformulated, mutatis mutandis, for the aposteriority of either synthetically contingent truths or synthetically contingent falsehoods.

And that completes the basic presentation of The Content-and-Rationality Theory of the Analytic-Synthetic Distinction and Modal Dualism. What I want to do now is to elaborate, unpack, and justify it further by applying it explicitly to a series of examples.

Examples and Comments.

E1.   (BU) All bachelors are unmarried.

Comments: Statement (BU) is, of course, the classical paradigm case of an analytic statement. Thus (BU) captures a natural and unforced analytic reading of the sentence 'All bachelors are unmarried,' such that all of its categorematic terms are descriptive terms standing for material concepts or formal concepts, according to conceptual or purely descriptive uses of the words that express them. More specifically, (BU) is necessarily true in virtue of **intensional containment,** according to the content-based definition of analyticity, with special reference to the sub-clause that relates "lower" or determinate material concepts (in this case, the concept BACHELOR) to their corresponding "higher" or determinable material concepts (in this case, UNMARRIED). (BU) is also true in all logically possible worlds according to the possible-worlds-based definition of analyticity. Furthermore, (BU) is semantically a

priori because it is robustly persistent with respect to empirical change, and it is also epistemically a priori because it is knowable by conceptual analysis according to the criterion of analyticity: the denial of (BU) is an **intensional contradiction**.

E2. (KB) If Kant is a bachelor, then Kant is unmarried.

Comments: Statement (KB) is analytic, necessary, and a priori by basically the same rationale as the classical paradigm case "All bachelors are unmarried." One important difference, however, is that (KB) contains an indicator term, "Kant," that is directly referential on a natural, unforced reading of the word 'Kant,' according to an essentially non-conceptual or directly referential use of it. "Kant" thereby stands for a material autonomous essentially non-conceptual content, thereby ensuring that (KB) has a necessary reference to empirical facts, and thus to experience. But, as I argued earlier when criticizing the Kripke-Putnam doctrine of the necessary a posteriori, it would be obviously fallacious to conclude that (KB) is a posteriori for that reason, since on the contrary (KB) is obviously robustly persistent with respect to empirical change, just like "All bachelors are unmarried."

E3. (FG) Furze is gorse.

Comments: Statement (FG) is analytic, necessary, and a priori by basically the same rationale as the classical paradigm case "All bachelors are unmarried." The one interesting difference is that the sub-clause of the **intensional containment** condition which specifically applies to (FG) is the set-theoretic containment relation between the comprehensions of the descriptive terms "furze" and "gorse," as opposed to the determinate-determinable relation. It is also interesting to note that the words 'furze' and 'gorse' can receive natural and unforced (or, if necessary, forcibly induced) readings as hybrid terms, namely **natural kind terms**, according to a mixed conceptual or purely descriptive use and essentially non-conceptual or directly referential use. But when they do receive such alternative readings, the statement expressed is not (FG), but instead a very different statement that is semantically equivalent to:

> (FG$_{natural\ kind:\ 'that\ kind\ of\ stuff,\ normally\ identified\ as\ being\ a\ spiny\ yellow\ flowered\ shrub\ of\ the\ genus\ Ulex'}$)   That kind of stuff, normally identified by its being a spiny yellow flowered shrub of the genus *Ulex* is essentially identical to that kind of stuff, normally identified as being a spiny yellow flowered shrub of the genus *Ulex*.

which is in fact a synthetically necessary a priori statement.

E4. (TS) Thinking stones think.

Comments: Despite superficial cognitive-semantic appearances to the contrary—say, to the effect that it seems superficially obvious that all thinking stones think, *for what else would thinking stones do?*, and thus that (TS) is analytic—nevertheless (TS) is not analytic. In fact (TS) is merely pseudo-analytic, and counts as a truth-value gap, precisely because its subject-term, "Thinking stones," as sortally incorrect, expresses only a pseudo-material concept, with a null cross-possible-worlds extension or comprehension.

E5. (FP) Flying pigs fly.

Comments: Unlike THINKING STONES, which is a sortally incorrect, pseudo-material concept, FLYING PIGS is a genuine material concept with a non-null comprehension that also just happens to lack an actual-world extension. In some other logically possible, really or synthetically possible, and even nomologically possible worlds, there are flying pigs. Otherwise put, THINKING STONES violates **the world-anchoring condition** on concepts, whereas FLYING PIGS does not violate it, and is merely a fictional material concept. Hence (FP) is genuinely analytic because in every logically possible world in which there are flying pigs, they fly, whereas (TS) is a truth-value gap.

E6.   (PQ) {[(P & Q) & P] → Q}

Comments: Statement (PQ) is obviously a truth of classical sentential logic, and the natural, unforced reading of the sentence '{[(P & Q) & P] → Q}' as an analytic, necessary, and a priori statement according to the conceptual or purely descriptive use of it, can be non-forcibly induced by the familiar symbolism of, for example, Benson Mates's well-known system of sentential logic in his classic intermediate-level logic text, *Elementary Logic*. Obviously, then, (PQ) is necessarily true according to the content-based definition of analyticity, under the sub-clause which says that statements that are true by **logic** are analytic. Otherwise, (PQ) is like the classical paradigm case "All bachelors are unmarried." It is important to note, however, that in the context of the present discussion, I have not yet attempted to say precisely what I take the nature and status of logic to be. Nor have I attempted to face up explicitly to either The Logocentric Predicament or Quine's Dilemma. These are very hard problems indeed: as we saw, Quine, for all his brilliance as a philosopher and logician, was unable to extricate himself from them. So in order to keep things relatively simple in this chapter, I will set aside these problems for separate treatment in other places,[118] but in particular, in chapter 5.

E7.   (MWM) Any man or woman who marries, marries all those he or she weds.

Comments: Statement (MWM) captures a natural and unforced analytic reading of the sentence 'Any man or woman who marries, marries all those he or she weds,' such that all of its categorematic terms are descriptive terms standing for material or formal concepts, according to conceptual or purely descriptive uses of the words that express them. The important difference between (MWM) and the classical paradigm case "All bachelors are unmarried" is that unlike "All bachelors are unmarried," (MWM) is necessarily true and analytic by **holistic networking** but not by **intensional containment**. This illustrates a salient way in which The Content-and-Rationality Theory of the Analytic-Synthetic Distinction and Modal Dualism goes beyond Kant's theory of analyticity, since Kant seems not to have recognized the obvious intensional fact of analytic connections between relational concepts.

E8.   (BEATLES) If John is taller than Paul, and Paul is taller than George, and George is taller than Ringo, then Ringo is shorter than John.

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[118] For a first pass at them, see Hanna, *Rationality and Logic*.

Comments: The statement (BEATLES), despite its modest complexity, is very much like (MWM), in that—as we saw earlier—it is analytically necessary by **holistic networking**, and otherwise it is also like the classical paradigm case "All bachelors are unmarried." The one important difference between (BEATLES) and either "All bachelors are unmarried" or "Any man or woman who marries, marries all those he or she weds," however, is that (BEATLES) contains four indicator terms, namely "John," "Paul," "George," and "Ringo." But in this respect (BEATLES) is very like "If Kant is a bachelor, then Kant is unmarried," in that it is both semantically and epistemically a priori, because it is clearly robustly persistent with respect to empirical changes, even despite containing several distinct directly referential terms that anchor it to things in the actual empirical world.

E9.   (SM) Stick S is one meter long at t_0.
E10. (CA) Cats are animals.
E11. (WL) Water is a liquid.
E12. (WM) Whales are mammals.

Comments: Statements (SM), (CA), (WL), and (WM) have already been discussed at some length in connection with my critique of the Kripke-Putnam argument against the analytic-synthetic distinction from the existence of contingent a priori statements. The crucial point in that discussion for the present purpose is that (SM), (CA), (WL), and (WM) all capture natural analytic readings of the sentences that express them. These natural analytic readings can be yielded by using appropriate forcible inducing sentences according to the conceptual or purely descriptive use of the words in those sentences, which thereby stand for either material concepts or formal concepts. This is perfectly compatible with the fact that the very same sentences can also be used to express non-analytic statements according to the essentially non-conceptual or directly referential uses of the words 'stick S,' 'cats,' 'water,' and 'whales.' These uses, in turn, provide for alternative natural readings that make them into hybrid terms—into a Kripkean **reference fixing rigidly designating description** in the case of the term "stick S," and into **natural kind terms** in the cases of "cats," "water," and "whales."

Interestingly and quite importantly, Kripke himself takes only (SM) to be contingent according to the non-analytic reading of its corresponding sentence, while at the same time he takes (CA), (WL), and (WM) all to be necessary according to the non-analytic readings. This means that for us contemporary Kantian cognitive semanticists, they are all examples of synthetic necessity—the necessity that flows from the nature of things in the manifestly real world. By contrast, early Putnam and Donnellan take (CA), (WL), and (MWM) to be contingent.

This variance in opinion reflects, I think, a general tendency amongst the post-Quineans to be somewhat conflicted, both infra-personally and inter-personally, about the nature of syntheticity. As a consequence, they are somewhat conflicted about the difference between synthetic a priori statements and synthetic a posteriori statements, and especially about how to understand synthetic necessity. Consequently, this point needs to be emphasized, and re-emphasized, and re-re-emphasized: Syntheticity is not the same as informativeness—instead, syntheticity is the same as the inherent connectedness of the meaning and truth of statements with

things in the manifestly real world. Or in other words, syntheticity is all about the metaphysics of manifestly-real-world-anchored semantic content and truth, and only indirectly about the epistemology of manifestly-real-world-anchored semantic content and truth. Correspondingly, synthetic necessity is not the same as informative necessity, and the theory of synthetic necessity is all about the metaphysics of essential necessity, and only indirectly about the epistemology of essential necessity.

E13. (KAP) I am here now.
E14. (EXISTO) I am, I exist.

Comments: Statements (KAP) and (EXISTO) have already been discussed in connection with my critique of Kaplan's argument against the analytic-synthetic distinction from the existence of analytic contingent statements. Again, the crucial point in that discussion for the present purpose is that (KAP) and (EXISTO) capture natural analytic readings of the sentences that express them, according to the conceptual or purely descriptive use of those sentences, which can be effectively yielded by using appropriate forcible inducing sentences. And this, again, is perfectly compatible with the fact that the very same sentences can also be used to express non-analytic contingent statements, and more specifically to express synthetic a posteriori statements, according to an essentially non-conceptual or directly referential use of 'I,' which makes it into an indicator term, and more specifically into a pure indexical.

E15. (S+F=T) Seven plus five equals twelve.

Comments: Almost every philosopher belonging to the tradition of modern, post-17th-century philosophy would agree that statement (S+F=T)—or its arithmetic symbolic translation,

$$\text{``}7 + 5 = 12\text{''}$$

is necessarily true and a priori. Only John Stuart Mill and Quine, and their followers, would disagree, on the grounds of radical Empiricism. In turn, according to Quine's holistic, scientistic, and pragmatic version of radical Empiricism, this disagreement would also be strong enough to yield his Universal Revisability Principle to the effect that "no statement is immune from revision." Now the Quinean doctrine of radical Empiricism about content, truth, or justification, as we have seen, is thoroughly fallacious. And as we have also seen, The Universal Revisability Principle is flat-out inconsistent with Quine's Sheer Logic Principle. So on the face of it, it is hard to find any good reasons for denying that (S+F=T) is necessary and a priori. The genuine question on the table, then, is whether it is analytic a priori or synthetic a priori.

According to The Content-and-Rationality Theory of the Analytic-Synthetic Distinction and Modal Dualism, (S+F=T) is clearly synthetic a priori, not analytic. This is because, in light of the criterion of syntheticity, the denial of (S+F=T) is logically possible, according to the following argument:

(1) There are logically possible worlds in which nothing exists—nothing whatsoever, including no objects of any sort and no structures of any sort, whether spacetime structures, causal-dynamic structures, or mathematical structures. (Known by a priori conceivability.)

(2) Hence there are logically possible worlds in which there is nothing whatsoever to identify the natural numbers with, whether objects or structures. (From (1).)

(3) Hence there are logically possible worlds in which (S+F=T) is not true. (From (1) and (2).)

That this argument is sound is proven by the further semantic fact that the following statement is analytic on a natural and unforced reading of the sentence which expresses it, and thus according to the conceptual or purely descriptive use of that sentence:

(S+F=T$_{exists}$)   If the natural number system exists, together with all the primitive recursive functions and standard arithmetical operations over the natural numbers, then seven plus five equals twelve.

But the statements (S+F=T$_{exists}$) and (S+F=T) are different statements, precisely because they respectively capture two distinct natural readings of the same sentence, 'Seven plus five equals twelve.' Therefore, since by hypothesis (S+F=T) is necessary and a priori, but is not analytic, then it must be synthetic a priori. And this conforms perfectly to both the content-based definition of synthetic necessity and also the possible-worlds-based definition of synthetic necessity. Statement (S+F=T) is necessarily true in virtue of the formal autonomous essentially non-conceptual contents contained in its propositional content, according to the essentially non-conceptual or directly referential use of the categorematic terms in the sentence—'Seven plus five equals twelve'—which expresses that statement. And those mathematical relator terms directly refer to the mathematical structures that are constitutive of the system of natural numbers, together with all the primitive recursive functions and standard arithmetical operations over the natural numbers. Correspondingly, (S+F=T) is true in all and only the logically possible worlds that inherently contain precisely those mathematical structures, and it is truth-valueless otherwise. This explanation, quite obviously, raises some very controversial and very difficult issues about mathematical platonism and mathematical Structuralism, which I directly address and attempt to resolve in chapters 6 to 8.

E16. (S+F=T$_{beer\ bottles}$)   Seven beer bottles plus five beer bottles equals twelve beer bottles.

Comments: Statement (S+F=T$_{beer\ bottles}$), like "7+5=12," is synthetic a priori and for the very same basic reasons. Now, (S+F=T$_{beer\ bottles}$) is obviously necessary. But it is also synthetic because it is not true in worlds in which nothing whatsoever exists, whether objects or structures. Moreover, it is synthetically necessary because it is necessarily true in virtue of the formal autonomous essentially non-conceptual contents contained in its propositional content, according to the essentially non-conceptual or directly referential use of the categorematic terms in the sentence which expresses that statement. And those mathematical relator terms directly refer to the mathematical structures which are constitutive of the system of natural numbers, together with the primitive recursive functions and standard arithmetical operations over the natural numbers. So (S+F=T$_{beer\ bottles}$) is true in all and only the logically possible worlds that contain precisely those mathematical structures, and truth-valueless otherwise.

As I noted in section 4.5, the mere fact that $(S+F=T_{beer\ bottles})$ is referred to the empirical world via its categorematic terms "beer" and "bottles" obviously does not suffice to confer aposteriority on it. Indeed, even if a term *refers to* the empirical world, it does not follow that it is *anchored to* the empirical world, since this follows only from an essentially non-conceptual or directly referential use of the word used to express that term. Nor does an essentially non-conceptual, directly referential use, in and of itself, suffice for the aposteriority of a statement in which a directly referential term occurs. The apriority/aposteriority issue is precisely whether or not the truth of the statement is robustly persistent with respect to empirical changes. And $(S+F=T_{beer\ bottles})$ clearly is robustly persistent with respect to changes in empirical facts. Hence it is synthetic a priori.

E17.   (WH) Water is H_2O.
E18.   (GE) Gold is the element with atomic number 79.

Comments: Like the statements "7+5=12" and "Seven beer bottles plus five beer bottles equals twelve beer bottles," the statements (WH) and (GE) are both synthetic a priori. The argument for their necessity and their apriority has already been presented in section 4.5. Both (WH) and (GE) are necessary because they each capture essential identities between water and H_2O, and between gold and the element with atomic number 79, respectively. This is in part because, as Kripke showed us, true identity statements between directly referential terms are necessarily true. It is also in part because, as Kripke again showed us, the terms "water," "H_2O," "gold," and "the element with atomic number 79" are directly referential terms— according to essentially non-conceptual or directly referential uses of the words that express them—and more specifically, are either hybrid **natural kind terms** ("water" and "gold") or Kripkean **reference-fixing, rigidly designating descriptions** ("H_2O" and "the element with atomic number 79"). Both (WH) and (GE) are a priori precisely because they are robust with respect to empirical change.

In turn, the argument for (WH)'s being non-analytic has also already been presented in section 4.5. There are logically possible worlds containing sets of causal laws of nature that are very different from those that govern the actual manifestly real world, and correspondingly also containing a very different sort of physical matter from that which is found in the actual manifestly real world, in which (WH) is not true. The same argument goes, mutatis mutandis, for (GE). This satisfies the criterion for syntheticity in both cases. Therefore, since by hypothesis both (WH) and (GE) are a priori, then they are both synthetic a priori.

That these two arguments are sound is proven by the further semantic fact that the following statements are analytic on natural and unforced readings of the sentences which express them, and thus according to the conceptual or purely descriptive use of those sentences:

$(WH_{exists,\ essential\ ID})$ If water exists and H_2O exists, and if they are essentially identical with each other, then water is H_2O.

$(GE_{exists,\ essential\ ID})$ If gold exists and the element with atomic number 79 exists, and if they are essentially identical with each other, then gold is the element with atomic number 79.

But just like the statements "If the natural number system exists, together with all the primitive recursive functions and standard arithmetical operations over the natural numbers, then seven plus five equals twelve" and "7+5=12," so, too, the statements (WH$_{exists, \ essential \ ID}$) and "Water is H$_2$O" are *different* statements, precisely because they respectively capture two distinct natural readings of the same sentence, 'Water is H$_2$O.' Similarly, the statements (GE$_{exists, \ essential \ ID}$) and "Gold is the element with atomic number 79" are different statements, precisely because they capture two distinct readings of the same sentence, 'Gold is the element with atomic number 79.' Clearly, then, (WH) and (GE) are both synthetically necessary in that they each hold in all and only the possible worlds in which precisely the same spacetime structure, causal-dynamic structure, and mathematical structure of the actual manifestly real world holds. Therefore both (WH) and (GE) are synthetic a priori.

E19.   (HH) Hesperus is Hesperus.
E20.   (HP) Hesperus is Phosphorus.

Comments: Like the statements "Water is H$_2$O" and "Gold is the element with atomic number 79," statements (HH) and (HP) are also synthetic a priori. As true identity statements between directly referential terms, according to the essentially non-conceptual or directly referential uses of the words that express those terms, (HH) and (HP) are, obviously, necessarily true if true at all. More specifically, however, they are both necessary truths about classical identities between individual things in the world. Furthermore, neither (HH) nor (HP) is analytic, because neither statement is true in possible worlds in which nothing whatsoever exists, whether objects or structures. In worlds in which nothing whatsoever exists, neither spacetime structure nor causal-dynamic structure exists, no physical matter exists, and no planets or stars exist. So neither (HH) nor (HP) is true in such worlds, and thus they are both synthetic. In this respect, they resemble "7+5=12," "Seven beer bottles plus five beer bottles equals twelve beer bottles," "Water is H$_2$O" and "Gold is the element with atomic number 79." So both (HH) and (HP) are synthetically necessary.

That the arguments for their synthetic necessity are sound is proven by the further semantic fact that the following statements are analytic on natural and unforced readings of the sentences which express them, and thus according to the conceptual or purely descriptive use of those sentences:

(HH$_{exists, \ classical \ identity}$)   If Hesperus exists, and if Hesperus is classically self-identical, then Hesperus is Hesperus.

(HP$_{exists, \ classical \ identity}$)   If Hesperus exists and Phosphorus exists, and if they are classically identical to one another, then Hesperus is Phosphorus.

But, again, just like the statement-pairs

(S+F=T$_{exists}$)   If the natural number system exists, together with all the primitive recursive functions and standard arithmetical operations over the natural numbers, then seven plus five equals twelve.

and

(S+F=T) 7+5=12.

and the statement-pairs

(WH$_{exists,\ essential\ ID}$)   If water exists and H$_2$O exists, and if they are essentially identical with each other, then water is H$_2$O.

and

(WH) Water is H$_2$O.

and the statement-pairs

(GE$_{exists,\ essential\ ID}$)   If gold exists and the element with atomic number 79 exists, and if they are essentially identical with each other, then gold is the element with atomic number 79.

and

(GE)   Gold is the element with atomic number 79.,

so, too, the statements (HH$_{exists,classical\ identity}$) and (HH), and also statements (HP$_{exists,classical\ identity}$) and (HP) are *different* statements. And this is precisely because they respectively capture two distinct readings of the same sentences 'Hesperus is Hesperus' and 'Hesperus is Phosphorus.' Clearly, then, both (HH) and (HP) are true in all and only the possible worlds which contain the same basic spacetime structures, causal-dynamic structures, and mathematical structures as the actual manifestly real world. So, again, they are both synthetically necessary, but this time explicitly according to the possible-worlds-based definition of synthetic necessity. Furthermore, they are both a priori because they are both robust with respect to empirical change, even despite the fact that (HP) is informative. As we saw in section 4.5, a statement's being informative is *not* alone sufficient for its being a posteriori.

E21.   (RG) No surface is uniformly red all over and uniformly green all over at the same time.

Comment: Strange as it might seem to the uninitiated, (RG) is one of the single most controversial statements in 20th-century philosophy, such that Katz quite aptly dubbed the problem of adequately interpreting its semantic status, "*The Problem* in Twentieth-Century Philosophy."[119] In light of The Content-and-Rationality Theory of the Analytic-Synthetic Distinction and Modal Dualism, however, (RG) is clearly synthetic, because the criterion of syntheticity shows it to be obviously non-analytic. In logically possible worlds in which nothing whatsoever exists, whether objects or structures, no spacetime exists, and therefore no surfaces or times exist. So there are logically possible worlds in which (RG) is not true.

Now, what are we to say about another statement that is distinct from (RG) precisely because it expresses an unforced natural analytic reading of the sentence 'No surface is uniformly red all over and uniformly green all over at the same time,' according to a conceptual or purely descriptive use of that sentence, and which

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[119] See, e.g., Katz, "The Problem in Twentieth-Century Philosophy."

explicitly posits the existence of surfaces and times, such that all surfaces are three-dimensional Euclidean orientable surfaces, namely,

(RG$_{exists}$) If surfaces exist, and if times exist, and if all surfaces are three-dimensional Euclidean orientable surfaces, then no surface is uniformly red all over and uniformly green all over at the same time.

Given the way I have formulated this question, the answer should be obvious: If the statement (RG$_{exists}$) really does capture an unforced natural analytic reading of the relevant sentence, then that statement must be analytic, and it must then satisfy the content-based definition of analyticity under the sub-clause of **holistic networking**, as well as the possible-worlds-based definition of analyticity, and also the definitions of **semantic apriority** and **epistemic apriority**.

On the other hand, however, I do think that there also remains a very difficult and very real question as to whether (RG) is synthetic a priori or synthetic a posteriori. Are all the surfaces in possible worlds that contain the same basic spacetime structure, the same basic causal-dynamic structure, and the same basic mathematical structure as our actual manifestly real world, three-dimensional Euclidean orientable surfaces, or not? Could a non-orientable three-dimensional Euclidean surface like a Möbius strip or a Klein bottle exist in one of those worlds, and be simultaneously uniformly red all over and uniformly green all over?

These are exceptionally hard questions, and they make me dizzy whenever I think about them. But luckily for my purposes here, I do not need to answer them definitively. The crucial thing for my purposes here is that (RG$_{exists}$) and (RG) are different statements, the former of which is analytic and the latter of which is synthetic. Hence the whole controversy surrounding (RG) can be neatly explained as being based on a mistaken assumption, namely the false assumption that the sentence 'No surface is uniformly red and green all over at the same time' always expresses one and only one statement, which then has to be either analytic or synthetic.

E22.   (KP) Kant is a philosopher.

Comments: Clearly, statement (KP) is synthetic a posteriori if any statement is, given how The Content-and-Rationality Theory of the Analytic-Synthetic Distinction and Modal Dualism defines syntheticity and aposteriority. (KP) is clearly not-true in at least some logically possible worlds: for example, a world in which Kant died in infancy, or a world in which he survived and became a proto-Romantic poet instead of a philosopher, and wrote mocking things about Heine's ambulatory habits. Hence (KP) is synthetic by the criterion of syntheticity. And (KP) is also clearly a contingent truth about the brute facts that are just "given" by things in the actual manifestly real world, as represented by autonomous material essentially non-conceptual content. This flows from an unforced natural reading that yields "Kant" as an indicator term according to an essentially non-conceptual or directly referential use of 'Kant,' and that also interprets the rest of the sentence according to a conceptual or purely descriptive use of 'is a philosopher' which yields "is a philosopher" as a one-place predicate. Furthermore, (KP) is clearly non-robust and non-persistent with respect to empirical changes. So (KP) is synthetic a posteriori.

Moreover, I think that there is really only one way someone could disagree with this conclusion. Suppose that she adopted an extremely strong Leibnizian semantic theory and metaphysics according to which (i) "Kant" expresses a complete individual concept, capturing the individual essence of Kant, that has been created by an all-powerful, all-knowing, and all-good God, and (ii) "is a philosopher" expresses the concept *philosopher*, which is one of the many essence-constituting sub-concepts analytically contained in this complete individual concept. Then (KP) comes out analytic a priori, so that Kant's life is completely fatalistically determined, and necessarily all for the best, from the specifically divine point of view of a "3-O" (i.e., omnipotent, omniscient, and omnibenevolent) God. But even leaving aside Voltaire's classic statement of comic outrage against Leibnizian metaphysics and theodicy in *Candide*, to take on so much extra semantic and metaphysical baggage just in order to undermine the thesis that (KP) is synthetic a posteriori would be philosophically perverse. Leibniz's semantics and metaphysics *entail* this consequence; but it would be highly uncharitable to hold that he directly intended it. Indeed, it is perfectly reasonable to hold that it constitutes a *reductio* of Leibniz's theory.

4.8 Concluding Un-Quinean and also Un-Kripkean Postscript

The analytic-synthetic distinction, for better or worse, just *is* the logical, semantic, metaphysical, and epistemic foundation of contemporary Kantian philosophy and also contemporary Analytic philosophy alike. The distinction, I have argued, is based on the primitive, irreducible facts of conscious intentionality, mental content— including both conceptual content and autonomous essentially non-conceptual content—and human cognitive and practical rationality. So Quine was wrong, and Kripke was wrong, and Brentano was right, but Kant was even more right. Therefore the analytic-synthetic distinction is back with a bang, and its return should be both explicitly admitted and also heartily welcomed by anyone who really cares about the fate of contemporary Kantian philosophy, Analytic philosophy, or the world as we know it.

5

The Morality of Logic

[G]eneral and pure logic is related to [applied logic] as pure morality, which contains merely the necessary moral laws of a free will in general, is related to the doctrine of virtue proper, which assesses these laws under the hindrances of the feelings, inclinations, and passions to which human beings are more or less subject, and which can never yield a true and proven science, since it requires empirical and psychological principles just as much as that applied logic does.

(*CPR* A54–55/B79)

Like ethics, logic can also be called a normative science. How must I think in order to reach the goal, truth? ... [T]he task we assign logic is only that of saying what holds with the utmost generality for all thinking, whatever its subject matter. We must hold that the rules for our thinking and for our holding something to be true are prescribed by the laws of truth.

—G. Frege[1]

Logic and ethics are fundamentally the same, they are no more than duty to oneself.

—Otto Weininger[2]

In logic there are no morals. Everyone is at liberty to build up his own logic, i.e., his own form of language, as he wishes.

—R. Carnap[3]

F. P. Ramsey once emphasized in conversation with me that logic was a "normative science." I do not know exactly what he had in mind.

—L. Wittgenstein[4]

5.0 Introduction

What is the nature of logic? According to one very plausible and widely accepted definition, logic is the science of the necessary relation of consequence between the premises and the conclusion of a valid argument. In turn, an argument is valid if and only if there is no possible set of circumstances such that all the premises are true and the conclusion false. Furthermore, an argument is sound if and only if it is valid

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[1] Frege, "Logic [1897]," p. 128.   [2] Weininger, *Sex and Character*, p. 159.
[3] Carnap, *Logical Syntax of Language*, p. 52.
[4] Wittgenstein, *Philosophical Investigations*, §81, p. 38ᵉ.

and all of its premises are true. And finally, to introduce a technical term of my own, I will also say that a sound argument is *cogent* in the sense that it is logically consistent, truth-preserving, and necessarily guarantees the truth of its conclusion.

But here are three fundamental problems about the nature of logic, all having specifically to do with the *status* of logic.

(I) *The Problem of the Explanatory and Justificatory Status of Logic*, aka *The Logocentric Predicament*, which says:

In order to explain or justify logic, logic must be presupposed and used. As a direct consequence of this circularity, it seems to follow that logic is inexplicable and unjustifiable. (See also section 4.4.)

(II) *The Problem of the Epistemic Status of Logic*, which says:

What kind of knowledge do we have when we know the truths of logic, and how is this knowledge possible?

(III) *Quine's Predicament*, which says:

No statement is immune from revision, but sheer logic is unrevisable. So human logical rationality itself, which is at once fallibilist and infallibilist, seems to be incoherent. (See also section 4.4.)

Now, Carnap famously asserted that logic has no morals. In logic, just as in the even more famous Cole Porter song, *anything goes*. But, by sharp contrast, Ramsey once told Wittgenstein that logic is a "normative science." Like Wittgenstein, I too "do not know exactly what [Ramsey] had in mind." But I do think that Carnap was wrong and that Ramsey was right. Correspondingly, I would also very much like to think that what Ramsey had in mind is the intimate connection between logic and morality that is asserted, in their different ways, by Kant, Frege, and Weininger in the other epigraphs at the head of this chapter. More precisely, however, what I want to argue in this chapter is that a contemporary Kantian theory of the ultimate convergence of logic and morality offers intelligible and defensible solutions to the three fundamental status problems about the nature of logic, and is the best overall explanation of the nature of logic. So, rationally speaking, it *should have been* what Ramsey had in mind.

In section 1.2, I briefly presented what I call *The Two-Dimensional Conception* of rational normativity. By the notion of "rational normativity," I mean the irreducible two-part fact that (i) all rational animals or real persons have aims, commitments, ends, goals, ideals, and values (hence, as rational animals, they are also teleological animals), and (ii) these rational animals or real persons naturally treat their aims, commitments, ends, goals, ideals, and values (hence, as rational and teleological animals, they naturally treat these telic targets), (iia) as rules or principles for guiding theoretical inquiry and practical enterprises, (iib) as reasons for justifying beliefs and intentional actions, and also, (iic) as standards for critical evaluation and judgment. Furthermore, rational norms in this sense can be either (i) instrumental—conditional, hypothetical, desired for the sake of some further desired end, pragmatic, prudential, or consequence-based—or (ii) non-instrumental—unconditional,

categorical, desired for its own sake as an end-in-itself, non-pragmatic, non-prudential, and obtaining no-matter-what-the-consequences.

As such, rational norms provide reasons for belief, cognition, knowledge, and intentional action, and categorical norms provide categorical or overriding reasons for belief and intentional action. Moreover, categorical norms are perfectly consistent with rational norms that are instrumental, conditional, desired for the sake of other ends, pragmatic, prudential, or obtain only in virtue of good consequences. Nevertheless, categorical norms are underdetermined by all other sorts of rational norms, and therefore cannot be assimilated to or replaced by those other sorts of rational norms.

The central point of The Two-Dimensional Conception is to postulate two importantly distinct kinds of rational normative standards:

(1) **minimal or nonideal standards**, which specify a "low-bar" set of goals, targets, principles, or rules, below which normatively evaluable activity cannot and does not occur at all, and which therefore jointly constitute a qualifying level of normativity, and

(2) **maximal or ideal standards**, which necessarily include and presuppose the (satisfaction of the) minimal, non-ideal, or low-bar standards, but also specify a further "high-bar" set of goals, targets, principles, or rules, below which normatively evaluable activity indeed occurs, but is always more or less imperfect, and in certain relevant respects, bad activity, and above which more or less perfected, and in the relevant respects, fully good activity occurs, and which therefore jointly constitute a perfectionist level of normativity.

Correspondingly, then, in section 1.2, I proposed that the conditions on normative evaluations of rationality fall into two importantly different kinds:

(1) **Low-Bar rational normativity**: the necessary and sufficient conditions for minimal or nonideal rationality, which include the possession of online, uncompromised versions of all the cognitive and practical capacities constitutive of intentional agency, and

(2) **High-Bar rational normativity**: the necessary and sufficient conditions for maximal or ideal rationality, which include all the necessary and sufficient conditions for Low-Bar rational normativity as individually necessary but not jointly sufficient conditions, and also include the perfection, or correct and full self-realization, of all the cognitive and practical capacities constitutive of intentional agency, as individually necessary and jointly sufficient conditions.

Given The Two-Dimensional Conception, we can conclude four things. **First**, all rational normativity includes both Low-Bar or qualifying standards and also High-Bar or perfectionist standards. **Second**, the satisfaction of the High-Bar standards necessarily requires the satisfaction of the Low-Bar standards. **Third**, the satisfaction of the Low-Bar standards is not in itself sufficient for the satisfaction of the High-Bar standards. And finally, **fourth**, failing to satisfy the High-Bar standards is not in itself sufficient for failing to satisfy the Low-Bar standards.

Against the theoretical backdrop of The Two-Dimensional Conception, then, in this chapter I want to argue for three claims.

First, what Kant calls "pure general logic," insofar as it contains first-order monadic logic—bivalent truth-functional logic with first-order quantification into one-place predicates only—is at once the paradigmatically analytic logic, the core classical logic, and also sheer logic in a way that also would be fully acceptable to Frege, Russell, early Wittgenstein, Tarski, and Quine alike.

Second, the universal, necessary, a priori, non-instrumental, non-pragmatic, and *Low-Bar* rational normativity of pure general logic is captured by what I call "The Minimal Logical Meta-Principle of Non-Contradiction," aka **Minimal Non-Contradiction**, and this principle is ultimately grounded in the universal, necessary, a priori, non-instrumental, non-pragmatic, and correspondingly *Low-Bar* rational normativity of the Categorical Imperative.

Third, logical knowledge in the High-Bar sense of knowledge—High-Bar justified logically necessarily true a priori belief—which requires a species of what, in chapters 6 to 8, I will call basic authoritative rational intuition—is ultimately grounded in our innate capacity for the self-conscious experience of the realization of autonomy in the Kantian sense, at least partially or to some degree, which captures the High-Bar sense of rational normativity per se. This is none other than the Highest or Supreme Good, the *summum bonum*, a "good will" (*GMM* 4: 393).

In this way, I believe, we can effectively solve the three status problems by properly understanding the categorical normativity of logical principles. The pure formal science of logic thus ultimately converges with Kantian ethics, as I understand it, and it thereby inherently expresses the morality of logic. Otherwise put, I am saying that the pure formal science of logic is at bottom a *moral* science, not a *natural* science. For convenience, I will call this *a contemporary Kantian moralist solution* to the three status problems about the nature of logic.

What are the leading contemporary alternatives[5] to my contemporary Kantian moralist solution to the three status problems?

In what follows, by "inference," I mean (i) a cognitive process leading from the mental representation of the premises of a deductive, inductive, or abductive (aka inference-to-the-best-explanation) argument[6] to the mental representation of the conclusion of that argument, (ii) where the relevant cognitive transition from the representation of the premises to the representation of the conclusion is inherently governed by some rule-based standards of cogency, such that if (iii) all the premises are believed by a cognizer or cognizers, and if (iv) the relevant inherently rule-governed cognitive transition from representing the premises to representing the conclusion is also believed by that cognizer or those cognizers to be cogent, then, (v) other things being equal, the conclusion will also be believed by that cognizer or those cognizers. Not surprisingly, for the purposes of an airtight working definition of the concept of inference, the devil lies in spelling out the precise nature of the relevance

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[5] See, e.g., Boghossian, "Knowledge of Logic"; Celluci, "The Question Hume Didn't Ask: Why Should We Accept Deductive Inferences?"; Schechter and Enoch, "Meaning and Justification: The Case of Modus Ponens"; Railton, "A Priori Rules: Wittgenstein on the Normativity of Logic"; and Wedgwood, "The Normative Force of Reasoning."

[6] For the purposes of this part of my discussion, I won't attempt to define deduction, induction, or abduction. See, e.g., Shapiro, "Classical Logic"; Hawthorne, "Inductive Logic"; and Douven, "Abduction."

in the relevant inherently rule-governed cognitive transition, and also in spelling out the other-things-being-equal (aka ceteris paribus) clause.

As to the relevance issue, the crucial point is that I am excluding deviant causal chains that would make the cognitive transition one in which the cognizer's believing in the conclusion is merely accidentally connected to the believer's believing in the premises, and thus obviously non-inferential.[7] I exclude this by postulating a normative rule inherently governing that transition, such that it non-accidentally binds the cognizer's belief in the premises to her belief in the conclusion.

And as to the ceteris paribus clause issue, certainly, special allowances would have to be made for the distinction between monotonic reasoning (= adding premises does not reduce the set of logical consequences of the original set of premises) and non-monotonic reasoning (= adding premises can reduce the set of logical consequences of the original set), and so-on.

To be sure, an inference can have many further important properties. But this will suffice as a working minimal definition of the concept of inference.

Emotivism with respect to the normativity of inference says that the evaluative content of inferences is not itself truth-apt, or truth-evaluable, and consists instead exclusively in our pro-attitudes and contra-attitudes toward inferences, and is strictly determined by those attitudes.

The basic problem with Emotivism with respect to the normativity of inference is that it posits pro-attitudes or contra-attitudes that are essentially unconstrained by rational norms of consistency, truth, logical consequence, or soundness. So, in effect, *anything goes*, provided that everyone shares the same feelings. Thus the problem is anti-rational arbitrariness. A particularly pointed and reflexive version of the problem of anti-rational arbitrariness arises when one applies Emotivism to one's own inferential practices from the outside in: Do I really think that the cogency of my own inferences should be held hostage to some arbitrary pro-attitudes or contra-attitudes, whether these attitudes are mine or anyone else's? From the first-person standpoint of my own inferential agency, for me to admit or permit such an emotivist hostage-taking would be clearly rationally self-stultifying.

Instrumentalism, aka "pragmatism," with respect to the normativity of inference says that the evaluative content of inferences consists exclusively in and is strictly determined by the good or bad results, from the standpoint of human interests in either a narrowly self-oriented or a larger social sense, that are produced by inferences. The basic problem with Instrumentalism with respect to the normativity of inference is that it allows for the partial or total sacrifice of consistency, truth, logical consequence, and soundness if good consequences will ensue or bad consequences are avoided. So again, in effect, *anything goes*, provided that good results are produced and bad consequences avoided from the standpoint of human interests in either a narrowly self-oriented or a larger social sense; correspondingly, again, the problem is anti-rational arbitrariness. As with Emotivism, a particularly pointed and reflexive version of the problem of anti-rational arbitrariness arises when one applies Instrumentalism to one's own inferential practices from the outside in: Do I really

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[7] See, e.g., Neta, "What Is an Inference?"

think that the cogency of my own inferences should be held hostage to the mere production of good or bad results, whether these results favor me or anyone else? It is every bit as rationally self-stultifying for me, the inferential agent, to admit or permit an instrumentalist hostage-taking as to admit or permit an emotivist one.

A fundamental problem for any attempt to justify inference is that some or all of the specific deductive, inductive, or abductive inferential principles that are being justified must also be presupposed and used in the justification of those very principles. So, it seems, either the inferential principles are unjustified or else the purported justification fails because it is viciously circular. The Logocentric Predicament strikes again.

One way out of this version of The Logocentric Predicament is to hold that the inferential principles have what Hartry Field calls "default reasonableness," in that we are rationally entitled to presuppose and use them in the absence of any sufficient reason not to.[8] So the inferential principles do not need to be justified. The entirely reasonable question then arises, "what is the ground or source of this non-justificatory rational entitlement?" Field himself holds that the non-justificatory default-reasonable entitlement to inferential principles does not require a further ground or source, that there is no deeper fact of the matter, and that the entitlement merely reflects our strong pro-attitudes toward the inferential practices we are already engaged in. That is the *non-cognitivist*, aka "non-factualist," strategy.

Others hold that we are default-reasonably entitled to the presupposition and use of these inferential principles by the smooth fit or "reflective equilibrium" that gradually emerges over time between our own inferences insofar as they are guided by these principles, our intersubjective agreement about them, and other judgments about the world made by ourselves and others.[9] That is the *holist* strategy.

And still others hold that the concepts actually deployed in the inferences guided by these principles themselves give rise to a priori truths essentially involving these concepts, hence we are semantically and default-reasonably entitled to the presupposition and use of these principles.[10] That is the *inferentialist* strategy.

The main problem with all three of these strategies is that there seems to be no essential connection between rational entitlement on the one hand, and either pro-attitudes, coherence, or inferentialist semantics on the other. For there could clearly be pro-attitudes, coherence, and inferentialist semantics in the absence of the objectivity, necessity, and apriority of these inferential principles.

By sharp contrast to non-cognitivism, holism, and inferentialism alike with respect to the justification of inference, according to my contemporary Kantian moralist solution to the three status problems about logic, an inference is inherently governed by categorically normative logical laws of deduction, induction, or abduction. The justification of these specific inferential principles then flows directly from rational obligations: Because you are a rational animal, you categorically *ought* to reason according to these principles. Hence you have an overriding practical reason for

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[8] Field, "Apriority as an Evaluative Notion."
[9] See, e.g., Goodman, "The New Riddle of Induction"; and Rawls, *A Theory of Justice.*
[10] See, e.g., Boghossian, "Knowledge of Logic"; Peacocke, "Explaining the A Priori: The Programme of Moderate Rationalism"; and Peacocke, *A Study of Concepts*, ch. 5.

carrying out that inference according to that inferential principle, and also, correspondingly, an overriding reason for taking rational responsibility for that inference. The ground or source of obligation and rational responsibility, in turn, is rational human nature and its absolute non-denumerable intrinsic value, aka our "dignity," and, in particular, the specific constitution of our nature, namely our innately specified capacities for practical and theoretical reason.

Given its robustly practical approach to the justification of inference, my contemporary Kantian moralist account of the justification of deductive, inductive, and abductive inference is quite similar to, and very much in the same spirit as, what David Enoch and Joshua Schechter call "the pragmatic account" of justification, according to which (i) there are certain projects that are rationally required for thinkers like us and are thereby rationally obligatory for thinkers like us, and (ii) we are epistemically justified in employing a basic belief-forming method that is indispensable for successfully engaging in one or another of these rationally obligatory projects.[11] From the contemporary Kantian moralist point of view, however, their calling this account "pragmatic" is somewhat unhappy, because as I read them, their account in effect appeals to High-Bar rational human normativity, and not to merely contingent or instrumental human interests.

Granting the important similarities between our accounts, however, the crucial difference between my contemporary Kantian moralist account and Enoch's and Schechter's so-called "pragmatic" account, is that my contemporary Kantian moralist account is explicitly grounded in a Kantian "metaphysics of morals." Thereby, as we will see in chapters 6 to 8, it is committed both to the modal epistemology of rational intuition and also to Weak or Counterfactual Transcendental Idealism. So my contemporary Kantian moralist account, in effect, includes Enoch's and Schechter's "pragmatic account," and yet also situates it within a much broader and deeper epistemological and metaphysical framework. So the Enoch-Schechter view is not wrong; it simply is not as good as it could be in a deeper and wider epistemological and metaphysical framework. The contemporary Kantian moralist account is a better non-ideal explanation of how inference is justified, all things considered.

5.1 Kant on the Nature of Logic

On the face of it, the claim that a contemporary Kantian philosophy of logic can provide intelligible and defensible solutions to the three status problems about the nature of logic might seem absurd. This is because Kant's own logical theory, which contains the following notorious sentences—

That from the earliest times **logic** has traveled this secure course [of a science] can be seen from the fact that since the time of Aristotle it has not had to go a single step backwards. . . . What is further remarkable about logic is that until now it has also been unable to take a single step forward, and therefore seems to all appearances to be finished and complete. . . . The boundaries of logic are determined quite precisely by the fact that logic is the science that exhaustively

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[11] See, e.g., Enoch and Schechter, "Meaning and Justification: The Case of Modus Ponens"; and Enoch and Schechter, "How Are Basic Belief-Forming Methods Justified?"

presents and strictly proves nothing but the formal rules of all thinking (whether this thinking be empirical or *a priori*, whatever origin or object it might have, and whatever contingent or natural obstacles it may meet in our minds). (*CPR* Bxviii–xix)

—is often derided. For example, A. P. Hazen says:

Kant had a terrifyingly narrow and mathematically trivial, conception of the province of logic: Kant identified logic with Aristotelian syllogistic.[12]

But I think that Hazen's derisive remark begs a serious question or two.

In the **first** place, Kant did not *identify* logic with Aristotelian syllogistic, even though it contains Aristotelian syllogistic as a proper part. Kant's logic also contains a theory of truth-functional and modal operators (which he calls "pure concepts of the understanding"), a theory of fine-grained, immanently structured conceptual contents (which he calls *Inhalte*), a possible worlds semantics based on what he calls the "comprehension" (*Umfang*) of concepts, and above all, a theory of analyticity.[13]

But **second** and more importantly, Kant's conception of logic reflects his deep and fundamental conviction that logic and mathematics are semantically, metaphysically, and epistemically *distinct*: for Kant, logic is analytic, but mathematics is synthetic a priori (*CPR* B14–17). So for Kant, mathematics is irreducible to logic. This is, of course, a direct rejection of the very idea of *Logicism*, which is the thesis that mathematics is both explanatorily and ontologically reducible to logic. Logicism, as a philosophical program, has been most famously pursued by Leibniz (for all of mathematics),[14] by Frege (for arithmetic only),[15] by Russell and Whitehead (for all of mathematics),[16] and by the contemporary neo-Fregeans Bob Hale and Crispin Wright (for arithmetic only).[17] If Logicism is in fact a workable project, then it will indeed follow that "Kant's conception of the province of logic is terrifyingly narrow and mathematically trivial."

But on the other hand, it is also true that it is *only if* some or another version of Logicism is in fact a workable project, then will it indeed follow, as per Hazen, that "Kant's conception of the province of logic is terrifyingly narrow and mathematically trivial." If, on the contrary, however, Logicism itself is actually an unworkable project, then Kant is in the clear. Both Gödel and Tarski, two of the greatest logicians of the 20th century, and many other logicians following them, certainly thought that Logicism is inherently unworkable.[18] Therefore if Gödel, Tarski, and the other logicians are right, then Kant was right too. And if Gödel, Tarski, the other logicians, and Kant really are all correct, then in turn we can say, in direct reply to Hazen, that

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[12] Hazen, "Logic and Analyticity," p. 92.

[13] See Hanna, *Kant and the Foundations of Analytic Philosophy*, ch. 3; and also chapter 4 above.

[14] See, e.g., Mates, *The Philosophy of Leibniz: Metaphysics & Language*, chs. V–VI and IX–X; and Russell, *A Critical Exposition of the Philosophy of Leibniz*.

[15] See Frege, *Foundations of Arithmetic*; and Frege, *Basic Laws of Arithmetic*.

[16] See, e.g., Whitehead and Russell, *Principia Mathematica to *56*.

[17] See, e.g., Hale and Wright, *The Reason's Proper Study: Essays Towards a Neo-Fregean Philosophy of Mathematics*.

[18] See, e.g., Gödel, "On Formally Undecidable Propositions of *Principia Mathematica* and Related Systems"; and Tarski, *Logic, Semantics, and Metamathematics*.

Kant's conception of the province of logic is actually *appropriately* narrow and also mathematically *profound*.

According to Kant, logic is the science of the strictly universal, unrestrictedly necessary, pure a priori, and formal rules of all thinking. Or in other words, logic is the science of the absolute principles—or *laws*—of thought. But logic in this sense is to be divided into two parts: (i) *analytic* logic, which is the logic of (necessary) truth, consistency, logical consequence or entailment, and valid inference, and (ii) *dialectical* logic, which is the logic of (necessary) falsity, illusion, inconsistency, non sequitur, and fallacy (*CPR* A57–62/B82–86). Briefly put, analytic logic is *alethic logic*, and dialectical logic is *dialetheic logic*.

Kant also distinguishes between (i) *pure* analytic logic, which is a priori analytic logic—analytic logic insofar as its meaning, truth, and justifiability are all necessarily and constitutively underdetermined by empirical facts, and furthermore none of its semantic constituents are directly related to empirical facts, so pure logic is completely a priori—and (ii) *applied* analytic logic, which is the empirical psychology of analytic logic (*CPR* A52–55/B77–79).

Finally, Kant distinguishes between (i) *general* analytic logic, which is pure analytic logic whose consistency/inconsistency, conceptually necessary truth/falsity or illusion, and validity/fallacy do not metaphysically depend on, and therefore is neither necessarily nor constitutively determined by, the comprehensions or *Umfangen* of objects or states of affairs designated by propositions, singular terms, concept-terms, or discourse more generally, but which, at the same time, necessarily comprehends, or is synoptic over, all actual or possible topics of discourse, and (ii) *particular* or *special* analytic logic, which is pure analytic logic whose consistency/inconsistency, conceptual necessary truth/falsity or illusion, and validity/fallacy do metaphysically depend on, and therefore is necessarily or constitutively determined by, the comprehensions of objects or states of affairs designated by propositions, singular terms, concept-terms, or discourse more generally, and therefore is necessarily non-comprehensive, or non-synoptic, over all actual or possible topics of discourse (*CPR* A52/B76).

Here is a simple diagram of these distinctions:
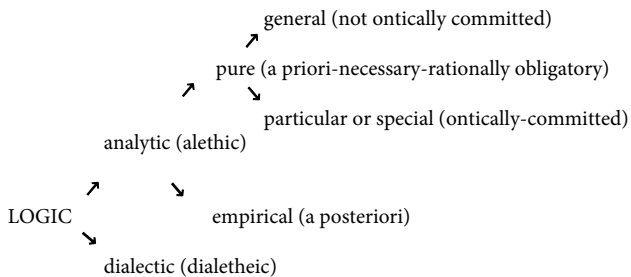
It should be noted in this connection that there is some critical controversy as to the correct interpretation of Kant's notion of logic's generality. In particular, John MacFarlane has proposed an importantly different view than the one I have offered.[19]

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[19] See MacFarlane, "Kant, Frege, and the Logic in Logicism."

In a nutshell, the issue between MacFarlane and me is whether, according to Kant, logic's generality excludes objectual content in all possible domains (MacFarlane's reading) or instead that logic's generality is merely necessarily and constitutively underdetermined by objectual content in all possible domains (my reading), which fully allows for the objectual character of pure general logic and logical truth. Or otherwise put, according to Kant, is the generality of logic its being *topic-neutral* (MacFarlane) or its being *topic-synoptic* (me)? My contention is that my reading makes better sense of Kant's three other theses to the effect that (i) statements of logical laws express analytically necessary truths, (ii) as with Aristotle, for Kant, true universal categorical propositions carry existential commitment in their subject terms and predicate terms, and (iii) the nominal definition of truth is correspondence. But also, quite apart from Kant-interpretation, my account of logical generality nicely lines up with a uniform and broadly Tarskian conception of truth: logical truths are *true* in a basic sense that is also shared by every other kind of truth.

In any case, Kant's three distinctions naturally lead to the idea of a *pure general logic*. Here is what Kant says about pure general logic in the *Critique of Pure Reason*:

[The logic of the general use of the understanding] contains the absolutely necessary rules of thinking, without which no use of the understanding takes place, and it therefore concerns these rules without regard to the difference of the objects to which it may be directed.... Now general logic is either pure or applied logic. In the former we abstract from all empirical conditions under which our understanding is exercised.... A **general** but **pure** logic therefore has to do with strictly *a priori* principles, and is a **canon of the understanding** and reason, but only in regard to what is formal in their use, be the content what it may.... A **general logic**, however, is called applied if it is directed to the rules of the use of the understanding under the subjective empirical conditions that psychology teaches us.... In general logic the part that is to constitute the pure doctrine of reason must therefore be entirely separated from that which constitutes applied (though still general) logic. The former alone is properly science.... In this therefore logicians must always have two rules in view. 1) As general logic it abstracts from all contents of the cognition of the understanding and of the difference of its objects, and has to do with nothing but the mere form of thinking. 2) As pure logic it has no empirical principles, and thus draws nothing from psychology.... It is a proven doctrine, and everything in it must be completely *a priori*. (*CPR* A52–54/B76–78)

So Kant's pure general logic, or what we would nowadays call *formal* or *symbolic* logic, is the completely a priori, strictly universal, absolutely necessary, topic-comprehensive or topic-synoptic science of the absolute principles or laws of thought.

5.2 Pure General Logic Captures the A Priori Essence of Logic

It is both relevant and important to note that as early as C. I. Lewis's seminal 1918 *Survey of Symbolic Logic*, there was a fundamental distinction in the 20th-century logical tradition between (i) *formal* or *symbolic* logic, which is essentially a rigorous development of Kant's notion of pure general logic, and (ii) what Russell aptly called

mathematical logic, which is second-order because it includes whatever logical or semantic machinery is needed to quantify over and talk about functions, predicates, and relations, and also other characteristically mathematical furniture like sets, numbers, and spaces.[20]

The reason that this distinction is philosophically important is that for Kant, it is also possible to have a pure or completely a priori logic that is topic specific, or systematically sensitive to special ontological commitments, which is what he calls *transcendental* logic (*CPR* A62/B87). Strikingly, Wittgenstein seems to have had, in effect, the very same idea about transcendental logic in the *Tractatus*:

Logic is not a theory but a reflexion of the world. Logic is transcendental.[21]

In this way, mathematical logic in Russell's sense would count as a transcendental logic for both Kant and the Tractarian Wittgenstein.

Transcendental logic in Kant's sense, however, also inherently contains true synthetic a priori statements, which would not have been allowed by Wittgenstein in his Tractarian period. Nevertheless, from a Kantian standpoint, it seems quite true that if early Wittgenstein had admitted true synthetic a priori statements into his transcendental logic, then this would have made it possible for him to provide a coherent account of the logico-semantic status of the infamous Two Colors Proposition, which is a close relative of a statement I have already discussed in section 4.7:

E21. (RG) No surface is uniformly red all over and uniformly green all over at the same time.

Here is what Wittgenstein says explicitly about that proposition in the *Tractatus*:

For two colours … to be at one place in the visual field, is impossible, logically impossible, for it is excluded by the logical structure of colour.[22]

In this way, Wittgenstein regards The Two Colors Proposition—"For two colours … to be at one place in the visual field, is impossible"—as a logical truth of elementary logic. But this forces him into the following dilemma. On the one hand, he could give up his fundamental doctrine of the logical independence of atomic propositions, for instance, paradigmatically,

(Red) Point P in visual space is red all over.

and

(Green) Point P in visual space is green all over.

Or, on the other hand, he could devise some analysis of propositions like **(Red)** and **(Green)** that converts them and all their analogues into complex or molecular propositions, in order to be able to assert that the obvious mutual exclusion relation between **(Red)** and **(Green)** is a purely logical relation. So either he gives up the

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[20] See, e.g., Lewis, *Survey of Symbolic Logic,* pp. 1–2; and Russell, *Introduction to Mathematical Philosophy.*

[21] Wittgenstein, *Tractatus Logico-Philosophicus*, prop. 6.13, p. 169.

[22] Wittgenstein, *Tractatus Logico-Philosophicus*, prop. 6.3751, p. 181.

logical independence of atomic propositions, or else the apparently paradigmatically atomic (**Red**) and (**Green**) are not atomic propositions after all. But for Wittgenstein, in the end, facing up to this dilemma also means giving up his account of the nature of logic and logical analysis in the *Tractatus*. And this is precisely what he implicitly does in 1929 in "Some Remarks on Logical Form," by claiming that atomic propositions *can* be mutually logically contradictory,[23] and then by later observing to Waismann that this move in fact leads to absurdity:

Now suppose the statement "An object cannot be both red and green" were a synthetic judgment and the words "can not" meant logical impossibility. Since a proposition is the negation of its negation, there must also exist the proposition, "An object can be red and green." This proposition must also be synthetic. As a synthetic proposition it has sense, and this means that the state of things represented by it *can obtain*. If "can not" means *logical* impossibility, we therefore reach the consequence that the impossible *is* possible.[24]

From a contemporary Kantian standpoint, however, it seems to me obvious that the right way out of Wittgenstein's dilemma is to allow for two essentially different kinds of necessity, namely: (1) analytic, conceptual, logical, or "weakly metaphysical" a priori necessity, the necessity that flows from the nature of concepts, and (2) synthetic, essentially non-conceptual, non-logical, or "strongly metaphysical" a priori necessity, the necessity that flows from the immanent structures of things in the manifestly real world, as represented by autonomous essentially non-conceptual content. Of course, this is also to hold the thesis of modal dualism. Given modal dualism, and given the fact that impossibility is definable in terms of necessity and negation, we can coherently hold that (**Red**) and (**Green**) are mutually logically independent propositions and yet also non-logically mutually exclusive propositions. The royal road to doing this is just to hold that the mutual exclusion relation between (**Red**) and (**Green**) is one of synthetic a priori impossibility, not analytic a priori impossibility.

   In any case, as I have mentioned already, Kant holds that the truths of mathematics are synthetic a priori, not analytic. As we saw in chapter 4, one reason Kant holds this is because he thinks that the representational content of *arithmetic* rests on pure general logic plus our a priori representations of the formal structures of irreversibly directional time. In effect, this Kantian move makes it possible to adequately represent Primitive Recursive Arithmetic and its conservative extensions, including Peano Arithmetic.[25] Another reason Kant holds that the truths of mathematics are synthetic a priori, not analytic, is because he holds that the representational content of geometry rests on pure general logic plus our a priori representations of orientable three-dimensional Euclidean space. In effect, this Kantian move makes it possible to adequately represent Euclidean geometry and its conservative extensions, including classical Non-Euclidean geometry.[26] But another, and ultimately equivalent,

[23] Wittgenstein, "Some Remarks on Logical Form."
[24] Waismann, *Wittgenstein and the Vienna Circle*, pp. 67–68.
[25] See Hanna, *Kant, Science, and Human Nature*, ch. 6; and also chapter 8 herein.
[26] I am counting non-Euclidean geometry as a conservative extension of Euclidean geometry, on the two-part ground that (i) the parallel postulate is logically independent of the basic Euclidean postulates and

way of expressing the synthetic apriority of arithmetic and geometry is to point out
that the logic which represents them must contain irreducibly relational predicates.
The satisfaction conditions of these irreducibly relational predicates, in turn,
require (i) the existence of at least one object in the actual world in order to
represent the identity relation, (ii) the existence of at least two objects in the actual
world in order to represent any other binary relation, and (iii) the existence in the
actual world of at least a denumerably infinite number of objects in order to
represent the standard Peano axioms for arithmetic. Thus, all the logical truths of
the first-order inherently polyadic and multiply quantified part of Frege's logic—
classical first-order predicate logic with identity—in my contemporary Kantian
terms, are synthetic a priori, not analytic.

Frege's logic includes set theory, as well as an axiom, Rule V, that allows for the
unrestricted formation of sets, nowadays called *the naïve comprehension axiom*.
The naïve comprehension axiom, in turn, permits the construction of a set K
of all sets that are not members of themselves. But the existence of K yields the
unhappy paradoxical result that K is a member of itself if and only if it is not a
member of itself. And this, of course, is Russell's Paradox. In view of the logical
fact that any proposition whatsoever follows from a contradiction, then the
existence of K is logically explosive or "impredicative." Now Russell's own math-
ematical logic includes a principle—*the vicious circle principle*—which stipulatively
rules out the impredicativity that afflicts unconstrained iterative set theory.[27] But
Russell's mathematical logic also includes something called *the axiom of infinity*,
which posits the existence of at least a denumerably infinite number of objects
in the domain of discourse, and which is arguably not a purely logical principle.
Moreover, and in any case, Russell's mathematical logic still threatens to allow
for paradoxical impredicativity with respect to functions, predicates, and rela-
tions, even if it stipulatively rules out impredicative sets, unless one makes a
further empirical and clearly non-logical assumption Russell calls *the axiom of
reducibility*.[28]

In other words, the crucial issue here is whether the rational core of classical logic
should be taken to be second-order logic in either the Fregean or Russellian sense, or
instead is *elementary logic*: bivalent first-order polyadic predicate calculus with
identity.[29]

Tarski, for example, both emphatically and explicitly supported the thesis that
elementary logic, not second-order logic, is the core classical logic:

The terms "logic" and "logical" are used [by most contemporary logicians] in a broad sense,
which has become almost traditional in the last decades; logic is here assumed to comprehend
the whole theory of classes and relations (i.e., the mathematical theory of sets). For many
different reasons I am personally inclined to use the term "logic" in a much narrower sense, so

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(ii) substituting either of the classical Riemannian or Lobachevskian alternatives for the parallel postulate
does not entail the denial of any other Euclidean postulates.

[27]   See, e.g., Russell, "Mathematical Logic as Based on the Theory of Types," p. 63.
[28]   See, e.g., Potter, *Reason's Nearest Kin*, ch. 5.   [29]   See, e.g., Mates, *Elementary Logic*.

as to apply it only to what is sometimes called "elementary logic," i.e., to the sentential calculus and the (restricted) predicate calculus.[30]

But even elementary logic contains some arguably non-logical factors. For example,

$$(1)a = a$$

is an instance of the law of identity and can be introduced into any line of a proof as a theorem of logic, and thus as depending on the empty set of premises. From this, it follows immediately that an existential quantification into (1), namely,

$$(1)(\exists x)\ x = x$$

which says *that something exists*, is also a theorem of logic, which seems highly implausible. Why couldn't there be logically possible worlds with no individual objects in them—the empty domain of discourse? And furthermore, as I noted in section 4.7, why couldn't there be logically possible worlds in which nothing whatsoever—whether individual objects or anything else having any sort of ontic status—exists?[31]

Quine, significantly, holds that identity is indeed part of the rational core of classical logic, yet also excludes set theory from this core:

The upshot is, I feel, that identity theory has stronger affinities with its neighbors in logic than with its neighbors in mathematics. It belongs in logic.

We turn now from identity to set theory. Does it belong in logic? I shall conclude not.[32]

By sharp contrast, from a contemporary Kantian point of view, both Frege's logic and also Russell's mathematical logic (and indeed any logic that is an inherently relational or polyadic logic and also includes identity, hence elementary logic, and any logic that includes set theory, and also any logic that is a second-order logic more generally) will all count as synthetic a priori *transcendental* logics, not pure general logics. This is precisely because they all include special ontological commitments that take them significantly beyond the scope of pure general logic. To the same effect, in the specific case of set theory, Quine accurately and aptly points up the significant philosophical advantages of Kant's pure general logic over Frege's logic:

Altogether, the contrasts between elementary logic and set theory are so fundamental that one might well limit the word "logic" to the former ... and speak of set theory as mathematics in a sense exclusive of logic. To adopt this course is merely to deprive "ϵ" of the status of a logical word. Frege's derivation of arithmetic would then cease to count as a derivation from logic; for he used set theory. At any rate we should be prepared to find that [Carnap's] linguistic doctrine of logical truths holds for elementary logic and fails for set theory, or vice versa. Kant's readiness to see logic as analytic and arithmetic as synthetic, in particular, is not superseded by Frege's work (as Frege supposed), if "logic" be taken as elementary logic. And for Kant logic certainly did not include set theory.[33]

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[30] Tarski, "The Semantic Conception of Truth and the Foundations of Semantics," p. 371.

[31] See also, e.g., Parsons, "Kant's Philosophy of Arithmetic," p. 131; and Shapiro, "Induction and Indefinite Extensibility: The Gödel Sentence Is True, But Did Someone Change the Subject?," p. 604.

[32] Quine, *Philosophy of Logic*, p. 64.   [33] Quine, "Carnap and Logical Truth," p. 111.

Basically the very same points could be made for the comparison and contrast between Kant's logic and Russell's mathematical logic, just by uniformly substituting "Russell" for "Frege" and "second-order logic" for "set theory" in that quotation from Quine.

This brings me, finally, to the heart of the matter. Kant thinks of pure general logic as the core classical logic because it is analytic, a priori, and strictly universal. But even more fundamentally, Kant thinks of pure general logic as the core classical logic because it is topic-comprehensive or topic-synoptic, and holds equally for empty domains of discourse, for worlds with nothing whatsoever in them, as well as for occupied domains, and worlds containing sets, functions, or relations.[34] Now Kant's pure general logic, as it happens, is also a second-order intensional monadic logic. It is second-order and intensional because it both includes and quantifies over fine-grained, decomposable concepts, as well as possible-worlds extensions—which, as we saw in section 4.7, allows a contemporary Kantian theory of the analytic-synthetic distinction to represent classical non-logically analytic statements like "Bachelors are unmarried." By another sharp contrast, Quine's and Tarski's elementary logic is an extensional logic, and not an intensional logic; moreover, elementary logic is also inherently polyadic or relational, and it includes identity. Nevertheless, where Kant's pure general logic and elementary logic fully overlap is first-order monadic logic, which is bivalent truth-functional logic together with a restricted predicate logic employing quantification over individuals and into one-place predicates only.[35] Moreover, in empty domains, or in completely empty possible worlds, the one-place predicates drop out, semantically speaking, and first-order monadic logic collapses to truth-functional logic.

Therefore, if we zero in on first-order monadic logic and explicitly take into account how it collapses into truth-functional logic in empty domains and empty worlds, it follows that in first-order monadic logic we have before us an ultra-pasteurized version of Kant's pure general logic that is also the perfect candidate for being "sheer logic" in Quine's sense:

If sheer logic is not conclusive, what is? What higher tribunal could abrogate the logic of truth functions or of quantification?[36]

In part, this is because of the following highly significant historical six-way intersection of doctrines in the philosophy of logic:

(i) Kant at least implicitly accepts that first-order monadic logic belongs to the rational core of classical logic.

(ii) Frege at least implicitly accepts that first-order monadic logic belongs to the rational core of classical logic.

(iii) Russell at least implicitly accepts that first-order monadic logic belongs to the rational core of classical logic.

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[34] Again, my interpretation of the generality of Kant's pure general logic is not shared by everyone; see note 19, this chapter.

[35] See, e.g., Boolos and Jeffrey, *Computability and Logic*, chs. 10, 22, and 25, and esp. pp. 250–55.

[36] Quine, *Philosophy of Logic*, p. 81.

(iv) The Tractarian Wittgenstein at least implicitly accepts that first-order monadic logic belongs to the rational core of classical logic.

(v) Tarski at least implicitly accepts that first-order monadic logic belongs to the rational core of classical logic.

and

(vi) Quine at least implicitly accepts that first-order monadic logic belongs to the rational core of classical logic.

Furthermore, according to the theory of analyticity I worked out in section 4.7, logical truth in first-order monadic logic is the paradigm of logical analyticity. Therefore, first-order monadic logic, as being logic in a way about which Kant, Frege, Russell, early Wittgenstein, Tarski, and Quine could all fully agree, is pure general, paradigmatically analytic, core classical, "sheer" logic. Indeed, we now realize that it was precisely the pure generality, paradigmatic analyticity, core classicality, and sheerness of first-order monadic logic that Kant implicitly had in mind when he wrote:

[t]hat from the earliest times **logic** has traveled this secure course [of a science] can be seen from the fact that since the time of Aristotle it has not had to go a single step backwards.... What is further remarkable about logic is that until now it has also been unable to take a single step forward, and therefore seems to all appearances to be finished and complete. (*CPR* Bxviii–xix)

In other words, we now realize that Kant's notorious remark was in fact entirely apt, arguably self-evidently true, and precisely the reverse of outrageous.

Following out Kant's contra-outrageous, deep thoughts about the nature of pure general logic and (at least implicitly) first-order monadic logic, then, let us call the pure logical properties of truthful consistency, soundness, completeness, decidability, and logical truth or analyticity *The Logical Perfections*. As in standard treatments of contemporary logic, consistency is the property of the formal non-contradictoriness of statements. Alternatively, in semantic terms, it is the property of there being at least one interpretation in which all members of a given set of statements are true—the set of statements "has a model." Soundness is the property such that all provable sentences or theorems in a logical system are logically true or tautologous. Completeness is the property such that all tautologies are theorems, or provable sentences. And decidability is the property such that there is a finite recursive procedure for determining tautologousness. By the perhaps slightly unfamiliar notion of the *truthful consistency* of given logical system *S*, moreover, I specifically mean that (i) *S* never includes arguments that lead from true premises to false conclusions (= truth-preservation), and (ii) *S* never includes contradictions as theorems of logic (= non-dialetheism—no "truth-value gluts" or "true contradictions" allowed). We can think of truthful consistency as the *Highest or Supreme Good* of logic, and we can also think of this systemic feature together with all the other Logical Perfections as proper parts of the *Sole and Complete Good* of logic (*GMM* 4: 396). In short, The Logical Perfections are the maximal, ideal, or High-Bar rational normative standards of logic.

It is true that each of The Logical Perfections is not independently essential to logic. *Dialetheic paraconsistent* logical systems are possible,[37] in which contradictions can occur as true sentences or even as theorems of logic (= dialetheism). Such systems are thereby not truthfully consistent, although otherwise they remain logically acceptable, provided that each such system also contains an axiom that prevents every statement whatsoever from being entailed by any given contradiction (= paraconsistency), a logically disastrous phenomenon that is called "Explosion." For example, arguably both The Liar Sentence, which asserts its own falsity,[38] and The Gödel Sentence, which provably asserts its own unprovability,[39] are true contradictions. These true contradictions can arguably be allowed into logical systems as true sentences or even theorems, provided that Explosion is ruled out.

Correspondingly, some logical systems are not sound, for example, dialetheic paraconsistent systems. Some logical systems are sound but not complete, for example, elementary logic plus the standard Peano axioms for arithmetic. And some logical systems are undecidable, for instance, elementary logic. As Gödel showed, undecidability, and indeed also logical unprovability, both apply to some individual true statements in any formal system rich enough to contain elementary logic, plus (enough of) the standard Peano axioms for arithmetic. Such systems are consistent if and only if they are incomplete, and have their ground of truth outside the system. Decidability on its own, however, can also apply to a formal system consisting entirely of what Kant would have regarded as irreducibly synthetic a priori truths, for instance, the truths of Primitive Recursive Arithmetic.[40]

More generally, it is only in the context of a *logic of analyticity* that decidability closes the tight High-Bar systematic circle of all The Logical Perfections. Indeed, when we clearly see that the tight High-Bar circle of The Logical Perfections can actually be exemplified in at least two logics—either classical truth-functional logic or first-order monadic logic, both of which are truthfully consistent, sound, complete, decidable, and analytic—then we realize that each of these logics constitutes a maximal, ideal, or High-Bar normative standard of rational systematicity. This ideal standard, as Kant points out, necessarily guides all rational and scientific inquiry in a "regulative" way. But this ideal standard must not also be regarded as "constitutive" in Kant's sense. In this context, a statement, theory, judgment, or body of knowledge is constitutive if and only if it is fully meaningful and takes a determinate classical truth-value. The tragically mistaken philosophical thesis that The Logical Perfections can somehow apply to statements, theories, judgments, or bodies of knowledge *other than* classical truth-functional logic or first-order monadic logic—say, to specifically *metaphysical* statements, theories, judgments, or bodies of knowledge—inevitably leads to fundamental metaphysical errors and insoluble logical paradoxes and puzzles, as the Transcendental Dialectic clearly shows in

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[37] See Priest, *In Contradiction*; and Priest, "What Is So Bad About Contradictions?"

[38] See, e.g., Tarski, "The Semantic Conception of Truth and the Foundations of Semantics."

[39] See, e.g., Gödel, "On Formally Undecidable Propositions of *Principia Mathematica* and Related Systems."

[40] See, e.g., Skolem, "The Foundations of Elementary Arithmetic Established by Means of the Recursive Mode of Thought, Without the Use of Apparent Variables Ranging Over Infinite Domains."

great detail (*CPR* A293–A704/B349–732). Metaphysics is *not* super-logic.[41] The philosophically tragic mistake here is to confuse the maximal, ideal, or High-Bar standard of rational normativity in logic with its minimal, nonideal, or Low-Bar standard—which, as we will see in a moment, is Explosion-prevention or minimal consistency. That confusion of High-Bar logical standards and Low-Bar logical standards, in turn, would be an instance of the more general philosophical tragedy of One-Dimensional Conceptions of rational normativity.

By sharp contrast, for the contemporary Kantian view I am defending, metaphysics is the constitutive general theory of the rational human condition. And logic is a moral science. So the metaphysics of morals, grounded on the Two-Dimensional Conception of Rational Normativity, is more basic than logic.

In the Introduction to the *Jäsche Logic*, Kant himself uses the term "logical perfections" (*logische Vollkommenheiten*) in essentially the same way I have just used it (*JL* 9: 33–81). But Kant, of course, did not know about meta-logic. Now, since Kant did not know about meta-logic, he did not know that the first-order monadic logic that is embedded in his pure general logic is truthfully consistent, sound, complete, and decidable. He did, of course (at least implicitly), know that first-order monadic logic is analytic, since (again, at least implicitly) he knew that second-order intensional monadic logic is analytic. Strikingly, and by contrast, classical first-order predicate logic with polyadic predicates and multiple quantification is truthfully consistent, sound, and complete, but not decidable, and (as we have seen) not analytic.

What are we to make of the fact that first-order monadic logic—or logic in a sense that Kant, Frege, Russell, Tarski, and Quine all implicitly but fully affirm as belonging to the rational core of classical logic—is provably truthfully consistent, sound, complete, decidable, and also analytic? One plausible thesis, which I am hereby asserting, is that first-order monadic logic is the logic that best captures our most unshakeable "obviousness" intuitions[42] about logical analyticity in natural language. Indeed, even Quine himself implicitly admits this, which can be easily enough seen by recalling his initial definition of analyticity, adding one minor qualifier to his famous remark about "sheer logic," and then juxtaposing these two seminal Quinean texts:

[Analytic statements] fall into two classes. Those of the first class, which may be called *logically true*, are typified by:

(1) No unmarried man is married.

The relevant feature of this example is that it not merely is true as it stands, but remains true under any and all reinterpretations of "man" and "married". If we suppose a prior inventory of *logical* particles, comprising "no", "un-", "not", "if", "then", "and", etc., then in general a logical

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[41] Leibniz's *Monadology*, Spinoza's *Ethics*, and Hegel's *Logic* would of course be classical instances of this philosophically tragic mistake. But the same tragic mistake lives on in Carnap's *Logical Construction of the World*, Chalmers's *Constructing the World*, and Williamson's *Modal Logic as Metaphysics*.

[42] Quine, *Philosophy of Logic*, p. 82. In chapters 6 to 8 herein, I will present a theory of what I call *authoritative rational intuition* that fully captures what Quine had in mind by a statement's "obviousness," and also situates it firmly within the framework of categorical epistemology.

truth is a statement which is true and remains true under all reinterpretations of its components other than the logical particles.[43]

If sheer logic is not conclusive, what is? What higher tribunal could abrogate the logic of truth functions or of [monadic—R. H.] quantification?[44]

Notice here that all analytic statements of the same form as "No unmarried man is married" involve first-order monadic quantification only. And the logic of truth functions and of first-order monadic quantification each count as conclusive, sheer logic. But first-order monadic logic is the logic of truth functions plus the logic of first-order monadic quantification. So according to Quine, at least implicitly, and to me explicitly, first-order monadic logic must be the logic that best captures our most unshakeable obviousness intuitions about logical analyticity in natural language.

Now if first-order monadic logic is the logic that best captures our most unshakeable obviousness intuitions about logical analyticity in natural language, then it is also plausibly arguable that pure general logic, insofar as it inherently contains first-order monadic logic, along with fine-grained, decomposable intensions and possible-worlds extensions, is what I will call *The Universal Natural Logic* of human natural languages. This is because it best captures our most unshakeable obviousness intuitions about all kinds of analyticity in natural language, just as Chomsky's *Universal Grammar*, at least by intention, best captures our most unshakeable obviousness intuitions about all kinds of grammaticality in natural languages.[45]

Here we need also to consider a distinct although, ultimately, closely related point. One of the great advances of 20th-century logic was the discovery and development of non-classical logics. Non-classical logics are of two distinct kinds: (i) *extended logics,* which preserve all the tautologies, theorems, inference rules, syntactic rules, and semantic rules of classical logic, but add some new ones, and (ii) *deviant logics*, which reject some of the tautologies, theorems, inference rules, syntactic rules, or semantic rules of classical logic, and may also add some new ones.[46] Extended non-classical logics are *conservative*, while deviant non-classical logics are *radical*. For example, second-order logic and classical modal logic are extended logics, whereas intuitionist logic (which rejects the universal law of excluded middle) and dialetheic paraconsistent logic (which, as I mentioned earlier, rejects the universal law of non-contradiction and accepts the existence of "truth-value gluts" or "true contradictions," but is otherwise logically acceptable, provided that it also contains an axiom that rules out the entailment of every statement whatsoever by any given contradiction, aka "Explosion") are deviant logics.

Given the distinction between extended and deviant non-classical logics, and assuming the plausibility of my earlier claim that pure general logic, insofar as it inherently

[43] Quine, "Two Dogmas of Empiricism," pp. 22–23.
[44] Quine, *Philosophy of Logic*, p. 81.
[45] See, e.g., Chomsky, *Knowledge of Language*; and Hanna, *Rationality and Logic*. Ironically, Chomsky's appeal to grammaticality intuitions was widely misunderstood, and this in turn led to an equally widespread misunderstanding about the nature of intuitions in philosophy. See Hintikka, "The Emperor's New Intuitions," and section 7.3 below.
[46] See, e.g., Haack, *Deviant Logic*; and Priest, *An Introduction to Non-Classical Logic*.

contains first-order monadic logic together with fine-grained, decomposable intensions and possible-worlds extensions, is the logic that best captures our most unshakeable obviousness intuitions about all kinds of analyticity in natural language, and is arguably The Universal Natural Logic of all natural languages, then I think that we can now also clearly see that pure general logic arguably captures *the a priori essence of logic*, in three senses. **First**, necessarily, if anything counts as a logic, then pure general logic, insofar as it inherently contains first-order monadic logic, will count as a logic. **Second**, necessarily, if anything is either an extended or a deviant logic, then it is nothing but either a conservative extension or a deviant of pure general logic, insofar as it inherently contains first-order monadic logic. And **third**, necessarily, the conservative extension of first-order monadic logic to pure general logic captures the a priori essence of logical analyticity, since pure general logic is just second-order intensional monadic logic and best captures our most unshakeable rational obviousness intuitions about all kinds of analyticity in natural language.

5.3 Pure General Logic Is a Categorically Normative Science

Not only does pure general logic arguably capture the a priori essence of logic. Pure general logic is also *a pure morality of thinking*. What I mean is this: Given that we are rational human thinkers and theorizers, then pure general logic provides a set of Low-Bar, minimal, nonideal, strictly universal, absolutely necessary, pure a priori, categorically normative principles for how we ought to think and theorize. Including the first epigraph of this chapter, here is what Kant says about that:

[G]eneral and pure logic is related to [applied logic] as pure morality, which contains merely the necessary moral laws of a free will in general, is related to the doctrine of virtue proper, which assesses these laws under the hindrances of the feelings, inclinations, and passions to which human beings are more or less subject, and which can never yield a true and proven science, since it requires empirical and psychological principles just as much as that applied logic does. (*CPR* A54–55/B79)

Some logicians, to be sure, do presuppose *psychological* principles in logic. But to bring such principles to logic is just as absurd as to derive morals from life. If we were to take principles from psychology, i.e., from observations concerning our understanding, we would merely see *how* thinking does take place and *how* it is under various subjective obstacles and conditions; this would lead then to cognition of merely *contingent* laws. In logic, however, the question is not about *contingent* but about *necessary* rules; not how we do think, but how we ought to think. The rules of logic must thus be derived not from the *contingent* but from the *necessary* use of the understanding, which one finds in oneself apart from all psychology. (*JL* 9: 14)

Logic is a science of reason, not as to mere form but also as to matter; a science a priori of the necessary laws of thought, not in regard to particular objects, however, but to all objects in general; —hence a science of the correct use of the understanding and of reason in general, not subjectively, however, i.e., not according to empirical psychological principles for how the understanding does think, but objectively, i.e., according to principles a priori for how it ought to think. (*JL* 9: 16)

It is important and directly relevant to note that both Boole and Frege also held an essentially similar view about logic:

[T]he word Logic in its primal sense means the Science of the Laws of Thought as expressed. Considered in this sense, Logic is conversant about all thought which admits of expression; whether that expression be effected by the signs of common language or by the symbolic language of the mathematician.[47]

The ... laws of reasoning are, properly speaking, the laws of right reasoning only, and their actual transgression is a perpetually recurring phenomenon.[48]

[The laws of logic] have a special title to the name "laws of thought" only if we mean to assert that they are the most general laws which prescribe the way in which one ought to think if one is to think at all.[49]

Like ethics, logic can also be called a normative science. How must I think in order to reach the goal, truth? ... [T]he task we assign logic is only that of saying what holds with the utmost generality for all thinking, whatever its subject matter. We must hold that the rules for our thinking and for our holding something to be true are prescribed by the laws of truth.[50]

Unlike Boole and Frege, however, Kant also has a well-developed theory of moral principles, a "metaphysics of morals," the basis of which he spells out in the *Groundwork of the Metaphysics of Morals*. To be sure, the debate about the correct interpretation of Kant's theory of moral principles has been one of the longest-running and most controversial areas in Kant-scholarship, from Hegel to yesterday.[51] In any case, here is the interpretation that I myself favor, which has in turn been importantly influenced by Onora O'Neill's "proceduralist" reading of Kant's moral theory,[52] but also includes a primitive, fundamental normative commitment.

In the *Groundwork*, Kant begins with a primitive conception of the Highest or Supreme Good: a "good will." A good will is rational, conscious, intentional agency according to principles, an inherently principled agency that thereby has an unconditional, non-instrumental value more basic than the subjective experience of pleasure or any other kind of desire-satisfaction, also more basic than any kind of human happiness, and obtains "whatever the consequences":

It is impossible to think of anything at all in the world, or indeed even beyond it, that could be considered good without limitation except a **good will**. ... [A] good will seems to constitute the indispensable condition even of worthiness to be happy. ... A good will is not good because of what it effects or accomplishes, because of its fitness to attain some proposed end, but only because of its volition, that is, it is good in itself and, regarded for itself, is to be valued incomparably higher than all that could be brought about by it in favor of some inclination and indeed, if you will, the sum of all inclinations. (*GMM* 4: 393–94)

[47] Boole, "Logic and Reasoning," p. 212.   [48] Boole, *Investigation of the Laws of Thought*, p. 408.
[49] Frege, *Basic Laws of Arithmetic*, p. 12.   [50] Frege, "Logic [1897]," p. 128.
[51] See, e.g., Paton, *The Categorical Imperative*; O'Neill, *Constructions of Reason*; Korsgaard, *Creating the Kingdom of Ends*; Engstrom, *The Form of Practical Knowledge*; and Parfit, *On What Matters*, chs. 8–14.
[52] See O'Neill, *Acting on Principle*; and O'Neill, *Constructions of Reason*.

The principles that inherently guide the good will are the four (or five) distinct formulations of the Categorical Imperative:

The Formula of Universal Law:

Act only on that maxim by which you can at the same time will that it should become a universal law. (*GMM* 4: 421)

[Alternative Formulation: *The Formula of the Universal Law of Nature*:

Act as though the maxim of your action were to become by your will a universal law of nature. (*GMM* 4: 421)]

The Formula of Humanity as End-in-Itself:

So act that you use humanity, whether in your own person or in the person of any other, always at the same time as an end, never merely as a means. (*GMM* 4: 429)

The Formula of Autonomy:

The supreme condition of the will's harmony with universal practical reason is the Idea of the will of every rational being as a will that legislates universal law. (*GMM* 4: 431)

The Formula of the Realm of Ends:

Never...perform any action except one whose maxim could also be a universal law, and thus...act only on a maxim through which the will could regard itself at the same time as enacting universal law. (*GMM*: 433)

On my interpretation of Kant's theory of moral principles, there is a lexical ordering relation between The Formula of Universal Law and the other three formulas of the Categorical Imperative, such that The Formula of Universal Law is a formal procedural presupposition of the other three formulas, each of which also captures a substantive procedural truth about morality. Now according to Kant, a maxim is a "principle of volition" (*GMM* 4: 400) or act-intention. So The Formula of Universal Law, as I am understanding it, is a purely formal procedural moral meta-principle which says that nothing will count as an objective moral principle, and in particular nothing will count as a morally permissible objective principle of volition or act-intention in any act-context, unless it consistently generalizes. The Formula of the Universal Law of Nature, as I am understanding it, is just a specification of the Formula of Universal Law which says that nothing will count as an objective moral principle, and in particular nothing will count as a morally permissible objective principle of volition or act-intention in any act-context, unless it consistently generalizes in possible worlds that include our laws of material nature, that is, in worlds in which causality is really possible.

But the other three formulas of the Categorical Imperative are material or substantive procedural moral meta-principles. The Formula of Humanity as End-in-Itself, as I am understanding it, says that nothing will count as an objective moral principle, and in particular nothing will count as a morally permissible objective principle of volition or act-intention in any act-context, unless it essentially supports the absolute intrinsic value or dignity of real persons by never entailing that they are used as mere means to some end—treated as mere things.

The Formula of Autonomy, as I am understanding it, says that nothing will count as an objective moral principle, and in particular nothing will count as a morally permissible objective principle of volition or act-intention in any act-context, unless it essentially supports the self-legislating freedom of real persons.

Finally, The Formula of the Realm of Ends, as I am understanding it, says that nothing will count as an objective moral principle, and in particular nothing will count as a morally permissible objective principle of volition or act-intention in any act-context, unless it essentially supports the self-legislating freedom of real persons in a universal intersubjective community such that each real person is considered equally or impartially in the free choices or acts of every other real person.

Precisely how many Categorical Imperatives are there? One, or at least four? The correct answer, in my opinion, is: both. This is because, in my opinion, the Categorical Imperative is most correctly construed as a single set of at least four lexically ordered, analytically interderivable, and necessarily equivalent moral meta-principles. Each member of the set of moral meta-principles occupies a certain normative-semantic position, and plays a certain normative-semantic role, within one and the same larger lexically ordered moral system; and each meta-principle differs from the others only in its functional normative-semantic nature and in its fine-grained intensional content. Here is Kant's way of putting that thought:

[T]he above [four or five] ways of representing the [Categorical Imperative] are at bottom only so many formulae of the very same law, and any one of them unites the other [three or four] in it. (*GMM* 4: 436)

Now consider the following statements:

  (T1)   Triangles are triangular.
  (T2)   Trilaterals are trilateral.
  (T3)   Triangles are trilateral.
  (T4)   Trilaterals are triangular.

According to Kant, on my interpretation, The Formula of Universal Law/The Formula of the Universal Law of Nature, The Formula of Humanity as End-in-Itself, The Formula of Autonomy, and The Formula of the Realm of Ends are all analytically interderivable and necessarily equivalent, but not synonymous, in essentially the same way that (T1) through (T4) are all analytically interderivable and necessarily equivalent, but not synonymous.[53] Each of the several formulations of the Categorical Imperative is conceptually or intensionally distinct from all of the other formulations in a semantically fine-grained way, yet at the same time they all belong to a single, multi-termed holistic conceptual network (see section 4.7), which, in turn, is fully embedded within one and the same larger lexically ordered moral system.

In the light of this interpretation of Kant's theory of moral principles, we can now very clearly see how in pure general logic there must be a Low-Bar, minimal, nonideal, strictly universal, absolutely necessary, pure a priori, categorically

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[53] And just as (T1) to (T4), which are all analytic truths about the synthetic a priori exact science of geometry, so too The Formula of Universal Law/The Formula of the Universal Law of nature, The Formula of Humanity as End-in-Itself, The Formula of Autonomy, and The Formula of the Realm of Ends are all analytic truths about the synthetic a priori human science (*Geisteswissenschaft*) of morality.

normative principle of truth-preserving consistency that is essentially analogous to The Formula of Universal Law[54]:

Act only on that maxim by which you can at the same time will that it should become a universal law. (*GMM* 4: 421).

My own proposal for this Low-Bar, minimal, nonideal, strictly universal, absolutely necessary, pure a priori, categorically normative logical principle is what I call *The Minimal Logical Meta-Principle of Non-Contradiction*, aka **Minimal Non-Contradiction**:

Accept as truths in any language or logical system only those statements which do not entail that it and all other statements in any or every language or logical system whatsoever are both true and false.

Minimal Non-Contradiction, in turn, guarantees what I call *minimal truthful consistency*. Truthful consistency, as such, means that you must accept as truths in a language or logical system only those statements which do not entail that *any* argument in that language or system leads from true premises to false conclusions. By contrast, *minimal* truthful consistency means that you must accept as truths in any language or logical system only those statements which do not entail that *every* argument in that language or system leads from true premises to false conclusions. This latter notion, of course, is consistent with holding that some arguments in that language or system lead from true premises to false conclusions, and indeed it is also consistent with holding that some arguments in the language or system lead from the null set of premises to necessarily false conclusions. If so, then some statements in that language or system are both true and false, hence are truth-value gluts or "true contradictions." Therefore, minimal truthful consistency is consistent with dialetheic paraconsistency.[55]

In other words, then, **Minimal Non-Contradiction** essentially secures minimal truthful consistency, and rules out Explosion. It is not a strictly truth-preserving logical principle, and not even a strictly consistency-preserving logical principle—hence it is not a High-Bar, maximal, or ideal standard of rational normativity in logic—but it nevertheless strictly rules out global inconsistency—logical nihilism or chaos, which is the ultimate result of Explosion: If every statement whatsoever follows from a contradiction, then the negation of every statement whatsoever also follows from a contradiction, and therefore every statement whatsoever is a truth-value glut or true contradiction.[56]

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[54]   See also O'Neill, *Constructions of Reason*, pp. 58–59.
[55]   See note 395.
[56]   In *Rationality and Logic*, ch. 3—see esp. p. 45—I did not adequately recognize the crucial difference between **Minimal Non-Contradiction**, on the one hand, and other weak principles of classical logic, on the other. Only **Minimal Non-Contradiction** is obeyed by *every possible* non-classical logic, for instance, by dialetheic paraconsistent logics. The other weak principles of classical logic, by contrast, are undermined by logics that are either not truth-preserving or not consistency-preserving.

In the 1980s, Hilary Putnam very plausibly argued that the negative version of this minimal logical meta-principle is the one absolutely indisputable a priori truth:

I shall consider the weakest possible version of the principle of [non-] contradiction, which I shall call the minimal principle of [non-] contradiction. This is simply the principle that *not every statement is both true and false*...[I]f, indeed, there are no circumstances in which it would be rational to give up our belief that *not every statement is both true and false*, then there is at least one *a priori truth*.[57]

Now Putnam and I would disagree, I think, on what the precise nature of apriority is—see section 7.1 below. More generally, although Putnam goes beyond what the later Wittgenstein and Quine had to say about apriority, his own view of apriority was too heavily influenced by them.[58] But leaving that disagreement aside, my own contemporary Kantian way of making a very similar point, but even more radically, is to say that **Minimal Non-Contradiction** just *is* the Categorical Imperative, insofar as it inherently governs all logic, cognition, science (whether formal, exact, or natural), and theorizing more generally, as rational human activities, as well as all practical and moral activities. To be sure, a certain amount of well-insulated contradiction is not only a natural tragic fact of theoretical and practical life, but also it can up to a certain point be rationally and humanly accepted, comprehended, and lived with, in a way that is fully compatible with Kantian ethics. And sometimes, oddly enough, a certain measure of well-insulated inconsistency is even a very good thing indeed—as effective negotiators, passionate lovers, great poets, and profound mystics all know. In this respect, Emerson was right on target:

A foolish consistency is the hobgoblin of little minds, adored by little statesmen and philosophers and divines.[59]

Less poetically put, **Minimal Non-Contradiction** is clearly a Low-Bar, minimal, or nonideal standard of rational normativity in logic, not a High-Bar, maximal, or ideal standard.

Nevertheless, I think it is self-evidently true that global inconsistency is the end of rationality, specifically including the end of categorically normative rationality, and also that the end of categorically normative rationality is the root of all evil, in the sense that all moral evil is either a direct violation of, or else a privation of, the categorical High-Bar standards of rational normativity. That is the sense in which, directly opposing the Carnap of *The Logical Syntax of Language*, I want to say that in logic there must be some morals, and in particular that logic must contain some categorically normative morals. Indeed, as regards their most basic principles, logic and categorically normative morality are one and the same rational human enterprise. In section 5.5, I will further develop, and justify, this thesis about the fundamental convergence of logical and moral principles. But before we do that, I need to begin to face up directly to the three fundamental "status problems" about the nature of logic.

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[57] Putnam, "There Is At Least One A Priori Truth," pp. 100–01.
[58] See, e.g., Putnam, "Analyticity and Apriority: Beyond Wittgenstein and Quine."
[59] Emerson, "Self-Reliance," p. 153.

5.4 A Contemporary Kantian Moralist Solution to The Problem of Explanatory and Justificatory Status

Again, The Problem of the Explanatory and Justificatory Status of Logic is this:

In order to explain or justify logic, logic must be presupposed and used. As a direct consequence of this circularity, it seems to follow that logic is inexplicable and unjustifiable.

Or otherwise put: How can logic ever be justified or explained, if logic must be presupposed and used in order to justify logic? This problem is essentially the same as the one that the Harvard logician Harry Sheffer—known best for his discovery of the Sheffer stroke function—called "the logocentric predicament" in a 1926 review of the second edition of *Principia Mathematica*:

The attempt to formulate the foundations of logic is rendered arduous by a … "logocentric" predicament. In order to give an account of logic, we must presuppose and employ logic.[60]

In 1895 Lewis Carroll had pointed up a closely related worry in "What the Tortoise Said to Achilles," by arguing that the attempt to generate the total list of premises required to validly deduce the conclusion of an argument leads to a vicious regress.[61] Carroll's argument was resuscitated in 1936 by Quine in "Truth by Convention." In that seminal paper, as we saw in section 4.4, Quine pointed out that the attempt to define logical (or analytic) truth on the basis of syntactic meta-logical conventions alone is viciously circular in a Tortoise-like fashion, because pre-conventional logic is already required to generate the truths from the conventions.[62] And in 1976 Susan Haack raised what is in effect the same worry, but this time in the form of a concern about the very idea of a justification of logical deduction, by arguing as follows:

(1) All justification is either non-deductive (e.g., inductive) or deductive.
(2) On the one hand, a non-deductive justification of deduction is too weak and, on the other hand, a deductive justification of deduction is circular.
(3) Therefore, deduction cannot be justified.[63]

Philosophers of logic have attempted various solutions to The Logocentric Predicament, the Tortoise regress problem, and the problem of justifying deduction. I will not canvass these attempts here, although I do cover them and critically analyze them in detail in *Rationality and Logic*, chapter 3. My intention here is just to explain how we could use the notion of pure general logic to solve The Logocentric Predicament and its associated problems.

Pure general logic inherently contains first-order monadic logic, and also satisfies logic's Low-Bar rational normative standard, **Minimal Non-Contradiction**. Pure general logic thereby adequately captures all The Logical Perfections: truthful consistency, soundness, completeness, decidability, and above all, analyticity. And pure general logic is also the Universal Natural Logic. Hence, pure general logic also satisfies logic's High-Bar rational normative standard. For all these reasons, pure

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[60] Sheffer, "Review of *Principia Mathematica*, Volume I, second edition," p. 228.
[61] Carroll, "What the Tortoise Said to Achilles."
[62] Quine, "Truth by Convention," p. 104.   [63] Haack, "The Justification of Deduction."

general logic really does capture the a priori essence of logic. Consequently, since all rational theorizing, explanation, and justification whatsoever presuppose logic, it follows that pure general logic must also be the categorically normative a priori essence of all rational theorizing, explanation, and justification whatsoever. Fully understanding this point solves The Problem of the Explanatory and Justificatory Status of Logic.

More explicitly, it solves that Problem by showing us that pure general logic is the explanatory and justificatory unique obligatory theoretical primitive. Pure general logic is the one and only science necessarily by virtue of which, and in terms of which, every judgment, belief, claim, inference, science, or more generally any theoretical activity or product that is in any way justifiable or explicable by reasons, ought to be explained or justified. Pure general logic is, then, both adequately explained and justified when we learn that every explanation and justification whatsoever, including the explanation and justification of every other logic, both has to presuppose and use pure general logic, and has to presuppose and use it alone, and also rightly does so. Pure general logic—The Universal Natural Logic, the paradigm of logical analyticity—is that logic which, uniquely, we must and ought to presuppose and use in order to construct any other logic, in order to construct any rational explanation whatsoever, in order to construct any rational justification whatsoever, and in order to construct any rational theory whatsoever. Hence Onora O'Neill very aptly calls this line of argument "a constructivist vindication of formulas of logic."[64]

The philosophical thesis of *constructivism*, whether inside or outside of ethics, holds that human agents or the human mind play an active, basic role in determining and generating the content of all beliefs, truths, knowledge (especially including the knowledge of language), desires, volitions, act-intentions, and logical or moral principles. In this way, The Logocentric Predicament, the Tortoise regress problem, and the problem of justifying deduction are just ways of showing us pure general logic's primitive and unique a priori status in any cognitive, scientific, or more generally theoretical constructive activity or product. More specifically, they show us pure general logic's absolutely unique a priori categorically normative status in all constructive theoretical explanation and justification whatsoever, including any attempt to construct theoretically an explanation or justification of logic itself. Pure general logic is the one and only categorically normative a priori condition of the possibility of all constructive theoretical explanation and justification whatsoever. Otherwise put, pure general logic necessarily is, and unconditionally ought to be, presupposed and used in every constructive theoretical explanation and justification whatsoever. And that is why (pure general) logic *must be* presupposed and used in any attempt to justify or explain (any kind of) logic. In this sense, pure general logic is not only transcendental,[65] but also our rational human moral duty. The Logocentric Predicament thereby dissolves without residue into Kantian ethics.

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[64] O'Neill, "Vindicating Reason," p. 305.
[65] This is not, however, to say that pure general logic is a "transcendental logic" in Kant's technical sense of that term. See section 5.2.

As applied specifically to the problem of justifying deduction, the contemporary Kantian moralist solution then looks like this:

(1) All justification is either non-deductive (e.g., inductive) or deductive.
(2) On the one hand, an inductive justification of deduction is too weak and on the other hand, a deductive justification of deduction is circular.
(3) But an appeal to categorically normative a priori principles of human rationality provides non-deductive (hence non-circular) justification that is neither inductive nor otherwise too weak.
(4) Pure general logic is the one and only categorically normative a priori condition of the possibility of all constructive theoretical explanation and justification whatsoever.
(5) Therefore, insofar as deduction conforms to pure general logic, deduction is justified.

5.5 A Contemporary Kantian Moralist Solution to the Problem of Epistemic Status and Quine's Predicament Too

Again, The Problem of the Epistemic Status of Logic is this:

What kind of knowledge do we have when we know the concepts, truths, and laws of logic, and how is this knowledge possible?

And Quine's Predicament is this:

No statement is immune from revision, but sheer logic is unrevisable. So human logical rationality itself, which is at once fallibilist and infallibilist, seems to be incoherent.

I am now going to propose a comprehensive contemporary Kantian moralist solution to The Problem of Epistemic Status and Quine's Predicament. This comprehensive solution is motivated by a development of what contemporary Kantian ethicists call *Kantian constructivism*.

As I mentioned earlier, constructivism is the philosophical thesis which says that human agents or the human mind play an active, basic role in determining and generating the content of all beliefs, truths, knowledge (especially including the knowledge of language), desires, volitions, act-intentions, and logical or moral principles. In turn, *Kantian* constructivism in *ethics* says that a fundamental conception of the rational human agent constrains the process by which agents determine and generate first-order substantive moral principles.[66] As I see it, this fundamental conception of the rational human agent should not be minimal or "thin," but should in fact be maximal or "thick," in the sense that it is specifically rational human minded animals or real human persons that we are talking about. Therefore, my fundamental conception of rational human agents inherently contains a rich and substantive theory of the ineliminable embeddedness of moral principles

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[66] See, e.g., Hill, "Kantian Constructivism in Ethics"; and O'Neill, *Constructions of Reason*.

in their real-time lives and in the fully natural and thoroughly nonideal actual world in which they live, move, and have their being.

According to my maximalist version of Kantian constructivism, then, rational human minded animals or real human persons do not either agree on or choose first-order moral principles under idealized conditions and behind a "veil of ignorance," as in the influential minimalist account of Kantian constructivism developed by John Rawls.[67] Instead, according to my account, rational human minded animals or real human persons psychologically generate and also biologically/neurobiologically realize first-order moral principles under fully natural and thoroughly nonideal real-world conditions, given our innately specified rational human capacities for cognition and intentional action under categorically normative principles. This happens in essentially the same way that we psychologically generate and biologically/neurobiologically realize natural languages and natural logics under fully natural and thoroughly nonideal real-world conditions.[68]

Against that theoretical backdrop, the main idea behind my proposed comprehensive contemporary Kantian moralist solution to The Problem of Epistemic Status and Quine's Predicament alike is this. We cognitively and practically construct and also volitionally and act-intentionally implement the laws of pure general logic in all logical systems, inherently under the strictly universal and pure a priori Low-Bar rational normative guidance of **Minimal Non-Contradiction**. This happens in essentially the same way that we cognitively and practically construct and also volitionally and act-intentionally implement strictly universal and pure a priori Low-Bar rational normativity of the four basic formulations of the Categorical Imperative in all intentional act-contexts, inherently and specifically under the guidance of a minimal meta-moral consistency principle—The Formula of Universal Law. More precisely, in following the Categorical Imperative, and especially in following The Formula of Universal Law, we also find that we innately have the capacity, under appropriate triggering conditions, spontaneously to apply and understand the basic laws and basic concepts of pure general logic. Or in other words, in morality and moral life, as it is lived in real-time in the fully natural and thoroughly nonideal actual world, pure general logic is cognitively and practically inherently included with no extra theoretical commitments or costs in every act of cognitive or practical construction—in *all* the relevant senses of the term "free," it is included for free.

In this way, we can take the laws of pure general logic to be the supreme constructive categorically normative logical meta-principles, telling us how we unconditionally ought to go about constructing all possible logical principles or rules, all possible logical proofs, all possible logical systems, all possible exact scientific principles or rules, all possible exact scientific proofs, and all possible exact sciences themselves. It is to be particularly emphasized that this does not mean that the sciences are supposed to be deduced from these supreme meta-principles, construed as axiomatic premises. Instead and on the contrary, the lower-order sciences are all constructed and operated according to these supreme

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[67] See Rawls, "Kantian Constructivism in Moral Theory."
[68] See Hanna, "Rationality and the Ethics of Logic"; and Hanna, *Rationality and Logic*, esp. chs. 4–7.

constructive categorically normative meta-principles. In turn, this adequately solves The Problem of the Epistemic Status of Logic by interpreting a priori logical knowledge as a special kind of pure practical know-how. Knowing pure general logic is knowing how I ought to think and theorize, just as knowing the Categorical Imperative is knowing how I ought to choose and act.

But in precisely *which* way do we actually go about cognitively and practically constructing, and also volitionally and act-intentionally implementing, pure general logic? Here again the deep analogy and intimate connection with Kantian ethics is the key. For our purposes here, we can think of Kantian ethics as having three complementary elements.

First, Kantian Ethics contains a primitivist thesis about fundamental value: The Highest or Supreme Good is a good will (*GMM* 4: 393) (*CPrR* 5: 110). In turn, a good will in the Kantian sense is the self-consciously experienced realization, at least partially and to some degree, of our capacity for autonomy. The self-conscious experience of our own at-least-partially-realized capacity for autonomy carries with it a deep happiness, or "self-fulfillment" (*Selbstzufriedenheit*) (*CPrR* 5: 117). This is aptly characterized by Kant—who clearly has the Stoic notion of *ataraxia* in mind— as a "negative satisfaction in one's own existence," which also strongly anticipates what Kierkegaard called "purity of heart,"[69] what the 20th-century Existentialists called "authenticity,"[70] what Harry Frankfurt has variously called "freedom of the will," "decisive identification," and "wholeheartedness,"[71] and Bernard Williams[72] and Christine Korsgaard[73] have called "integrity." In any case, whatever we call it, it consists, in the ideal case, of the self-conscious experience of the perfect coherence and self-sufficiency of all one's own desires, beliefs, cognitions, inferences, intentions, motivating reasons, and choices in the act of autonomous principled willing.

This Kantian fundamental axiological thesis about the good will can be directly compared and contrasted with that of *ethical egoism*, which says that the highest good is individual self-interest, and also with that of *act consequentialism*, which says that the highest good is choosing and acting with good results. Now, ethical egoism and act consequentialism can both be consistently combined with classical *eudaimonism*, which says that the highest good is human happiness. This would involve fundamentally self-interested and therefore individual shallow happiness for the ethical egoist, or, for the act consequentialist, good results that increase overall shallow happiness for as many people or other shallow-happiness-capable creatures as possible. Deep happiness, however, is not only irrelevant to ethical egoism and act consequentialism, but even inimical to them, since the achievement of deep happiness generally runs contrary to the pursuit of shallow happiness. So Kantian Ethics is sharply distinct from ethical egoism, act consequentialism, and classical eudaimonism alike.

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[69] Kierkegaard, "Purity of Heart Is to Will One Thing."
[70] See, e.g., Crowell (ed.), *The Cambridge Companion to Existentialism*.
[71] See Frankfurt, *The Importance of What We Care About*.
[72] Williams, "A Critique of Utilitarianism."
[73] Korsgaard, *Self-Constitution: Dentity, Agency, and Integrity*.

At the same time, however, according to Kantian Ethics, the Sole and Complete Good (*GMM* 4: 396), or the best life for any rational human animal or real human person, is a life of individual deep happiness and also, correspondingly, communal or social deep happiness that is intrinsically controlled and structured by a good will. Every time an agent truly chooses or acts for the sake of the "moral law" or Categorical Imperative, she thereby realizes moral worth and she thereby experiences autonomy, at least partially or to some degree. But if she also thereby achieves some individual and also communal or social deep happiness, then she also realizes a proper part of the Sole and Complete Good. In this way, Kantian Ethics has *two* primitive fundamental values: (i) the Highest or Supreme Good (a good will, self-consciously experienced as the realization, at least partially or to some degree, of our capacity for autonomy), and (ii) the Sole and Complete Good (i.e., deep human individual and communal or social happiness controlled by a good will). But these two primitive fundamental values are not inherently independent of one another. On the contrary, the relation between the Highest or Supreme Good and the Sole and Complete Good is thoroughly essentialist and mereological. According to this picture, the Highest or Supreme Good, the good will, is the governing intrinsic structure (or "essential form") of the vital stuffing (or "prime matter") that is deep human individual and communal or social happiness, and the living whole that is jointly constituted by them is the Sole and Complete Good.[74] So the two primitive fundamental values are really two-in-one.

Second, Kantian Ethics includes four fundamental practical concepts:

  (i) the concept of a set of strictly and unconditionally universal a priori normative moral meta-principles, aka the Categorical Imperative (see also *GMM* 4: 420–421),

  (ii) the concept of absolutely intrinsically non-denumerably objectively valuable rational human animals or real human persons (see also *GMM* 4: 428–429),

  (iii) the concept of self-legislating freedom or autonomy in the "faculty psychology" sense (see also *GMM* 4: 440, 446–455), and

  (iv) the concept of self-legislating equality of consideration between real persons in the universal community of real persons, aka The Realm of Ends (see also *GMM* 4: 433–440).

Third, corresponding respectively to the four fundamental practical concepts of Kantian Ethics, as I noted earlier, there are four (or five, depending on how you count them) distinct formulations of one single Categorical Imperative, which Kant provides in the *Groundwork*:

  (i) The Formula of Universal Law and its alternative version, The Formula of the Universal Law of Nature,

  (ii) The Formula of Humanity as End-in-Itself,

  (iii) The Formula of Autonomy, and

  (iv) The Formula of the Realm of Ends.

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[74] For an extended defense of this way of interpreting Kant's ethics, see Hanna, "Sensibility First: Kant, Non-Conceptualism, and Non-Intellectualism."

Now according to Kant, a maxim is a "principle of volition" (*GMM* 4: 400) or act-intention. So The Formula of Universal Law says that nothing will count as a moral principle, and in particular, that nothing will count as a morally permissible principle of volition or act-intention in any context, unless it consistently universalizes throughout the complete system of moral principles. In other words, the very idea of minimal truthful consistency—**Minimal Non-Contradiction**—together with all the other strictly universal and pure a priori high-bar Logical Perfections provided by pure general logic, are built right into our conception of the Highest or Supreme Good of categorically normative morality. Therefore, the categorical normativity of pure general logic, and thereby also the normativity of any other logic constructed by means of pure general logic, whether categorical or hypothetical, is grounded on the strictly universal and pure a priori low-bar categorical normativity of the Categorical Imperative, which is innately specified within us as a psychologically real generative procedure for cognition and intentional action.

According to Kantian Ethics, we cognitively and practically construct, and also volitionally and also act-intentionally implement, the Categorical Imperative just by using our faculty for pure practical reason in the best way. More precisely, under appropriate empirical triggering conditions, we spontaneously psychologically generate and apply the Categorical Imperative as an absolute meta-principle of choosing and acting, and then we appropriately reconfigure or restructure our wills by means of the higher-order moral emotion of respect, or *Achtung*. This is what it is to do our duty in the moral sense, and to have a good will. Or as Kant puts it:

Duty is the necessity of an action [done] from respect for [the moral] law. (*GMM* 4: 400)

When we use our faculty for pure practical reason in the best way, and thereby self-consciously fulfill and realize ourselves, morally, at least partially or to some degree, then we choose and act *autonomously*—we self-legislate the Categorical Imperative in a way that is self-consciously experienced as psychologically free, transcendentally free, and practically free—and thereby, at least partially or to some degree, we self-consciously fulfill and realize the inbuilt highest aims, standards, and ideals of our own practical powers.

Correspondingly, then, on the contemporary Kantian moralist approach to logical a priori knowledge that I am proposing, we also cognitively and practically construct, and also volitionally and act-intentionally implement, the basic laws and concepts of pure general logic, by using our faculty for pure practical reason in the best way under appropriate triggering conditions, by generating the laws of pure general logic as principles of our thinking, and then by appropriately reconfiguring or restructuring our wills by means of the logically moral emotion of respect for minimal truthful consistency, which, as I have said, is the Highest or Supreme Good of logic. Otherwise put, *logical duty* is the necessity of an act done from respect for the **Minimal Non-Contradiction** principle that is innately specified within us. The moral emotion of logical respect, in turn, follows directly from our respect for the Categorical Imperative in its Formula of Universal Law and other formulations that are specified innately within us.

What we might plausibly call *the strict or perfect duties of pure general logic* are then the logical laws governing the other Logical Perfections of soundness,

completeness, decidability, and logical truth or analyticity. If we reason logically in a perfected or self-fulfilling and self-realizing way, at least partially and to some degree, then we choose and act autonomously to that extent and to that degree—we self-legislate the laws of pure general logic in a way that is self-consciously experienced as psychologically free, transcendentally free, and practically free—and to that extent and to that degree we thereby fulfill and realize the inbuilt aims of our logical powers. So I am saying that logical a priori knowledge, or knowing how we ought to think, is fundamentally an expression of our capacity for autonomy.

My contemporary Kantian maximalist version of Kantian constructivism, then, as applied to the philosophy of logic, solves The Problem of the Epistemic Status of Logic, because at one and the same time we can accept that pure general logic is strictly universal and pure a priori, and also hold that we must stand in some direct causal relation to it. Under the appropriate triggering conditions, we spontaneously generate and apply pure general logic and its categorically normative laws for thinking and theorizing. So we freely will and self-legislate the laws of pure general logic, just insofar as we freely will and self-legislate the Categorical Imperative. The causal efficacy of autonomously free and wholehearted intentional choices and acts of logical cognition are automatically guaranteed by the causal efficacy of autonomously free intentional choices and acts more generally.

So, too, my contemporary Kantian maximalist version of Kantian constructivism also solves Quine's Predicament, because at one and the same time we can assert that (i) every statement whatsoever is revisable in the sense that all belief-claims, or all claims to human knowledge of the truth of statements, are epistemically fallible insofar as it is logically or conceptually possible that they are false (= analytic epistemic fallibilism), and also consistently assert that (ii) **Minimal Non-Contradiction** is absolutely unrevisable in the sense that it is itself categorically normative and thus practically obligatory. Analytic epistemic fallibilism and categorical practical obligation are perfectly mutually compatible.

Correspondingly, we can claim that The Universal Revisability Principle is itself categorically epistemically obligatory in categorical epistemology. The Universal Revisability Principle, when properly understood in a Kantian Ethics–oriented way, does not state a theoretical or scientific belief about the possible falsity of all statements. Instead, it states a categorically normative commitment to the critical examinability of all rational human belief-claims and knowledge-claims, since as a matter of logical, conceptual, or analytic possibility, any or all such claims could be false. This is perfectly compatible with the full recognition that **Minimal Non-Contradiction** is absolutely unrevisable, since it holds up perfectly under all possible critical examinability.

It is important to note in this connection that moral/practical autonomy and logical/cognitive autonomy are not precisely the same. The relevant difference between the two kinds of autonomy has to do with a difference in how the will of the rational human agent is reconfigured or restructured in practical agency or logical agency, respectively. In the case of moral/practical autonomy, it is the higher-order feeling of respect for the Categorical Imperative and for the dignity, freedom, and equal consideration of all the actual and possible members of the universal community of rational animals or real persons—The Realm of Ends—including oneself as a

member-in-good-standing of The Realm, that primarily motivates us, as captured in The Formula of Humanity as End-in-Itself, The Formula of Autonomy, and The Formula of the Realm of Ends formulations of the Categorical Imperative. This controls our natural egoism and selfishness, our natural hedonism, and our natural act consequentialism.

But in the case of pure general logic, and logical/cognitive autonomy, it is not respect for rational animals or real persons and the Moral Law that most directly and saliently motivates us. Rather, it is logical respect for the strictly universal and pure a priori Low-Bar logical categorical norm of minimal truthful consistency, and also respect for the other Logical Perfections, as proper parts of the Sole and Complete Good of logic, that most directly and saliently motivate us. To be sure, logical respect is ultimately grounded in respect for rational animals or real persons and the moral law or Categorical Imperative innately specified within us. So it is respect for rational animals or real persons and the moral law or Categorical Imperative that ultimately motivates us in acts of logical reasoning. But logical respect more directly and saliently controls our natural strong desire to assert propositions and "take them to be true" (*Fürwahrhalten*). As Descartes very aptly pointed out in his *Rules for the Direction of the Mind*, *Discourse on Method*, and the fourth *Meditation*, it is our natural assertiveness, and in particular, the vice of willful over-assertiveness, that needs to be controlled if we are to be as logically rational as we can humanly possibly be. Otherwise we wantonly commit formal or informal fallacies of reasoning. So according to the contemporary Kantian moralist conception of logic that I am proposing, pure general logic is essentially a system of categorical imperatives for the construction of all other logics, cognitions, sciences (whether formal, exact, or natural), and theories, as rational human minded animal or real personal achievements.

According to this conception, fallacies are the logical "sins" and a habitual tendency to commit logical fallacies of reasoning is a logically "vicious" or "wicked" rational human cognitive life. The scare or shudder quotes are important, because of course I am not saying that to commit logical fallacies is the *same* as moral sin and wickedness. It is only *analogous* to moral sin and wickedness. Otherwise, Introductory Logic classes would be Dens of Iniquity.

But on the other hand, if I came into a room and then very loudly and apparently sincerely committed a really flagrant violation of **Minimal Non-Contradiction**, for instance

"Every statement whatsoever is self-contradictory, including this one!"

then everyone would very correctly criticize me and righteously protest. Global inconsistency—logical nihilism or chaos, or Explosion—to borrow Francisco Goya's stunningly apt phrase from the *Los caprichos*, is "the sleep of reason." In turn, the sleep of reason produces "monsters"[75] and is the root of all evil, not to mention the end of

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[75] *El sueño de la razon produce monstruos.* Moral evil, on my view, is any privation of the morally Highest or Supreme Good—the good will, that specifically consists in some combination of violations of The Formula of Universal Law and one or more of The Formula of Humanity as End-in-Itself, The Formula of Autonomy, or The Formula of the Realm of Ends. This, in turn, is the result of what Augustine calls "the perversity of the will," but what Kant thinks of as the capacity for "radical evil" that flows from

the world as we know it. So committing logical fallacies is deeply analogous to moral sin and wickedness. Logical respect for minimal truthful consistency, and also for the other Logical Perfections, moreover, enables us freely to suspend assertion until we have gotten our inferential and conceptual faculties into the right configuration for valid and sound logical reasoning. On this contemporary Kantian logical moralist account, then, and otherwise put, logical a priori knowledge, construed as knowing how we ought to think and theorize, is just freely and rightly controlling our natural tendency to commit fallacies.[76]

5.6 Conclusion

In this way, contemporary Kantian moralism about logic not only provides a comprehensive solution to The Problem of Epistemic Status and Quine's Predicament too, a solution which is perfectly coherent and continuous with my contemporary Kantian moralist solution to The Problem of Explanatory and Justificatory Status. More than that, contemporary Kantian moralism about logic also shows us how, in a very clear and distinct sense, taking a good class in Introductory Logic builds within us a deep analogue of morally virtuous character. The Highest or Supreme Good for rational human minded animals or real human persons—whether in logic, in morality, or in our own individual and communal or social lives—is the self-consciously experienced realization of our capacity for autonomy, at least partially or to some degree. So in a radically more appropriate way than their educational designers perhaps ever intended, good solid classes in Introductory Logic and in Introductory Ethics are both, ultimately, short courses in the very same "Core Humanities" subject: "Human Rationality in a Non-ideal World 100."

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egoism and selfishness. But above all, simply put, as a humanly monstrous or near-satanic paradigm, moral evil consists in treating other people, or yourself, *as mere things, just because you can.* See Hanna, "Sensibility First: Kant, Non-Conceptualism, and Non-Intellectualism."

[76] See Hanna, *Rationality and Logic*, ch. 7.

6

Rationalism Regained 1
The Benacerraf Dilemmas

Although these principles [of mathematics], and the representation of the object with which this science occupies itself are generated in the mind completely *a priori*, they would still not signify anything at all if we could not always exhibit their significance in appearances (empirical objects). Hence it is also requisite for one **to make** an abstract concept **sensible**, i.e., display the object that corresponds to it in intuition (*Anschauung*), since without this the concept would remain . . . without **sense**, i.e., without significance. Mathematics fulfills this requirement by means of the construction of the sensible form (*Gestalt*), which is an appearance present to the senses (even though brought about *a priori*). In the same science, the concept of magnitude seeks its standing and sense in number, but seeks this in turn in the shapes, in the beads of an abacus, or in the strokes and points that are placed before the eyes. The concept is always generated *a priori*, together with the synthetic principles of formulas from such concepts; but their use and reference to supposed objects can in the end be sought nowhere but in experience, the possibility of which (as far as its form is concerned) is contained in them *a priori*.

(*CPR* A239–240/B299)

[T]he distrust of the "intuitional" basis of analytic philosophy . . . is rooted in nothing less than an imperfect understanding of scientific method.

—A. Pap[1]

Of course, some philosophers think that something's having intuitive content is very inconclusive evidence in favor of it. I think it is very heavy evidence in favor of anything, myself. I really don't know, in a way, what more conclusive evidence one can have about anything, ultimately speaking.

—S. Kripke[2]

[A]lthough we cannot speak of the absolute security of finitism, there is a sense in which we can speak of its *indubitability*. That is, any nontrivial reasoning about number will presuppose finitist methods, and there can be no preferred or even equally preferable method from which to launch a critique of finitism. In other words, it is simply pointless to doubt it.

—W. Tait[3]

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[1] Pap, *Semantics and Necessary Truth*, p. 422.   [2] Kripke, *Naming and Necessity*, p. 42.
[3] Tait, "Finitism," p. 546.

> Pure intuition as Kant understood it was evidently supposed somehow to get us across the divide between the fuzzy *Lebenswelt* with its everyday objects and the sharp, precise realm of the mathematical, in terms of which mathematical conceptions of the physical world are developed.
>
> —C. Parsons[4]

6.0 Introduction

In chapters 1 to 5, I have presented and defended a fully integrated approach to the philosophy of mind and theory of knowledge, from a contemporary Kantian point of view. This approach had five parts. **First**, I worked out a theory of categorical epistemology and its Two-Dimensional Conception of rational normativity, focused on the fundamental distinction between High-Bar knowledge and Low-Bar knowledge. **Second**, I developed a theory of intentionality and its cognitive semantics, focused on the fundamental distinction between autonomous essentially non-conceptual content and conceptual content. **Third**, I argued for a radically direct or naïve realist theory of sense perception and High-Bar perceptual knowledge, focused on disjunctivism and perceptual self-knowledge. **Fourth**, I presented a cognition-and-rationality oriented theory of the analytic-synthetic distinction and modal dualism, explicated in terms of the distinction between conceptual content and autonomous essentially non-conceptual content. And **fifth** and finally, I worked out a contemporary Kantian moralist theory of the nature of logic.

In this and the next two chapters, I want to present and defend a positive contemporary Kantian theory of rational intuition and a priori knowledge that builds directly on all these results.

"3+4=7." Very few statements, even necessarily true statements, are objectively[5] and authentically knowable in such a way that one's act, state, or process of knowing is (i) completely convincing, intrinsically compelling, or *self-evident*, (ii) evidentially delivered to belief by a properly functioning cognitive mechanism, aka *cognitively virtuous*, and also (iii) *essentially reliable*—such that it includes a non-accidental or necessary tie to the necessary-truth-makers of belief. But this is one of those statements. And I think I can prove that to you in four short steps.

First, please look at this simple diagram carefully and thoughtfully:

$$||| + |||| = |||||||$$

Second, I will define some terminology. By "clarity" I mean that the intentional content of the mental act, state, or process is phenomenologically salient. By "distinctness" I mean that the intentional content of the mental act, state, or process is phenomenologically discriminable. And by "indubitability" I mean that it is epistemically impossible for the cognitive subject sincerely to believe the denial of the

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[4] Parsons, *Mathematical Thought and Its Objects*, p. 166.
[5] The notion of objectivity covers both (i) knowledge, belief, or perception, and also (ii) what is known, believed, or perceived: so in this and the next two chapters I will sometimes let "objectively" qualify acts or states of knowing, believing, or perceiving, and sometimes let it qualify propositions, statements, states-of-affairs, objects, or other intentional targets of knowing, believing, or perceiving.

propositional content of the intentional act, state, or process, once the cognitive subject has adequately understood that content. It is possible for the content of an intentional act, state, or process to be clear but not distinct, but the converse is not the case: necessarily, every distinct act, state, or process is also clear.[6] Finally, clarity or distinctness can be either essentially non-conceptual or conceptual. These last two points are important details. But the main point I am making here is that the clarity, distinctness, and indubitability of a cognition all add up to its being "self-evident," by which I mean that it is completely convincing or intrinsically compelling.

Third, now having looked at the diagram once already, and also having understood what I mean by "clarity," "distinctness," "indubitability," and "self-evident," please look carefully and thoughtfully again at the simple stroke diagram, and at the same time read the symbol sequence "3+4=7," while assertorically saying to yourself, "Three plus four equals seven."

Fourth, by virtue of doing all that, therefore—to use Descartes's famous terminology— it is clearly, distinctly, indubitably and self-evidently objectively known by you that necessarily, 3+4=7.

Moreover, although your cognition of "3+4=7," via the stroke diagram, obviously began in human sensory experience, nevertheless its specific content and evidential character were not derived from—that is, they were neither necessarily nor constitutively determined by, or otherwise put, they were necessarily and constitutively underdetermined by—any and all empirical facts. So you also know it a priori.

This consistent combination, within objective authentic a priori knowledge, of (i) the necessity of a sense-experiential and contingent natural starting point for all actual or possible human cognition, and (ii) the necessary and constitutive underdetermination of meaning, truth, and belief-justification by any and all empirical facts, is closely related to Kant's equally famous and very deep remark in the B or 1787 Introduction to the *Critique of Pure Reason* about the subtle modal relationship between the universally empirical origins of all human cognition and the existence and specific character of the a priori:

Although all our cognition commences **with** experience, yet it does not on that account all arise **from** experience. . . . It is therefore a question requiring closer investigation, and one not to be dismissed at first glance, whether there is any such cognition independent of all experience and even of all impressions of the senses. One calls such **cognitions *a priori***, and distinguishes them from **empirical** ones, which have their sources *a posteriori*, namely in experience. (*CPR* B1–2)

It is also closely related to David Hilbert's slightly less famous, but equally deep, remark about the "intuitively present" character of the basic objects of finitistic mathematical reasoning:

[A]s a condition for the use of logical inferences and the performance of logical operations, something must already be given to our faculty of representation, certain extralogical concrete

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[6] See also Descartes, "Rules for the Direction of the Mind"; and Descartes, "Meditations on First Philosophy" and "Objections and Replies," pp. 24 and 103–05. Significantly, in the *Rules*, Descartes closely associates clear and distinct intuition and its indubitability with *imaginative visualization*. See Gaukroger, *Descartes: An Intellectual Biography*, pp. 115–24, and 158–81.

objects that are intuitively present as immediate experience prior to all thought. If logical inference is to be reliable, it must be possible to survey these objects completely in all their parts, and the fact that they occur, that they differ from one another, and that they follow each other, or are concatenated, is immediately given intuitively, together with the objects, as something that can neither be reduced to anything else nor requires reduction. This is the basic philosophical position that I consider requisite for mathematics and, in general, for all scientific thinking, understanding, and communication.[7]

A little later I will come back to this point about the consistent combination, within objective authentic a priori knowledge, of the universality of empirical starting points (whether merely causally triggering, or also evidential) together with the necessary and constitutive underdetermination by all empirical starting points. And I will also come back to Kant's very deep remark about this combination, and to Hilbert's equally deep remark about the basic objects of finitistic mathematical reasoning. For the moment, however, I am only highlighting the manifest fact that "3+4=7" immediately presents itself to you as objectively necessarily true and authentically known a priori. But two other very important things flow naturally from this manifest fact.

First, in so presenting itself, "3+4=7" also immediately presents itself to you in such a way that neither its necessary truth nor the apriority of your act, state, or process of knowing it depends on anything merely subjective or idiosyncratic: any mature rational human animal could, and should, know this. And you are a mature rational human animal. So you have intrinsically compelling or self-evident, cognitively virtuous, and essentially reliable *objective* a priori knowledge that necessarily, 3+4 =7—High-Bar a priori knowledge.

Second, by means of your act of cognition, a strongly normative fact has also emerged. Precisely insofar as you are a rational human animal cognizer, you categorically (i.e., non-instrumentally and unconditionally) ought to believe that 3+4=7. In that sense, arithmetic is a robustly normative science, that is, one of the "moral sciences" in the classical 19th-century sense of *Geisteswissenschaften*.

But how is all of this possible? By way of answering that question, this chapter and the two that follow it have five overlapping topics.

First, they are about the nature of mathematical necessary truth and a priori knowledge. So they collectively constitute an essay in the philosophy of mathematics, with special reference to its cognitive semantics and epistemology, building directly on the theory of conceptual and essentially non-conceptual content that I worked out in chapter 2.

Second, they are about the nature of logical necessary truth and a priori knowedge. So, building directly on the contemporary Kantian moralist approach to logic that I worked out in chapter 5, they also collectively constitute an essay in the philosophy of logic, with special reference to its cognitive semantics and epistemology.

Third, they are about the nature of necessary truth and a priori knowledge of any kind whatsoever. So, building directly on the theory of the analytic-synthetic distinction that I developed and defended in chapter 4, they also collectively constitute an

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[7] Hilbert, "On the Infinite," p. 376.

essay in modal epistemology as such, that is, an essay in the general theory of our a priori knowledge of necessity (and correspondingly, of actuality and possibility) and essence.

Fourth, they are about the nature and epistemic status of rational intuitions, and more specifically, they show how an innatist, rational-intuition-based modal epistemology can, and indeed must, be defended against skeptical attacks by classical or contemporary philosophers, especially including those who currently operate under the rubric of Experimental Philosophy or X-Phi. So the three chapters also collectively constitute, in effect, a contemporary Kantian new rationalist—"neo-rationalist"—manifesto.[8]

Fifth and finally, in these last three chapters of the book, I am also interested in developing some substantive analogies between an innatist, rational-intuition-based modal epistemology of mathematics and logic on the one hand, and an innatist, rational intuition-based modal epistemology of philosophy on the other. The point of these analogies is to show that mathematics, logic, and also philosophy itself, are all objective robustly normative a priori sciences for all actual and possible rational human animals, that is, objective rational a priori moral sciences.

More precisely and positively now, I believe that mathematics, logic, and philosophy all include and presuppose some basic (i.e., primitive, starting-point-providing) and authoritative rational intuitions that constitute authentic a priori knowledge of objectively necessary truths, such that those rational intuitions are (i) intrinsically compelling or self-evident, (ii) cognitively virtuous, and also (iii) essentially reliable, or absolutely skepticism-resistant. In addition, however, the beliefs included in those rational intuitions are factive or world-involving and modally grounded. That is, they are beliefs that are inherently connected to necessary-truth-makers for those beliefs. Furthermore, the cognitive capacities or mechanisms yielding self-evidence for those beliefs track truth in the actual world and also counterfactually across all relevant nomologically possible and metaphysically possible worlds. Any explicit or implicit denial or rejection of those beliefs would be self-stultifying in the strongly normative sense that human rationality itself would then be impossible, including also skeptical human rationality. Hence we categorically ought not to reject them, insofar as we are rational human animals. In short, these basic authoritative a priori rational intuitions—constituting self-evident, cognitively virtuous, and also essentially reliable, or absolutely skepticism-resistant, a priori knowledge of objectively necessary truths—are robustly normative conditions of the possibility of human rationality, and implicit even in every attempt to reject these rational intuitions for any intelligible or defensible reason whatsoever.

And that is not all. I also believe that, starting with these basic authoritative a priori rational intuitions of objectively necessary truths, then mathematicians, logicians, and philosophers can also rationally construct non-basic and non-authoritative a priori rational intuitions. These intuitions are not completely convincing, not intrinsically compelling, and therefore not self-evident; and they are neither essentially

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[8] See also Chapman, Ellis, Hanna, Hildebrand, and Pickford, *In Defense of Intuitions: A New Rationalist Manifesto*.

reliable nor absolutely skepticism-resistant. But at the same time, they remain fairly convincing, fairly compelling, and therefore fairly evident; and they are also fairly reliable, and fairly skepticism-resistant.[9] They thereby effectively extend their foundational corpus of basic authoritative a priori knowledge to a fairly secure non-foundational constructed corpus of a priori knowledge, thus making rational progress in mathematics, logic, and philosophy.

Of course, a postmodern anti-rational nihilist skeptic, of the sort we already encountered in section 4.3, could still choose to reject all of these intuitions, whether basic authoritative rational intuitions, or non-basic constructed rational intuitions, for no defensible or intelligible reason whatsoever—as it were, just for the hell of it. So at least as a form of emotional self-expression, postmodern anti-rational nihilist skepticism is really possible. And, to be sure, someone's striking an attitude, or acting out some passion, is always psychologically or sociologically fascinating. Nevertheless, for all its psychological or sociological interest, that sort of skepticism is philosophically perverse and pointless. An attitude struck, or a passion acted out, is not an argument made.

Now back to the main point. Corresponding to the five overlapping topics I mentioned a few paragraphs above, in this chapter and the next two I will also specifically address five hard philosophical problems.

The **first** hard problem I will address is what I will call *The Original Benacerraf Dilemma*, which seems to entail that objective mathematical necessary truth, on the one hand, and rational human a priori knowledge of objective mathematical necessary truth, on the other hand, are mutually incompatible. In order to solve this problem adequately, I think that we must adopt two contemporary Kantian doctrines.

First, we must reject the classical platonic conception of abstractness, which says that something is abstract if and only if it has a mind-independent, substantial existence in a separate, non-spatiotemporal, non-natural, non-sensory, causally irrelevant, and causally inert realm. And in its place, we should put a non-platonic, Kantian conception of abstractness, which says:

X is abstract if and only if *X* is not uniquely located and realized in actual spacetime, and *X* is concrete otherwise.

By "*X* is uniquely located and realized in actual spacetime," I mean that *X* is exclusively embodied or incarnated *at* and exclusively embodied or incarnated *in*, and thereby fully occupies, one and only one actual spacetime volume. This conception of abstractness is thus saying that something is concrete if and only if it is uniquely located and realized in actual spacetime, and abstract otherwise. More specifically, according to this conception, whatever is multiply located, multiply realized, non-actual, or non-spatiotemporal will count as abstract. What makes this conception of abstractness non-platonic, above all, is its comparatively liberal approach to what will count as abstract. It in fact includes the platonic conception of abstractness—under

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[9] Later, in section 7.4, I will argue that some non-basic rational intuitions are also authoritative. But that refinement is not necessary for the point I am making right here.

the special constraint of radical agnosticism about platonically abstract objects in particular and *noumenal* objects more generally, whereby we know a priori that we cannot know whether they exist or do not exist. But this conception of abstractness is also significantly less restrictive than the platonic conception, robustly non-dualistic, and fully compatible with causal relevance. In addition to its highly problematic assumption that there are humanly knowable objects that are not only causally inert but also completely causally irrelevant, what the platonic conception mistakenly assumes is that multiple location, non-actuality, and non-spatiotemporality are all necessarily equivalent with one another, so that platonic abstractness includes them all as necessarily conjoined features. But in fact they are logically independent features of things: hence the correct, non-platonic conception of abstractness includes them disjunctively, not conjunctively.

What makes this conception of abstractness not only non-platonic, but also Kantian? In Kantian terms, X is concrete if and only if X is either (i) what Kant calls an "appearance," which is the "undetermined object of an empirical intuition" (*CPR* A20/B34)—"undetermined" in that it is not fully specified as to its contingent or essential properties—or else it is (ii) what he calls "a real object of experience" (*CPR* B289–291), the fully determined and thus fully specified object of an objectively valid and true empirical judgment (the judgment of experience), and (iii) X is abstract otherwise. So X is abstract if and only if X is neither what I call an *authentic appearance*[10] nor a real object of experience in Kant's sense.

Second, I think that we must also adopt contemporary Kantian versions of *Mathematical Structuralism* and mathematical authoritative rational intuition. Mathematical Structuralism says that mathematical entities are not independent substances of some sort, but instead are nothing more and nothing less than relational positions or roles in a larger mathematical theory-structure. Correspondingly, mathematical authoritative rational intuitions, as I am understanding them, are self-evident, cognitively virtuous, and essentially reliable a priori conscious pattern-matching graspings of some proper parts of a larger mathematical theory-structure, via our direct conscious experience, in spatiotemporally framed schematic sense perception, memory, or sensory imagination, of—in effect—Hilbert's basic objects of finitistic mathematical reasoning.

This kind of direct conscious experience is equivalent to what, in the first epigraph of this chapter, Kant calls the cognitive construction of a sensible form *(Gestalt)* in pure or a priori intuition *(Anschauung)* via the productive imagination *(produktive Einbildungskraft)*. It is also equivalent to the cognitive construction of what the cognitive psychologist Philip Johnson-Laird calls *mental models*.[11] We could also call it the cognitive construction of *mental diagrams, mental pictures, structural imagery*, or *schemata*.

Whatever we call it, the main claims I am making here are that, (1) on the one hand, mathematical necessary truths directly express proper parts of larger mathematical

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[10] There is an important distinction between (i) an *authentic* or *objective appearance*, an *Erscheinung*, and (ii) a *mere* or *subjective* appearance, a *Schein*. See Hanna, *Kant, Science, and Human Nature*, pp. 199–200.

[11] See, e.g., Johnson-Laird, *Mental Models*.

theory-structures. And correspondingly, (2) on the other hand, mathematical rational intuitions are self-evident, cognitively virtuous, and essentially reliable a priori conscious pattern-matching graspings of some of those proper parts of those very structures, by means of the cognitive construction and manipulation of sensible forms given in Kantian pure or a priori intuition and constructed by the productive imagination. So the imagination-based cognitive phenomenology of mathematical authoritative rational intuition is a perfect mirror of the structuralist ontology of the truth-makers of a priori mathematical beliefs.

The simplest example of what I am talking about here is the one I used earlier, namely reading and adequately understanding the symbol sequence, "3+4=7," while looking carefully and thoughtfully at this stroke diagram,

$$||| + |||| = |||||||$$

and also assertorically saying "Three plus four equals seven" to yourself. Here, the cognitive phenomenology of your experience internally mirrors the content of the proposition you are thinking and asserting, and in turn there is also a non-accidental and indeed necessary conformity between the content of the proposition and the underlying mathematical structure of the manifest natural world, of which the stroke diagram is one highly salient instance. The productive imagination is in play precisely to the extent that you are able consciously to scan the stroke diagram, then consciously reproduce it in short-term memory, and then consciously manipulate it in certain definite ways with the same epistemic force. For example, the operations of the productive imagination would be phenomenologically manifest and salient if you were now, self-consciously, to generate in your mind a corresponding diagram for "2+3=5," and then also come to know *this* truth objectively a priori via rational intuition. The actual existence of the Kantian productive imagination in precisely this sense of a phenomenologically robust image-generating, image-scanning, image-reproducing, and image-manipulating function of the conscious rational human mind has been empirically well-confirmed in classic cognitive-psychological work by Roger Shepard and others.[12]

In any case, the ground of the necessary conformity between mathematical authoritative rational intuitions in the human mind, on the one hand, and mathematical structures in the manifest natural world outside the human mind, on the other hand—a necessary conformity that suffices to close the gap between justification and truth, and thereby guarantees essentially reliable a priori knowledge of objective necessity—will then be explained within a specifically Kantian metaphysical and epistemological framework.

The **second** hard problem I will address in these three chapters is what I call *The Extended Benacerraf Dilemma*, which smoothly extends The Original Benacerraf Dilemma from mathematics to logic. In order to solve this extended version of the problem adequately, I think that we must, correspondingly, appeal directly and

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[12] See, e.g., Shepard, "The Mental Image"; Shepard and Chipman, "Second Order Isomorphisms of Internal Representations: Shapes of States"; Shepard and Cooper, *Mental Images and Their Transformations*; and Shepard and Metzler, "Mental Rotation of Three-Dimensional Objects."

substantively to Kantian versions of *Logical Structuralism* and logical authoritative rational intuition, as well as to the same specifically Kantian metaphysical and epistemological framework used for the adequate solution of The Original Benacerraf Dilemma.

The **third** hard problem I will address in these three chapters is what I call *The Generalized Benacerraf Dilemma*. This problem further elaborates the shared deep structure of The Original and The Extended Dilemmas, and then projects that deep structure onto a priori knowledge of any kind whatsoever, including mathematical a priori knowledge, logical a priori knowledge, philosophical a priori knowledge, moral a priori knowledge, axiological a priori knowledge, linguistic a priori knowledge, semantic a priori knowledge, and so on.

Here is The Generalized Benacerraf Dilemma in a nutshell. On the face of it, factive a priori knowledge of necessary a priori truth must be such that its connection to its necessary truth-makers is not just a cosmic accident or a massive coincidence, for otherwise it is left wide open to the skeptical charge that it is not reliable. Let us call this possibility of cosmic accident or massive coincidence *the possibility of cognitive-semantic luck*. If the possibility of cognitive-semantic luck is not ruled out, then a priori knowledge of any kind whatsoever is impossible. Now the truth-makers of factive, modally grounded a priori knowledge are either non-natural or natural. But on the one hand, if they are non-natural, then the purportedly non-accidental truth-making connection between rational human beliefs and their truth-makers is a metaphysical mystery. Yet on the other hand, if they are natural, then the purportedly non-accidental truth-making connection between rational human beliefs and their truth-makers entails the contingency and aposteriority of those beliefs, not their necessity and apriority. So either way, a priori knowledge of any kind whatsoever is impossible, precisely because the possibility of cognitive-semantic luck has not been ruled out.

If The Original Benacerraf Dilemma and The Extended Benacerraf Dilemma are "hard problems," then The Generalized Benacerraf Dilemma is a *very* hard problem indeed. But even despite that, I do think that The Generalized Benacerraf Dilemma is adequately solvable, by appealing to the self-same specifically Kantian metaphysical and epistemological framework used for the adequate solutions of the original and extended versions of The Dilemma. More boldly, I will also claim that what the generalization of The Dilemma shows is that appealing to a Kantian metaphysical and epistemological framework is ultimately the *only* way of adequately solving any version of The Dilemma.

The **fourth** hard problem I will address in these three chapters is what I will call *The Problem of the Epistemic Status of Rational Intuitions*. The Benacerraf Dilemma, whether in its Original or Extended version, is based on a logical, semantic, metaphysical, and epistemological clash between two seemingly basic authoritative philosophical rational intuitions about (1) our natural-language semantics of mathematical and logical truth, on the one hand (i.e., "Truth is uniform and broadly Tarskian"[13]), which entails the abstractness and causal inertness of mathematical and logical

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[13] I will explain what I mean by "broadly Tarskian," as opposed to "speciously Tarskian," in section 6.1.

truth-makers, and (2) our causally-and-empirically anchored, natural-world directed, directly referential, non-conceptual, sense-perceptual epistemology, on the other hand (i.e., "Human knowledge begins in causally-triggered, direct, non-conceptual, non-inferential sense perception of contingent natural objects or facts"). Correspondingly, The Generalized Benacerraf Dilemma is based on another logical, semantic, metaphysical, and epistemological clash between two further closely related, and equally seemingly basic authoritative philosophical rational intuitions about (1) the need to rule out the possibility of cognitive-semantic luck, on the one hand, and (2) the fact that the truth-makers of knowledge are either non-natural or natural, on the other hand.

My proposed solutions to The Original, Extended, and Generalized Benacerraf Dilemmas not only preserve the objective necessity, apriority, and basic authoritative epistemic force of the two pairs of seemingly incompatible yet also seemingly self-evident, cognitively virtuous, and essentially reliable philosophical rational intuitions, but also include a substantive general theory of (i) basic and non-basic, (ii) essentially reliable, fairly reliable, and defeasible/fairly unreliable, and (iii) authoritative, constructed, and prima facie, mathematical, logical, and philosophical rational intuitions alike. Therefore, precisely to the extent that my Kantian solutions to the three Benacerraf Dilemmas are all cogent, then they will also jointly constitute an adequate vindication of what are classically known as rational intuitions, whether clear, distinct, indubitable, and objectively certain (authoritative, i.e., self-evident, cognitively virtuous, and essentially reliable) or not wholly clear, not wholly distinct, and not indubitable, but still not merely defeasible/fairly unreliable (constructed, i.e., fairly evident, fairly cognitively virtuous, and fairly reliable).

Or otherwise put, suppose that we adequately explain how we can objectively know a priori and with basic full-strength epistemic force via *mathematical* authoritative rational intuition that, for instance,

$$3 + 4 = 7, i.e., ||| + |||| = |||||||$$

and also objectively know a priori and with basic full-strength epistemic force via *logical* authoritative rational intuition that, for instance,

It is not the case that every statement in any or every language or logical system whatsoever is both true and false., i.e., $\sim (\forall S) (S \, \& \sim S)$, i.e., **Minimal Non-Contradiction**,

without at the same time falling into any inconsistency with respect to our basic authoritative philosophical rational intuitions about the nature of truth and truth-makers, on the one hand, and the nature of human knowledge and its relation to the possibility of cognitive-semantic luck, on the other hand. Then we will also, thereby, have effectively answered the radically skeptical worries raised not only by classical skeptics (whether Pyrrhonian or Cartesian) and classical Empiricists like Hume, but also by contemporary proponents of Experimental Philosophy or X-Phi, in particular, and by contemporary proponents of Scientific Naturalism in general, about the reliability of mathematical, logical, or philosophical intuitions.

The usual strategy in contemporary meta-philosophy for determining the reliability of philosophical intuitions is to treat them as if they were somehow inherently

separate, or at least prima facie separate, from mathematical and logical intuitions, and then to argue that philosophical intuitions count as minimal "data" or evidence for philosophical justified beliefs and theories, because all intuitions count as minimal data or evidence for justified beliefs and theories. My idea, on the contrary, is that a correct treatment of the reliability of philosophical rational intuitions can flow only from a theory of mathematical and logical basic authoritative rational intuitions, understood as paradigms of rational normativity, and essential starting points, and as providing conscious evidence for sufficiently justified mathematical and logical beliefs and theories.

This in turn is because, in my opinion, **first**, as moral sciences, mathematics, logic, and philosophy alike ultimately have their foundations in what Kant called *a metaphysics of morals*—a general theory of human rationality and its categorical normativity, and **second**, philosophy is different from all the other forms of science, knowledge, freely chosen self-conscious social practice, and freely chosen self-conscious individual activity only in the maximally synoptic scope of its critical and reflective reach over all and only topics of fully natural and robustly normative relevance to us in our rational and "human, all too human" predicament.

In his famous paper, "Philosophy and the Scientific Image of Man," Sellars glossed the nature of philosophy in the following way—

The aim of philosophy, abstractly formulated, is to understand how things in the broadest possible sense of the term hang together in the broadest possible sense of the term.[14]

I think that this formulation is almost correct, but still not quite right, and that what Sellars should have written instead is—

The aim of philosophy, abstractly formulated, is to understand how things in the broadest possible sense of the term, *insofar as they really matter to rational human animals or real human persons,* hang together in the broadest possible sense of the term.

More recently, in her fascinating 2012 Dewey Lecture for the Eastern Division of the APA, Judith Jarvis Thomson says, by way of conclusion, that

[i]n sum, there are two questions I would welcome seeing work on. First, there is the question why we care about philosophical theories—what have we got when we've got one? And connected, second, why do some philosophical theories seem safer against counter-cases than others do? (I doubt that the first question can be answered without the second.) Both of the questions are meta-philosophical. Encouraged by Williamson and others, there is already the beginnings of a contemporary literature on meta-philosophy, and I greatly hope that some Believer [in the basic premises of the original Trolley Problem] will be able to produce a plausible theory that yields that, and explains why, we must not kill that one bystander, and I also hope that some epistemologist will be able to produce an acceptable theory of knowledge [that fully faces up to the Gettier worries].[15]

[14] Sellars, "Philosophy and the Scientific Image of Man," p. 1.
[15] Thomson. "How It Was," p. 120, underlining added. For an attempt at fulfilling Thomson's hopes about the Trolley Problem, see also Hanna, "Morality *De Re*: Reflections on the Trolley Problem"; Hanna, "Insiders and Outsiders"; and Hanna, *Kantian Ethics and Human Existence*, ch. 5.

In chapters 6–8 I will adequately answer both of Thomson's questions, and also fulfill at least one of her philosophical hopes (i.e., the underlined one), from a contemporary Kantian standpoint.

The **fifth** and final hard problem I will address in these three chapters is what I will call *The Problem of Objectivity*, or the classical problem of how it is that truth and the intentional targets of all knowledge—especially including mathematical, logical, and philosophical a priori knowledge—can all be genuinely *mind-independent*, without also making them into what J. L. Mackie derisively called "Queer Facts,"—supernatural items that are *humanly impossible* to know.[16] Otherwise and more briefly put, somehow objectivity must be the necessary conjunction of mind-independence *and* human knowability: but how is this possible? The Benacerraf Dilemmas, whether Original, Extended, or Generalized, pose The Problem of Objectivity in a particularly sharp way. In order to resolve the worry about objectivity, I will argue that truths of all kinds and the other proper intentional targets of rational human knowledge are indeed objective, and furthermore that anything *X* which belongs to the manifestly real world is objective if and only if (1) *X* is necessarily and constitutively underdetermined by all actual or possible contingent idiosyncrasies of individual minds and cultural or social agreements—*X* is inherently non-subjective and non-relative, and can exist and be what it is, even if no minds exist, or ever existed (**the weak mind-independence thesis**)—and (2) necessarily, *X* would be veridically cognized by some rational human animals, at least to some extent, were some rational human minded animals to exist (**the weak or counterfactual mind-*dependence* thesis**).

Claim (1), **the weak mind-independence thesis**, entails the necessary presence of some a priori factors in the constitution of all truths and human knowledge about the manifestly real world, and also entails the ontic integrity of the manifestly real world—it possesses its own existence and its own nature, even despite not being metaphysically "lonely" (i.e., constituted by intrinsic non-relational properties) in the way that Cartesian substances and Leibnizian finite monads are metaphysically lonely. Claim (2), **the weak or counterfactual mind-dependence thesis**, entails that it is necessarily possible for rational human minded animals to cognize the manifest natural world veridically, at least to some extent, and also that the manifestly real world basically contains some necessary converse intentional properties (aka "response-dependent properties"). This class of converse intentional properties preeminently includes the general subjunctive conditional (aka "counterfactual") modal converse intentional property to the effect that necessarily, any of these manifestly real worldly properties would be veridically cognized by some rational human minded animals, at least to some extent, were some rational human minded animals to exist. And this, again in turn, is equivalent to a suitably modest version of transcendental idealism, Weak or Counterfactual Transcendental Idealism.

But in any case, the upshot of the two claims is that objectivity is non-subjective, non-relative, ontic-integrity-possessing, necessary counterfactual universal rational human intersubjectivity.

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[16] See Mackie, *Ethics: Inventing Right and Wrong*.

Bounded in a nutshell, then, the main thesis of these three chapters is that mathematics, logic, and by the very same token, philosophy, are all rational human constructions in the quite specific sense that they are all objective robustly normative sciences for all actual and possible rational human animals—objective rational a priori moral sciences—which is why we can know them via authoritative or constructed rational intuition. But lying behind or beneath this objectivity, grounding it, are two deeper facts: (i) that the primitive procedural rules by which we construct mathematical, logical, and philosophical systems of principles are strictly universal, necessary, and non-empirical or a priori, flowing from the underlying structures of our universally shared, integrated system of innately specified cognitive capacities or competences, across all actual and possible rational human animals, and (ii) that necessarily, the manifestly real world structurally conforms to the strictly universal, necessary, and non-empirical or a priori primitive procedural rule-structures of our universally shared innately specified rational human cognitive capacities or competences.

Or in other and even fewer words, the main thesis of these three chapters is that *objectivity has a human face, with rationality written all over it.* And the demonstration of that thesis, in turn, completes the overall argument of the book.

6.1 Rationalism Lost: The Original Benacerraf Dilemma

I who erewhile the happy garden sung,
By one man's disbedience lost, now sing
Recovered Paradise to all mankind,
By one man's firm obedience fully tried
Through all temptation, and the Tempter foiled
In all his wiles, defeated and repulsed,
And Eden raised in the waste wilderness.

—J. Milton[17]

As an account of our knowledge about medium-sized objects, in the present, this is along the right lines. [A reasonable epistemology] will involve, causally, some direct reference to the facts known, and, through that, reference to those objects themselves. . . . [C]ombining *this* view of knowledge with the "standard" view of mathematical truth makes it difficult to see how mathematical knowledge is possible. If, for example, numbers are the kinds of entities they are normally taken to be, then the connection between the truth conditions for the statements of number theory and any relevant events connected with the people who are supposed to have knowledge cannot be made out.

—P. Benacerraf[18]

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[17] Milton, "Paradise Regained," p. 495, book I, lines 1–7.
[18] Benacerraf, "Mathematical Truth," pp. 672–73.

The Original Benacerraf Dilemma, as formulated by Paul Benacerraf in 1973, is about the apparent impossibility of reconciling a "standard, uniform" semantics of truth in natural language with a "reasonable" epistemology of cognizing true statements, when the relevant kind of true statement to be semantically explained is mathematical truth and the relevant kind of cognition to be epistemologically explained is mathematical knowledge.

A "standard, uniform" semantics of truth, in Benacerraf's terminology, is a broadly Tarskian satisfaction-theoretic and model-theoretic semantics[19] applying across natural language as a whole, whereby each meaningful indicative sentence or statement S in the language conforms to the simple "disquotational" T-schema:

'S' is true if and only if S.

For our purposes, there are two important things to notice about this characterization.

First, the fully generalized version of the T-schema includes, on its left-hand side, a structural description of a meaningful sentence or statement, and on its right hand side, a translation of that sentence or statement into the meta-language.[20] So the sentence on the right-hand side of the T-schema need not be in the same language as the sentence that is structurally described on the left-hand side.

Second, by characterizing Benacerraf's standard, uniform semantics of truth as "broadly Tarskian," as opposed to merely "Tarskian," I mean to abstract away from the highly contentious debate about the real and ultimate character and implications of Tarski's disquotational, semantic conception of truth, including, for example, whether it can be made into a full-fledged semantics of natural language or not, whether it implies a "redundancy theory of truth" or not, and whether it is "naturalizable" or not, and so on.[21] I am intending only to capture the overall rational intuitive philosophical spirit of Tarski's conception as he himself informally explicates it.

This is how Tarski informally explicates his disquotational, semantic conception of truth, as we already saw in section 4.7. He initially says that

a true sentence is one which says that the state of affairs is so and so, and the state-of-affairs indeed is so and so.

And he then says, by way of qualification:

From the point of view of formal correctness, clarity, and freedom from ambiguity of the expressions occurring in it, the above formulation leaves much to be desired. Nevertheless its intuitive meaning and general intention seem to be quite clear and intelligible.[22]

I take this Tarskian thesis about truth to be the expression of a basic authoritative a priori objectively necessarily true philosophical rational intuition, in just the way that our knowledge of "3+4=7" is yielded by a basic authoritative a priori objectively

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[19] See Tarski, "The Concept of Truth in Formalized Languages"; and Tarski, "The Semantic Conception of Truth and the Foundations of Semantics."

[20] Tarski, "The Concept of Truth in Formalized Languages," pp. 156–57.

[21] Major players in this debate included Donald Davidson and Hartry Field. For a good general survey, see Maddy, *Second Philosophy: A Naturalistic Method*, part II.

[22] Tarski, "The Concept of Truth in Formalized Languages," p. 155. Italics in the original.

necessarily true mathematical rational intuition. Again, by "authoritative" I mean "self-evident, cognitively virtuous, and essentially reliable," and by "a priori" I mean "necessarily and constitutively underdetermined by any and all empirical facts." For example, looking carefully and thoughtfully at the simple disquotational version of the T-schema

'S' is true if and only if S

has precisely the same sort of high-powered semantic, metaphysical, and epistemic force as looking carefully and thoughtfully at the Hilbert-style stroke diagram

$$||| + |||| = |||||||$$

while at the same time reading and understanding the symbol sequence "3+4=7" and assertorically saying, "Three plus four equals seven." Therefore,

(I)   Truth is uniform and broadly Tarskian.

Now, a "reasonable" epistemology is any epistemology that ties human linguistic knowers causally, directly, non-conceptually, non-inferentially, and sense-perceptually to the known objects themselves. I take this thesis also to be the expression of basic authoritative a priori objectively necessarily true philosophical rational intuition. Therefore:

(II)   All human knowledge begins in causally triggered, direct, non-conceptual, non-inferential sense perception of contingent natural objects or facts.

Our standard, uniform broadly Tarskian semantics of truth, together with some natural assumptions about standard mathematical linguistic practices, very plausibly, smoothly, and jointly yield classical platonism about mathematics. And our reasonable epistemology, together with some equally reasonable assumptions about causation and its inherently spatiotemporal character, very plausibly, smoothly, and jointly yield the denial of classical platonism about mathematics. So mathematical knowledge is both possible and impossible, which is absurd. Hence The Original Bencerraf Dilemma.

In chapter 8, I will spell out a new solution to The Original Bencerraf Dilemma. I call this new solution *a positive or anti-skeptical, innatist, rational-intuition-based solution*, for three reasons.

First, it accepts Benacerraf's preliminary philosophical assumptions about the nature of truth and human knowledge as basic authoritative a priori objectively necessarily true philosophical rational intuitions, as well as accepting all the basic steps of The Original Bencerraf Dilemma, and then it shows how we can, consistently with those very assumptions and premises, still reject the skeptical conclusion of The Original Bencerraf Dilemma and also adequately explain mathematical knowledge.

Second, the standard, uniform broadly Tarskian semantics of mathematical truth that I offer is based on Kant's philosophy of arithmetic, especially including his faculty-innatist theory of *pure intuition*, as interpreted by Charles Parsons and by me.[23]

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[23] See Parsons, "Kant's Philosophy of Arithmetic"; Hanna, "Mathematics for Humans: Kant's Philosophy of Arithmetic Revisited"; and Hanna, *Kant, Science, and Human Nature*, ch. 6.

Third, the reasonable (i.e., causally-and-empirically-anchored, anthropocentric) epistemology of mathematical knowledge that I offer is based on categorical epistemology and Kantian Non-Conceptualism, as developed and defended in chapters 1 to 3. This will be taken together with a critical appropriation of two other highly fruitful, but until now relatively unexplored, lines of thinking about rational intuition and a priori knowledge: (i) the phenomenology of logical and mathematical self-evidence and rational intuition developed by early Husserl in *Logical Investigations* and by early Wittgenstein in *Tractatus Logico-Philosophicus*, and (ii) Parsons's theory of Mathematical Structuralism and mathematical rational intuition—drawing on basic Kantian ideas, Brouwer's intuitionism, and on Hilbert's finitist epistemology— as developed by Parsons in *Mathematical Thought and Its Objects*.

More precisely, however, what I will argue is that we can solve The Original Benacerraf Dilemma in three stages.

In **stage 1**, I explicitly accept Benacerraf's preliminary philosophical assumptions about the nature of truth and human knowledge as basic authoritative a priori objectively necessarily true philosophical rational intuitions, as well as explicitly accepting all the basic premises of The Original Benacerraf Dilemma.

In **stage 2**, I hold that mathematical truth is adequately explained by accepting the following three sets of claims.

(2.1) The natural numbers are essentially positions or roles in the mathematical natural number structure provided by Peano Arithmetic, especially including the finitist sub-structure of Primitive Recursive Arithmetic.

(2.2) The mathematical natural number structure provided by Peano Arithmetic, especially including the finitist sub-structure of Primitive Recursive Arithmetic, is abstract only in the non-platonic, Kantian sense that it is weakly transcendentally ideal. This is to say that this structure is identical to the non-platonic, Kantian abstract structure of time as we directly and veridically cognize it in Kantian pure or a priori intuition, as represented by formal autonomous essentially non-conceptual content. But this representation must also be taken together with all the formal concepts and other logical constructions, including specific logical inference patterns such as mathematical induction, needed for an adequate rational human comprehension of Peano Arithmetic, especially including the finitist sub-structure of Primitive Recursive Arithmetic, by means of conceptual understanding or thinking.

(2.3) In our actual world, the unique, intended model—that is, the one and only real truth-maker—of the non-platonic, Kantian abstract natural number structure provided by Peano Arithmetic, especially including the finitist sub-structure of Primitive Recursive Arithmetic, is nothing more and nothing less than an immanent non-platonic, Kantian abstract structure. This mathematical structure, in turn, is fully embedded in the set of manifestly real directly and veridically sense-perceivable spatiotemporal causally efficacious material objects: the natural inhabitants of Parsons's "fuzzy *Lebenswelt* with its everyday objects." That embedding of mathematical structure occurs just insofar as those "everyday objects" are the role players of the Peano-Arithmetic-and-Primitive-Recursive-Arithmetic-specified natural number roles in the non-platonic, Kantian abstract formal structure of time. Correspondingly, the non-platonic, Kantian abstract structure of time is directly and veridically referentially cognized by us in Kantian pure or a priori intuition, as represented by

formal autonomous essentially non-conceptual content. Then this direct, veridical representation is taken together with all the formal concepts and other logical constructions, especially including specific logical inference patterns such as mathematical induction, needed for an adequate rational human comprehension of Peano Arithmetic, especially including the finitist sub-structure of Primitive Recursive Arithmetic, by means of conceptual understanding or thinking.

Finally, in **stage 3**, I hold that mathematical knowledge is grounded on basic authoritative a priori objectively necessarily true mathematical rational intuition. Mathematical rational intuition, on my view, naturally flows from two distinct yet closely coordinated cognitive capacities.

(3.1) On the one hand, mathematical intuition flows from a rational human animal's capacity for generating, scanning, reproducing, and manipulating schematic mental imagery that is also veridical, in the dual sense that (i) it correctly maps onto its intentional targets, and (ii) those targets really exist. In Kantian terms, this imagery is constituted by sensible forms in pure or a priori intuition, constructed by the "productive imagination." This capacity is innately specified in the rational human animal's mind as a cognitive competence, and it is also inherently present, as a necessary ingredient, in all rational human sense perception. Mathematical intuition thus entails the rational human animal's self-conscious and self-reflective cognition of phenomenologically self-evident formal structures of object-directed and self-directed sense perception.

(3.2) On the other hand, mathematical intuition also flows from a rational human animal's capacity for constructing logics and natural languages. This capacity is innately specified in her mind as a cognitive competence, and also it is inherently present, as a necessary ingredient, in all rational human empirical conceptualizing and perceptual judgment. Mathematical intuition thereby also entails the rational minded animal's self-conscious and self-reflective cognition of phenomenologically self-evident formal conceptual contents and specific patterns of logical inference in classical or non-classical logics.

Stage 1 of the argument, then, provides fixed starting points for and constraints on the overall solution to The Original Benacerraf Dilemma. **Stage 2** invokes what I call *Kantian Structuralism* about the nature of numbers and mathematical truth. And **stage 3** not only includes Kantian Structuralism, but also adds to it what I call *Kantian Intuitionism* about mathematical a priori knowledge. The main idea behind Kantian Intuitionism is that basic authoritative a priori objectively necessarily true mathematical rational intuition, in a Kantian Structuralist framework, can be construed in such a way as to preserve the nonplatonic, Kantian abstractness and causal inertness of **the truth-makers** of mathematical statements, and also the causal relevance of **the intentional targets** of mathematical rational intuition, as well as the causal efficacy of **the evidential verifiers** of mathematical beliefs or judgments.

In bold-facing these three phrases, I want to emphasize specifically the point that truth-makers, intentional targets, and evidential verifiers can be distinct sorts of things, even if they are essentially connected. Suppose, for instance, that (i) **the truth-maker** is a non-platonic, Kantian abstract mathematical immanent structure in the manifestly real world, (ii) **the intentional target** is mentally generated, scanned, reproduced, and manipulated schematic mental imagery (in Kantian terminology

again, imagery that is constituted by sensible forms in pure or a priori intuition, constructed by the productive imagination) that also provides veridical representations of at least some proper parts of that very structure, and (iii) **the evidential verifier** is a manifestly real worldly fact, picked out by direct, veridical sense perception, via material autonomous essentially non-conceptual content, that implements the non-platonic, Kantian immanent world-structure and thereby satisfies the abstract mathematical structure, and also strictly conforms to the mentally generated, scanned, reproduced, and manipulated veridical schematic imagery (in Kantian terminology, it strictly conforms to imagery constituted by sensible forms given in Kantian pure or a priori intuition and constructed by the productive imagination). These things are all obviously distinct from one another, and yet they are also obviously necessarily and inherently connected with one another. I will come back to these crucial points again later.

Odd as it might at first seem, I think that there is an interesting and important parallel between The Original Benacerraf Dilemma and Milton's epic poetry. Milton's *Paradise Lost* and *Paradise Regained*, as I read them, are about the impossibly super-human objective conception of moral virtue embodied in pre-lapsarian Adam and Eve, and our consequent tragic Fall and expulsion from the Garden of Eden. They are also about our necessary transition, as we finally come to know ourselves for what we really are, toward a fully realistic and objective post-lapsarian knowledge of our own "human, all too human" moral limits and of our inescapably finite, mortal condition in this actual, thoroughly non ideal, and fully natural world. Correspondingly, the philosophical story I am telling about mathematical and logical knowledge in these final three chapters is about the impossibly super-human *old rationalist* conception of mathematical, logical, and philosophical truth and knowledge offered by classical platonism and classical Cartesian Rationalism, and our consequent tragic Fall and collapse into The Original Benacerraf Dilemma, and, by implication, also into The Extended Benacerraf Dilemma and The Generalized Benacerraf Dilemma. This philosophical story is also about our necessary transition, as we come to know ourselves for what we really are, toward a fully infinitary, strongly modal, realistic, and objective, but also inescapably causally-and-empirically anchored, post-lapsarian, anthropocentric, Kantian neo-rationalist conception of mathematical, logical, and philosophical truth and knowledge.

This anthropocentric, Kantian neo-rationalist conception, in turn, is based on two fundamental ideas we have encountered already: (i) that abstractness is essentially non-platonic and Kantian in nature, and (ii) that objectivity is non-subjective, non-relative, ontic-integrity-possessing, necessary counterfactual universal rational human intersubjectivity. In short, this is objective necessarily true a priori knowable mathematics, logic, and philosophy *for humans*, not for gods or angels. Otherwise put, the result of my argument is, in effect, a mathematical, logical, and philosophical neo-rationalist Paradise Regained—with Kantian bells on.[24]

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[24] For more on the Kant-Milton connection, see also Budick, *Kant and Milton*; and Ameriks, *Kant's Elliptical Path*, pp. 22–23.

At this point, it will be philosophically illuminating and useful to have before us a more fully explicit rational reconstruction of The Original Benacerraf Dilemma, as follows.

(1) Natural language requires a standard, uniform semantics of truth. Hence: Truth is uniform and broadly Tarskian. (Preliminary assumption I.)

(2) A reasonable epistemology of cognizing true (mathematical) statements should be modelled on human sense perception. Hence: All human knowledge begins in causally triggered, direct, non-conceptual, non-inferential sense perception of contingent natural objects or facts. (Preliminary assumption II.)

(3) Mathematical knowledge in the classical sense (i.e., as a priori knowledge of objectively necessary truth) exists as a basic feature of standard mathematical linguistic practices, so mathematical truth in a classical sense (i.e., as objectively necessary truth) also exists as a basic feature of those standard practices.

(4) Given (1) and (3), our standard, uniform semantics of truth in natural language, as applied to mathematical truths, commits us to a necessary-truth-making ontology of abstract mathematical objects and also to the non-empirical knowability of true mathematical statements.

(5) On the one hand, given (2), the fact that a reasonable epistemology of cognizing true (mathematical) statements should be modelled on human sense perception entails that knowledge involves causally efficacious, contact-involving or efficient, directly referential, non-conceptual, non-inferential, sensory and inherently spatiotemporal relations between human linguistic knowers and the known objects themselves.

(6) But on the other hand, given (4), and since all abstract objects are causally non-efficacious or inert, it then follows that all abstract mathematical objects are causally non-efficacious or inert.

(7) So if we accept all of (1)–(6), then mathematical knowledge in the classical sense is both possible and impossible, which is absurd.

I will say that any proposed solution to The Original Bencerraf Dilemma is *negative* or *skeptical* if it rejects either of Benacerraf's preliminary philosophical assumptions about a standard, uniform semantics of truth and a reasonable epistemology or else rejects one or more of steps (3) to (6). Then there are at least seven different categories of possible negative or skeptical solutions to The Original Benacerraf Dilemma. The first two categories I will call *pre-emptive* negative or skeptical solutions, since they consist in pre-emptively rejecting at least one of the two preliminary assumptions.

Pre-Emptive Negative or Skeptical Solutions

(1) Reject the preliminary assumption (I) that natural language requires a standard, uniform semantics of truth—reject the assumption that truth is uniform and broadly Tarskian.

This rejection, in turn, arguably entails either (1.1) rejecting the broadly Tarskian semantics of truth, or (1.2) asserting a multiform semantics of truth in natural language.

(2) **Reject the preliminary assumption (II) that a reasonable epistemology of cognizing true (mathematical) statements should be modelled on human sense perception—that is, reject the assumption that all human knowledge begins in causally-and-empirically triggered, direct, non-conceptual, non-inferential sense perception of contingent natural objects or facts.**[25]

This rejection, in its turn, arguably entails either (2.1) asserting that at least some human knowledge is non-causal and modelling the epistemology of cognizing true (mathematical) statements on human conceptual competence or concept-possession, human judgment, or human inference,[26] (2.2) asserting that at least some human knowledge is non-causal and modelling the epistemology of cognizing true (mathematical) statements on human self-consciousness,[27] or (2.3) asserting that at least some human knowledge is non-causal and modelling the epistemology of cognizing true (mathematical) statements on the human imagination.[28]

The other four categories I will call *concessive* negative or skeptical solutions, since they involve conceding both of the preliminary assumptions I and II, and then rejecting at least one of the other steps leading to the unacceptable conclusion.

Concessive Negative or Skeptical Solutions

(3) **Reject the classical necessity or apriority of mathematical truth.**

This rejection arguably entails either (3.1) asserting the contingency of mathematical truth, or (3.2) asserting the aposteriority of mathematical truth.

(4) **Reject the truth-making ontology of abstract mathematical objects.**[29]

This rejection arguably entails either (4.1) asserting empirical or phenomenal idealism (whether communal or solipsist), (4.2) asserting Brouwer-style intuitionism, (4.3) asserting Hilbert-style finitist formalism, (4.4) asserting Carnap-style conventionalism, (4.5) asserting fictionalism or some other form of nominalism, (4.6) asserting non-cognitivist anti-realism, or (4.7) asserting pragmatic/practical realism.

(5) **Reject the thesis that human sense perception always involves causally efficacious, contact-involving or efficient, directly referential, non-conceptual, non-inferential, and inherently spatiotemporal relations between human cognizers and the cognized objects themselves.**

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[25] See, e.g., Katz, "What Mathematical Knowledge Could Be."

[26] See, e.g., Divers and Miller, "Arithmetical Platonism: Reliability and Judgment-Dependence"; and Hale and Wright, "Benacerraf's Dilemma Revisited."

[27] See, e.g., Sosa, "Reliability and the A Priori." In *Kant, Science, and Human Nature*, chs. 6–7, I work out Kant's idea that mathematical knowledge is grounded on reflective self-consciousness together with the schematizing imagination. But assuming the truth of Kantian Non-Conceptualism, Kant's own doctrine in fact creates no problems for Benacerraf's preliminary assumption II, and is also perfectly consistent with my positive or anti-skeptical solution to the Benacerraf Dilemma. See also Hanna, *Rationality and Logic*, ch. 6.

[28] One way of doing this would be via "plenitudinous platonism": For every consistently imaginable mathematical statement, there is a corresponding mathematical object. See, e.g., Balaguer, *Platonism and Anti-Platonism in Mathematics*. This strategy construes imaginability as conceivability.

[29] See, e.g., Shapiro, *Thinking about Mathematics*, chs. 6, 7, and 9.

This rejection arguably entails either (5.1) asserting the replacement of causal efficacy by causal relevance, (5.2) asserting the counterfactual theory of causation, (5.3) asserting the probability-raising theory of causation, (5.4) asserting a non-causal theory of perception, (5.5) asserting an indirect causal theory of the perception of universals (whereby a perceptual subject S can sense perceive a universal U or type T just by standing in a direct causal sense perceptual relation to an instance of U or a token of T),[30] (5.6) asserting referential descriptivism at the level of perception, or (5.7) asserting conceptual-role semantics and inferentialism at the level of perception.[31]

(6) Reject the thesis that human knowledge, over and above sense perception, always involves causally efficacious, contact-involving or efficient, directly referential, non-conceptual, non-inferential, and inherently spatiotemporal relations between human cognizers and the cognized objects themselves.

The reasoning behind this rejection is quite straightforward:

(6.1) It is impossible for human cognizers to stand in causally efficacious, contact-involving or efficient, directly referential, non-conceptual, non-inferential, sensory and inherently spatiotemporal relations to past, distant, or future objects.

(6.2) Clearly, we can know some past, distant, or future objects.

(6.3) Therefore, human knowledge does not always involve causally efficacious, contact-involving or efficient, directly referential, non-conceptual, non-inferential, and inherently spatiotemporal relations between human cognizers and the cognized objects themselves.

(7) Reject the thesis that abstract objects are causally non-efficacious or inert.

This rejection arguably entails either (7.1) asserting the causal relevance of platonically abstract objects, or (7.2) asserting the causal efficacy of platonically abstract objects, together with asserting the causal relevance of platonically abstract objects.

Looking back, now, over this menu of twenty-four possible negative or skeptical solutions, obviously some caveats, qualifications, and follow-up critical comments are needed.

First, it is important to note that each of the possible negative or skeptical solutions I just mentioned is preceded by the qualifier "arguably." I certainly do not intend to suggest that my taxonomy of negative or skeptical solutions is complete or exhaustive.[32] No doubt there are some other ways of carving up the logical space of possible solutions that I have not considered. And it also strikes me as probably impossible to provide a principled procedure for generating a total list of possible solutions. In the absence of that, I am just trying to provide a relatively orderly and relatively complete indication of how some other contemporary philosophers might go about attempting to solve The Original Benacerraf Dilemma in a non-positive way, as illuminating

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[30] See, e.g., BonJour, *In Defense of Pure Reason*, ch. 6.
[31] See, e.g., Brandom, *Articulating Reasons: An Introduction to Inferentialism.*
[32] Many thanks to Catherine Legg for pushing me critically on this point.

contrasts to the positive or anti-skeptical, innatist, rational-intuitionist intuition-based solution that I am going to work out in chapters 7 and 8.

Second, even if one were to grant the completeness of my taxonomy of possible negative or skeptical solutions, it remains obvious that some of these logically entail or logically exclude others, while at the same time, many of them are also consistent with others. This obvious fact gives rise to a large number of distinct possible combined negative or skeptical solutions. That in turn makes the project of proving the falsity of all the possible negative or skeptical solutions, one by one, highly strenuous. Still, in *Rationality and Logic*, chapter 6, I did in fact criticize nine of the negative or skeptical solutions; so correspondingly, here in *Cognition, Content, and the A Priori*, I will now provide brief sketches of at least prima facie critical considerations against each of the twenty-four of the negative or skeptical solutions I listed.

(1.1) *Contra* **Rejecting the broadly Tarskian semantics of truth.**

Given the widely accepted philosophical importance and prima facie intuitive plausibility of the broadly Tarskian semantics of truth, it seems philosophically extreme to reject it just in order to undermine The Benacerraf Dilemma(s). Or otherwise put, we would need strong reasons, logically independent of the debate about The Benacerraf Dilemma(s), to make it even remotely plausible that the broadly Tarskian semantics of truth should go down. So the burden of proof is on the defender of **(1.1)**, not on the defender of preliminary assumption I of The Original Benacerraf Dilemma.

(1.2) *Contra* **Asserting a multiform semantics of truth in natural language.**

Williamson has provided what I take to be a fully compelling argument against the idea of a multiform semantics of truth for natural language.[33] But even if Williamson's argument were not fully compelling, it seems clear that theoretical simplicity considerations alone would significantly favor a uniform semantics of truth in natural language.

(2.1) *Contra* **Asserting that at least some human knowledge is non-causal and modelling the epistemology of cognizing true (mathematical) statements on human conceptual competence or concept-possession, human judgment, or human inference.**

There is an important ambiguity in the very idea of "non-causal human knowledge." Does it mean (i) that there are no robustly causal elements whatsoever in this kind of human knowledge, not even a causal triggering, or environmental causal support?, or (ii) merely that The Causal Theory of Knowledge, as a certain kind of naturalistic reduction program in epistemology, does not adequately explain this kind of knowledge? If it is the latter, since The Causal Theory of Knowledge, as a special naturalistic reduction program, has been widely rejected,[34] then (ii) seems

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[33] See Williamson, *The Philosophy of Philosophy*, ch. 3.
[34] See, e.g., Lehrer, *Theory of Knowledge*; and Greco and Sosa (eds.), *The Blackwell Guide to Epistem-ology*. This isn't to say, however, that some naturalistic reduction programs in epistemology aren't still

trivially true and not a genuine challenge to what Benacerraf really meant (or even better: to what Benacerraf, when charitably interpreted, really should have meant) by the claim that our best theory of knowledge is causal, namely that it necessarily includes some robustly causal elements. But on the other hand, it is very hard to see how (i) could be true, given that the knowledge in question is, after all, specifically *human* knowledge, and how could any human knowledge altogether escape the robust constraints on its belonging to the natural causal order? At most, this involves a highly plausible minimal naturalism that no one but an extreme Cartesian, Leibnizian, or Platonic rationalist would want to deny.

As to the strategies of modelling the epistemology of cognizing true (mathematical) statements on human conceptual competence, human judgment, or human inference, it seems very clear that these strategies all presuppose Conceptualism. But if Kantian Non-Conceptualism is true, as I have argued in chapter 2, and if I am also correct that there is a fully intelligible and defensible analytic-synthetic distinction based on the fundamental difference between essentially non-conceptual content and conceptual content, as I have argued in chapter 5, then none of these strategies can be correct.

(2.2) *Contra* **Asserting that at least some human knowledge is non-causal and modelling the epistemology of cognizing true (mathematical) statements on human self-consciousness.**

To the extent that **(2.2)** is committed to the very idea of "non-causal human knowledge," then the same critical response to **(2.1)** applies again.

As to the strategy of modelling the epistemology of cognizing true (mathematical) statements on human self-consciousness, there are at least two responses. **First**, in view of contemporary work on the nature of self-consciousness,[35] it is not at all obvious precisely what self-consciousness is. Hence the proposal, as such, is radically underspecified. **Second**, suppose that the needed specification of the proposal is, for example, that self-consciousness is the rational, reflective ability/disposition to make propositional self-reports that are "immune to error through misidentification." Then, since it is very plausibly arguable that the ground of immunity to error through misidentification is an essentially non-conceptual and pre-reflective mode of self-consciousness that is not only more basic than rational/reflective self-consciousness but also necessarily has robustly causal elements,[36] in turn it will follow (i) that the putative appeal to non-causal human knowledge in fact fails, and (ii) that given the cognitively derivative nature of rational/reflective self-consciousness, and the primacy of non-conceptual knowledge, then no real alternative to Benacerraf's preliminary assumption II has in fact been offered.

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being pursued. See, e.g., Kornblith, *Knowledge and Its Place in Nature*. It is just that they are in the minority these days.

[35] See, e.g., Cassam (ed.), *Self-Knowledge*; Gallagher and Zahavi, "Phenomenological Approaches to Self-Consciousness"; and Kriegel and Williford (eds.), *Self-Representational Approaches to Consciousness*.

[36] See, e.g., Poellner, "Non-Conceptual Content, Experience and the Self."

(2.3) *Contra* **Asserting that at least some human knowledge is non-causal and modelling the epistemology of cognizing true (mathematical) statements on the human imagination.**

To the extent that (2.3) is committed to the very idea of "non-causal human knowledge," then the same critical response to (2.1) also applies again.

As to the strategy of modelling the epistemology of cognizing true (mathematical) statements on the human imagination, there are again at least two responses. The **first** response is the same, mutatis mutandis, as the first response under (2.2). In view of contemporary work on the nature of imagination,[37] it is not at all obvious precisely what the imagination is. So again the proposal, as such, is radically underspecified. **Second**, suppose that the needed specification of the proposal is along the lines of "plenitudinous platonism,"[38] which construes the capacity for human imagination, on its rational and theoretical side, as the capacity for conceiving possibilities. There are, then, some serious problems from the get-go. Plenitudinous platonism says that for every logically consistently imaginable mathematical statement, there is a corresponding mathematical object. Now, contrary to what you might be expecting, I am not going to complain about ontological over-population. Indeed, I think that there are very good reasons for being an ontological pluralist and therefore very liberal, almost Meinongian, about ontology. On the contrary, my worry is that plenitudinous platonism holds the ontology of mathematics hostage to Conceptualism about cognitive content and also to modal monism about necessary truth, which are both false if what I argued in chapters 2 and 5 is correct.

Unfortunately, the dialectical subtleties do not end here. This is because there are other ways of thinking about the human imagination on its rational and theoretical side, For example, there is the Kantian conception of the productive imagination as a "mental modelling" capacity for generating, scanning, reproducing, and manipulating schematic mental imagery, that I myself favor in this and the next two chapters. But since I also hold that imagination in this sense is essentially non-conceptual and therefore it necessarily has robustly causal elements, then in turn it will again follow (i) that the putative appeal to non-causal human knowledge in fact fails, and (ii) that given the essentially non-conceptual character of imagination in this sense, then no real alternative to Benacerraf's preliminary assumption II has in fact been offered.

(3.1) *Contra* **Asserting the contingency of mathematical truth.**

My critical response here is very much like the response to (1.1). Given the widely accepted thesis of the non-contingency of mathematical truth, and also its prima facie intuitive plausibility, it seems philosophically extreme to reject it just in order to undermine The Original Benacerraf Dilemma. Or otherwise put, we would need strong reasons, logically independent of the debate about The Original Benacerraf Dilemma, to make it even remotely plausible that the non-contingency of mathematical truth should go down. So the burden of proof is on the defender of (3.1), not on the defender of the non-contingency thesis.

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[37] See, e.g., Gendler, "Imagination."
[38] See, e.g., Balaguer, *Platonism and Anti-Platonism in Mathematics*.

(3.2) *Contra* **Asserting the aposteriority of mathematical truth.**

The same argument used in response to **(3.1)** holds, mutatis mutandis, for **(3.2)**. Rejecting the apriority of mathematical truth is every bit as much a non-starter as rejecting the non-contingency of mathematical truth, in the absence of very strong reasons to the contrary that do not already depend on biasing the outcome of the debate about The Original Benacerraf Dilemma.

(4.1) *Contra* **Asserting empirical or phenomenal idealism (whether communal or solipsist).**

Other things being equal, empirical or phenomenal idealism seems highly implausible. As regards the solipsist version of phenomenal idealism, there are two obvious problems. **First**, it seems highly implausible that necessarily, the world that a single subject perceives will come into existence and go out of existence just insofar as that subject comes into or goes out of existence. This is mysteriously arbitrary and manifestly undermines the very idea of *the world* as something over against the subject. And **second**, as even Berkeley noted, in order to assert phenomenal idealism for all objects of knowledge, it is also necessary to assert realism for at least one subject of knowledge who really and not merely phenomenally owns all those subject-dependent objects (this is Berkeley's "notion of the mind"). Yet no room in the solipsist phenomenal idealist theory has been made for any sort of realistic epistemology or metaphysics. Hence phenomenal idealism in a solipsist setting is an inherently unstable metaphysical position.

Now, the communal version of phenomenal idealism differs from the solipsist version only in that there are many subjects, not a single subject. Again, there are two obvious problems with this view. **First**, it seems just as highly implausible that necessarily, the world that many subjects perceive will come into existence and go out of existence just insofar as those many subjects come into or go out of existence, as it does for one subject only. Again, this is mysteriously arbitrary, and again it undermines the very idea of the world. And **second**, in order to assert phenomenal idealism for the many objects of knowledge, it is still also necessary to assert realism for the many subjects of knowledge, each of whom really owns all her subject-dependent objects. Yet, again, no room in the communal phenomenal idealist theory has been made for any sort of realistic epistemology or metaphysics. Therefore, phenomenal idealism in a communal setting is also an inherently unstable metaphysical position.

(4.2) *Contra* **Asserting Brouwer-style intuitionism.**

The principal objection to Brouwer-style intuitionism is that it is psychologistic.[39] Elsewhere I have formulated what I take to be compelling arguments against psychologism, learning from Frege's Husserl's, and G. E. Moore's classical anti-psychologistic and anti-naturalist arguments, but also avoiding their problems.[40]

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[39] See, e.g., Shapiro, *Thinking about Mathematics*, ch. 6.
[40] See, e.g., Hanna, *Rationality and Logic*, ch. 1.

(4.3) *Contra* Asserting Hilbert-style finitist formalism.

There are two basic objections to Hilbert-style finist formalism, one against the finitism and one against the formalism.[41] Against finitism, it is very hard to make sense of standard Peano arithmetic without postulating at least a denumerably infinite set of things for the Peano axioms to be "true of." Against formalism, asserting that proofs are nothing but sign-sequences of a certain shape completely overlooks the crucial difference between signs and *symbols*, or interpreted signs. The notion of semantic interpretation, in turn, carries the notions of reference and truth along with it, and as Gödel's second incompleteness theorem shows, any logical system rich enough to include the basic axioms of Peano arithmetic is consistent if and only if it is incomplete and contains its ground of truth outside that system. But the general program of formalism entails that at least some logical systems rich enough to include the basic axioms of Peano arithmetic are both consistent and complete, and contain their ground of truth *within* the system itself. So at least prima facie, on Gödelian grounds, formalism is false.

(4.4) *Contra* Asserting Carnap-style conventionalism.

As I noted in section 4.4, the classical objection to Carnap-style conventionalism is Quine's, in "Truth by Convention." This objection says that in order to give a conventionalist definition of logical truth, non-conventional logic must be presupposed and used. Hence conventionalism presupposes its own denial. To be sure, as we also saw in chapter 4, this leads to even further and deeper problems, namely Quine's Dilemma and The Logocentric Predicament. For the relevant further dialectical details about how these problems play out, and for proposed solutions to the problems, see chapters 4 and 5. One important result of that line of critical argumentation is that Quine's classical objection to conventionalism stands, provided that one also resolves Quine's Dilemma and The Logocentric Predicament.

(4.5) *Contra* Asserting fictionalism or some other form of nominalism.

To my mind, the most compelling objection to fictionalism and other forms of nominalism has the same basic form as Quine's objection to conventionalism. This objection says that in order to give a fictionalist account of mathematical truth, then a non-fictionalist/non-nominalist logic must be presupposed and used. Hence fictionalism and nominalism presuppose their own denials. Mathematical fictionalists and nominalists, normally, simply help themselves to elementary logic. But assuming a classical Quinean line of reasoning for an "objectual" (hence non-"substitutional") interpretation of the quantifiers,[42] elementary logic clearly presupposes the existence of abstract objects—whether in the classical platonic sense, or in the non-platonic, Kantian sense. This includes the existence of individual objects for the interpretation of individual constants, of sets of those objects for the interpretations of predicates, of truth-makers built up out of individuals and sets for the interpretation of sentences,

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[41] See, e.g., Shapiro, *Thinking about Mathematics*, ch. 7.
[42] See, e.g., Quine, "On What There Is"; and Quine, *Philosophy of Logic*, pp. 92–94.

and of models built up out of truth-makers for the interpretations of sets of sentences and arguments. Even if there were to be a denumerably infinite number of names to substitute for the variables of quantification, nevertheless, there are also true or false interpretations of sentences or statements that require *non-denumerably infinitely* many items for the purposes of logical interpretation itself. And nothing merely fictional or natural can account for this fact. Or in other words, the very idea of a first-order quantifier, against the backdrop of Cantorian number theory, is anti-fictionalist and anti-nominalist. Holding fixed the solutions to Quine's Dilemma and The Logocentric Predicament mentioned in the critical response to **(4.4)**, clearly then the burden of proof is on the fictionalist or nominalist about mathematics to provide reasons that are logically independent of the debate about The Original Benacerraf Dilemma, for being a fictionalist or a nominalist about logic.

(4.6) *Contra* Asserting non-cognitivist anti-realism.

In chapter 5, I spelled out what I take to be compelling objections to Emotivism and Instrumentalism about the normativity of logical inference:

Emotivism with respect to the normativity of inference says that the evaluative content of inferences is not itself truth-apt, or truth-evaluable, and consists instead exclusively in our pro-attitudes and contra-attitudes towards inferences, and is strictly determined by those attitudes. The basic problem with Emotivism with respect to the normativity of inference is that it posits pro-attitudes or contra-attitudes that are essentially unconstrained by rational norms of consistency, truth, logical consequence, or soundness. So, in effect, anything goes, provided that everyone shares the same feelings. Thus the problem is anti-rational arbitrariness. A particularly pointed and reflexive version of the problem of anti-rational arbitrariness arises when one applies Emotivism to one's own inferential practices from the outside in: Do I really think that the cogency of my own inferences should be held hostage to some arbitrary pro-attitudes or contra-attitudes, whether these attitudes are mine or anyone else's? From the first-person standpoint of my own inferential agency, for me to admit or permit such an emotivist hostage-taking would be clearly rationally self-stultifying.

Instrumentalism, aka "pragmatism," with respect to the normativity of inference says that the evaluative content of inferences consists exclusively in and is strictly determined by the good or bad results, from the standpoint of human interests in either a narrowly self-oriented or a larger social sense, that are produced by inferences. The basic problem with Instrumentalism with respect to the normativity of inference is that it allows for the partial or total sacrifice of consistency, truth, logical consequence, and soundness if good consequences will ensue or bad consequences are avoided. So again, in effect, anything goes, provided that good results are produced and bad consequences avoided from the standpoint of human interests in either a narrowly self-oriented or a larger social sense; correspondingly, again, the problem is anti-rational arbitrariness. As with Emotivism, a particularly pointed and reflexive version of the problem of anti-rational arbitrariness arises when one applies Instrumentalism to one's own inferential practices from the outside in: Do I really think that the cogency of my own inferences should be held hostage to the mere production of good or bad results, whether these results favor me or anyone else? It is every bit as rationally self-stultifying for me, the inferential agent, to admit or permit an instrumentalist hostage-taking as to admit or permit an emotivist one.

Both of these responses have the same general form: (i) point up the problem of anti-rational arbitrariness, and then (ii) formulate a reflexive version of it. The very same problem can be generalized to the normativity of mathematical inference, under any version of non-cognitivist anti-realism. Non-cognitivist anti-realism allows for the partial or total sacrifice of consistency, truth, logical consequence, and soundness in mathematical reasoning with respect to any sort of appropriately strong non-cognitive reason: anything goes, provided that some reason other than consistency, truth, logical consequence, and soundness is allowed to drive mathematical inferences. So, yet again, the problem is anti-rational arbitrariness. And yet again, a particularly pointed and reflexive version of the problem of anti-rational arbitrariness arises when one applies non-cognitivism to one's own mathematical inferential practices from the outside in: Do I really think that the cogency of my own mathematical inferences should be held hostage to anything other than consistency, truth, logical consequence, and soundness, no matter how otherwise compelling the non-cognitive reason might be? No matter what the non-cognitivist, anti-realist hostage-taking, it is rationally self-stultifying for me, the mathematical cognitive agent.

(4.7) *Contra* Asserting pragmatic/practical realism.

As was evident in my critical response to (4.6), the problem with non-cognitivist anti-realism is not the anti-realism per se, but in fact the non-cognitivism. So that would hold fixed across a transition from non-cognitivist anti-realism to non-cognitivist realism. Thus, since pragmatism is a sub-species of non-cognitivism, then it follows immediately that the reflexive version of the problem of anti-rational arbitrariness also applies to it.

(5.1) *Contra* Asserting the replacement of causal efficacy by causal relevance.

An obvious objection here is that replacing causal efficacy by causal relevance is like replacing a *real* duck with a *decoy* duck. The decoy duck might tell you some interesting things about ducks, but, as the old saying about ducks has it, the decoy neither *walks* like a duck, nor *quacks* like a duck, and so on. More explicitly and less informally, something X has causal relevance if and only if X has a direct informational bearing on some natural event E. Then insofar as X changes, E is differently characterized and has some different properties. And if X is removed, then E lacks some characterization and properties it would otherwise have had. But mere causal relevance does not entail actual causation. So X could be causally relevant to E, yet also completely epiphenomenal in relation to E.[43] Or to use the duck analogy again: decoy ducks cannot do what real ducks actually do, hence they are no adequate substitute for the real thing. Causal efficacy necessarily includes causal relevance, but also adds to it the irreducible dimension of causal power.

(5.2) *Contra* Asserting the counterfactual theory of causation.

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[43] See also, e.g., Jackson, "Mental Causation."

The standard objection to the counterfactual theory of causation is that it is subject to the problem of "trumping preemption."[44] Given a suitably constructed deviant causal chain running from X to Y, it can be true that if X had not happened, then Y would not have happened: nevertheless, intuitively, it is false that X caused Y. So whatever causation really is,[45] even if it necessarily includes counterfactual influence, causation is still more than counterfactual influence.

(5.3) *Contra* Asserting the probability-raising theory of causation.

Essentially the same critical response, via "trumping preemption" cases, that was used against (5.2), also holds for the probability-raising theory of causation. Given a suitably constructed deviant causal chain running from X to Y, it can be true that X's happening significantly raises the probability of Y's happening: nevertheless, intuitively, it is still false that X caused Y. Again, whatever causation really is, even if it necessarily includes probability-raising, causation is still more than probability-raising.

(5.4) *Contra* Asserting a non-causal theory of perception.

The most effective critical response here is a combination of the critical strategies used against (1.1) and (2.1), but now in reverse order.

First, there is an important ambiguity in the very idea of "non-causal perception." Does it mean (i) that there are no robustly causal elements whatsoever in perception, not even a causal triggering, or environmental causal support?, or (ii) merely that The Causal Theory of Perception, as a certain kind of naturalistic reduction program in the philosophy of perception, does not adequately explain the perceptual phenomena? If it is the latter, since The Causal Theory of Perception, as a special naturalistic reductive program, has been widely rejected,[46] then (ii) seems trivially true and not a genuine challenge to what Benacerraf really meant (or even better: to what Benacerraf, when charitably interpreted, really should have meant) by the claim that perception is causal: namely, that it necessarily includes some robustly causal elements. But on the other hand, it is very hard to see how (i) could be true, given that the knowledge in question is, after all, a specifically human knowledge, and how could any human knowledge altogether escape the robust constraints of belonging to the natural causal order? At most, this involves a highly plausible minimal naturalism that no one but an extreme Cartesian, Leibnizian, or Platonic rationalist would want to deny.

Second, given the widely accepted thesis that perception is robustly causal and its prima facie intuitive plausibility, it seems philosophically extreme to reject it just in order to undermine The Original Benacerraf Dilemma. Or otherwise put, we would need strong reasons, logically independent of the debate about The Benacerraf Dilemma(s), to make it even remotely plausible that perception is non-causal. So

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[44] See, e.g., Schaffer, Lewis, Hall, Collins, and Paul, "Special Issue: Causation."

[45] For an attempt at a general characterization of causation, see Hanna and Maiese, *Embodied Minds in Action*, pp. 257–71.

[46] See, e.g., Gendler and Hawthorne (eds.), *Perceptual Experience*; and Nanay (ed.), *Perceiving the World*.

the burden of proof is on the defender of **(5.4)**, not on the defender of the causal robustness of perception.

(5.5) *Contra* **Asserting an indirect causal theory of the perception of universals (whereby a perceptual subject *S* can sense perceive a universal *U* or type *T* just by standing in a direct causal sense perceptual relation to an instance of *U* or a token of *T*).**

The most effective critical response to **(5.5)**, in my opinion, is to point out that the indirect causal theory of the perception of universals has obvious counterexamples for all or at least most negative predicates and their corresponding universals or types. For example, the statement "I am a non-cat" is true of me. So I am a non-cat, hence I am an instance of the universal or type NON-CAT. But it is obviously not true that just by standing in a direct perceptual causal relation to me—say, seeing me—you thereby see or in any other way sense-perceive the universal or type NON-CAT. The point here is that for all or at least most negative predicates that truly apply to a given perceptual object, perceiving that object does not thereby involve cognizing perceivable instances or tokens of the negative universals or negative types corresponding to those negative predicates. Anything other than a cat is a non-cat! Hence perceiving that object could not possibly involve perceiving the negative universals or negative types of which the perceived object is an instance or token.

(5.6) *Contra* **Asserting referential descriptivism at the level of perception.**

The obvious critical response to **(5.6)** is this: the truth of what used to be called "the new theory of reference," but nowadays is simply called Direct Reference Theory,[47] entails the falsity of referential descriptivism.

Now, no doubt, there are a few hold-out descriptivists left in contemporary philosophy who would contest this. But although philosophical *ad populum* arguments ("almost no one believes theory *X* nowadays; therefore theory *X* is false") are of course informally fallacious, they do cast some reasonable doubt on a given thesis. The strategy of critical response used against **(1.1)** can then be re-deployed against them. Given the widely accepted thesis that singular reference is direct and its prima facie intuitive plausibility, it seems philosophically extreme to reject it just in order to undermine The Benacerraf Dilemma(s). Or otherwise put, we would need strong reasons, logically independent of the debate about The Benacerraf Dilemma(s), to make it even remotely plausible that all reference, including singular reference, is descriptive. So the burden of proof is on the defender of **(5.6)**, not on the defender of Direct Reference Theory.

(5.7) *Contra* **Asserting conceptual-role semantics and inferentialism at the level of perception.**

Here the strategy of critical response used in **(1.2)** can be updated for use against conceptual-role semantics and inferentialism. Conceptual role semantics

[47] See, e.g., Martinich (ed.), *Philosophy of Language*, part 3 and part 4; Hale and Wright (eds.), *Blackwell Companion to the Philosophy of Language*, part III; Hanna, "Direct Reference, Direct Perception, and the Cognitive Theory of Demonstratives"; and Hanna, "Extending Direct Reference."

and inferentialism both presuppose Conceptualism. But if what I argued in chapter 2 is correct, then Kantian Non-Conceptualism is true and Conceptualism is false. Hence, prima facie, conceptual-role semantics and inferentialism are both false.

(6) *Contra* Rejecting the thesis that human knowledge, over and above sense perception, always involves causally efficacious, contact-involving or efficient, directly referential, non-conceptual, non-inferential, and inherently spatiotemporal relations between human cognizers and the cognized objects themselves, by arguing as follows:

> (6.1) It is impossible for human cognizers to stand in causally efficacious, contact-involving or efficient, directly referential, non-conceptual, non-inferential, sensory and inherently spatiotemporal relations to past, distant, or future objects.
>
> (6.2) Clearly, we can know some past, distant, or future objects.
>
> (6.3) Therefore, human knowledge does not always involve causally efficacious, contact-involving or efficient, directly referential, non-conceptual, non-inferential, and inherently spatiotemporal relations between human cognizers and the cognized objects themselves.

A quick but effective reply to this is to point out that premise (6.1) is false, hence the argument for (6) is unsound. For, on the contrary, it is plausibly arguable that causally efficacious, contact-involving or efficient, directly referential, non-conceptual, non-inferential, sensory and inherently spatiotemporal relations to past, distant, or future objects are all really possible, given an appropriately developed and adequately extended cognitive semantics of direct reference.[48]

(7.1) *Contra* Asserting the causal relevance of platonically abstract objects.

If something X is platonically abstract, then it is altogether outside of space, time, and the natural causal order. Hence it is very difficult to see how X could have any informational bearing on any spatial, temporal, or natural-causal individual, except by means of some metaphysically mysterious connection. Kim's well-known "causal pairing problem" for Cartesian substance dualism,[49] which I have already discussed in section 2.7, can be generalized to cover the supposed causal relevance of platonically abstract objects. Suppose that X is platonically abstract, that A and B are distinct tokens of the same general type of real physical object existing in causally efficacious space and time, and that X is supposed to have causal relevance for A but not for B. What rules out the possibility that X instead has causal relevance for B but not for A? The challenge is to find a non-metaphysically mysterious reason for causal-relevance-pairing X with A as opposed to causal-relevance-pairing X with B. And if Kim is right, then there is no such non-metaphysically mysterious reason when X is either a Cartesian soul or a platonically abstract entity. Hence there are no causally relevant Cartesian souls or platonically abstract entities.

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[48] See, e.g., Hanna, "Direct Reference, Direct Perception, and the Cognitive Theory of Demonstratives"; and Hanna, "Extending Direct Reference."

[49] Kim, *Physicalism, Or Something Near Enough*, ch. 3.

(7.2) *Contra* Asserting the causal efficacy of platonically abstract objects, and also the causal relevance of platonically abstract objects.

Since causal efficacy necessarily includes causal relevance but adds to it whatever is further required for real causal power, then it follows that if a critical response that uses a version of Kim's causal pairing problem is effective against (7.1), then a critical response that uses a version of Kim's causal pairing problem against (7.2) will be equally or even more effective. This is because the causal pairing problem is significantly magnified by the added dimension of causal power. Not only is there a seemingly insurmountable challenge for the defender of (7.1) to find a non-metaphysically mysterious reason for causal-relevance-pairing X with A as opposed to causal-relevance-pairing X with B. But now there is an even more stringent challenge for the defender of (7.2) to find a non-metaphysically mysterious reason for causal-*efficacy*-pairing X with A as opposed to causal-efficacy-pairing X with B. For if, prima facie, any metaphysical reason that would suffice to determine pairing in the causal relevance case, which involves only the determination of informational characterizations and property-applications, would be mysterious, then any metaphysical reason that would suffice to determine pairing in the causal efficacy case, which also involves the determination of causal power, even over and above informational characterizations and property-applications, would be significantly *more* mysterious. Hence there are no causally efficacious platonically abstract entities.

Third, so far so good. I have just offered prima facie reasons for rejecting *each and all* of the negative or skeptical solutions in my taxonomy.

Now, to come back to my first point. I concede that if it in fact turns out that my taxonomy is incomplete, then even if I were to have just succeeded in refuting all the negative or skeptical solutions I have critically surveyed, together with all their combinations, obviously it still would not follow that I have fully cleared the field of all possible relevant opposing views. In order to rule out this non-entailment, I would have to have a sound demonstration of the completeness of my taxonomy, which, as I have already conceded, I do not have in hand, and which is probably impossible. But here's the rub. Unless my opponent is actually able to provide some new negative or skeptical solutions, then it is not rationally incumbent on me to argue against solutions that I have not anticipated.

What I mean is this. Surely it is not rationally legitimate to criticize me merely by pointing out that there *might be* some new negative or skeptical solutions. For I have discharged my rational obligation by arguing against as many possible negative or skeptical solutions as I could think of, and I have also conceded that there might still be more—even though, at this point in the critical dialectic, I have not the slightest idea what they are. So now the burden of proof is on my opponent to actually come up with some new ones for me to criticize.

Fourth, I call my solution to The Original Benacerraf Dilemma a "positive" or anti-skeptical one. This is because it accepts Benacerraf's preliminary philosophical assumptions I and II about the nature of truth and knowledge as basic authoritative a priori objectively necessarily true philosophical rational intuitions, as well as accepting all the basic premises of The Original Benacerraf Dilemma, captured in steps (1) to (6), under plausible interpretations of those premises. Then it attempts to show

how we can, consistently with those very assumptions and premises, under those plausible interpretations, still reject the skeptical conclusion of The Original Benacerraf Dilemma, captured in step (7), and also adequately explain mathematical knowledge.

Even over and above my criticisms of the twenty-four negative or skeptical solutions that I listed, there is an even stronger reason for favoring my positive or anti-skeptical solution. This is because, other things being equal, any positive or anti-skeptical solution will have a distinct rational edge over any negative or skeptical solution. For only a positive or anti-skeptical solution will adequately preserve the rational force of the basic authoritative a priori objectively necessarily true philosophical rational intuitions that generated The Original Benacerraf Dilemma in the first place. If any of these philosophical intuitions did not have basic authoritative a priori objectively necessarily true rational force, then The Original Benacerraf Dilemma would not be a genuine dilemma. In other words, The Original Benacerraf Dilemma would simply dissolve if either of the theses (I) truth is uniform and broadly Tarskian or (II) all human knowledge begins in causally triggered, direct, non-conceptual, non-inferential sense perception of contingent natural objects or facts, turned out to be other than a basic authoritative a priori objectively necessarily true philosophical rational intuitive claim. It is certainly true that a critic might try to be dismissive of the whole philosophical backdrop of The Original Benacerraf Dilemma. But on what grounds? If it is just because The Original Benacerraf Dilemma is supposedly an insoluble dilemma, then that just begs the question against the real possibility of intelligible and defensible positive or anti-skeptical solutions.

In any case, as against the dismissive critic, both (I) and (II) do seem to me to be basic authoritative a priori objectively necessarily true philosophical rational intuitive claims, for the following reasons. I simply cannot see how, if logic is to be possible after the discovery of the semantic paradoxes and after Gödel's incompleteness theorems, truth can be other than uniform, broadly in conformity with Tarski's disquotational, semantic conception, and thereby such as to satisfy universally either the simple version of the T-schema:

'S' is true if and only if S,

or the fully generalized version. And I simply cannot see how human knowledge could be other than causally-and-empirically anchored in direct, non-conceptual, non-inferential sense perception of contingent natural objects or facts. For this expresses only a minimal Empiricism, and thus also a minimal naturalism, which says that, as rational human minded animals and cognizers, we directly, non-conceptually, non-inferentially, and sense-perceptually belong to the causally efficacious natural world. How could that be rationally denied? This minimal Empiricism and minimal naturalism also fully concede that not all our knowledge is strictly determined by causally triggered, direct, non-conceptual, non-inferential sense perception of contingent natural objects or facts, given the rock-solid starting point that some of our knowledge is basic authoritative and a priori objectively necessarily true—for instance,

$$3 + 4 = 7, \text{ or, } ||| + |||| = |||||||$$

and

It is not the case that every statement in any or every language or logical system whatsoever is both true and false., i.e., ~ (∀S) (S & ~ S), i.e., **Minimal Non-Contradiction**.

More generally, it is simply a fact that, as philosophers, we can and do take The Original Benacerraf Dilemma seriously. Therefore, if there really is an intelligible and defensible positive or anti-skeptical solution, then, other things being equal, it will trump any of the negative or skeptical solutions.

This line of reasoning, in turn, is a specific expression of what I call *preservationism about rational intuitions generally*, which I should say something about before advancing to my positive or anti-skeptical, innatist, rational-intuition-based solution to The Original Benacerraf Dilemma. But before I do that, we will need to know what a priori knowledge and rational intuitions really are.

And even before we investigate *those* deep issues, I also want to extend and then generalize The Original Benacerraf Dilemma.

6.2 The Benacerraf Dilemma Extended

> These considerations bring us up to the problem: In what sense is logic something sublime? For there seemed to pertain to logic a peculiar depth—a universal significance. Logic lay, it seemed, at the bottom of all the sciences.—For logical investigation explores the nature of all things. It seeks to see to the bottom of things and is not meant to concern itself whether what actually happens is that or that.—It takes its rise, not from an interest in the fact of nature, nor from a need to grasp causal connexions: but from an urge to understand the basic, or essence, of everything empirical.
>
> —L. Wittgenstein[50]

It is easy enough to extend The Original Benacerraf Dilemma to logic, and thereby raise the fundamental philosophical problem so evocatively identified by the later Wittgenstein: "In what sense is logic something sublime?" One need only substitute "logical" for every occurrence of "mathematical" in The Original Benacerraf Dilemma, as follows, with the relevant substitutions boldfaced:

(1) Natural language requires a standard, uniform semantics of truth. Hence: Truth is uniform and broadly Tarskian. (Preliminary assumption I.)

(2) A reasonable epistemology of cognizing true (**logical**) statements should be modelled on human sense perception. Hence: All human knowledge begins in causally triggered, direct, non-conceptual, non-inferential sense perception of contingent natural objects or facts. (Preliminary assumption II.)

(3) **Logical** knowledge in the classical sense (i.e., as a priori knowledge of objectively necessary truth) exists as a basic feature of standard **logical** linguistic practices, so **logical** truth in a classical sense (i.e., as objectively necessary truth) also exists as a basic feature of those standard practices.

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[50] Wittgenstein, *Philosophical Investigations*, §89, p. 42ᵉ.

(4) Given (1) and (3), our standard, uniform semantics of truth in natural language, as applied to **logical** truths, commits us to a necessary-truth-making ontology of abstract **logical** objects and also to the non-empirical knowability of true **logical** statements.

(5) On the one hand, given (2), that fact that a reasonable epistemology of cognizing true (**logical**) statements should be modelled on human sense perception entails that knowledge involves causally efficacious, contact-involving or efficient, directly referential, non-conceptual, non-inferential, and spatiotemporal sensory relations between human linguistic knowers and the known objects themselves.

(6) But on the other hand, given (4), and since all abstract objects are causally non-efficacious or inert, it then follows that all abstract **logical** objects are causally non-efficacious or inert.

(7) So if we accept all of (1)–(6), then **logical** knowledge in the classical sense is both possible and impossible, which is absurd.

For convenience, I will call this sublimity-of-logic problem *The Extended Benacerraf Dilemma*. While it is easy enough to generate The Extended Benacerraf Dilemma, sadly, it is not so very easy to solve it. Eventually, in chapter 8, I will argue, **first**, that necessarily logic is weakly transcendentally ideal, and **second**, that Kantian Structuralism and Kantian Intuitionism can be smoothly extended from mathematics to logic and thereby solve The Extended Dilemma. If I am correct, then this solution to The Extended Dilemma shows us that logic really is sublime in a precisely characterizable way, and that logic is sublime in this way just insofar as it is weakly transcendentally ideal, but not otherwise.

6.3 The Benacerraf Dilemma Generalized

As I thought through the theoretical part [of *The Limits of Sense and Reason*], considering its whole scope and the reciprocal relations of its parts, I noticed that I still lacked something essential, something that in my long metaphysical studies I, as well as others, had failed to pay attention to and that, in fact, constitutes the key to the whole secret of hitherto still obscure metaphysics. I asked myself: What is the ground of the relation of that in us which we call "representation" to the object? If a representation is only a way in which the subject is affected by the object, then it is easy to see how the representation is in conformity with this object, namely as an effect in accord with its cause, and it is easy to see this modification of our mind can *represent* something, that is, have an object.... However I silently passed over the further question of how a representation that refers to the object without being in any way affected by it can be possible. I had said: The sensuous representations present things as they appear, the intellectual representations present them as they are. But by what means are these things given to us, if not by the way in which they affect us? And if such intellectual representations depend on our inner activity, whence comes the agreement that they are supposed to have with objects—objects that are nevertheless not possibly produced thereby? And the axioms of pure reason concerning these objects—

how do they agree with these objects, since the agreement has not been reached with the aid of experience? In mathematics this is possible, because the objects before us are quantities and can be represented as quantities only because it is possible for us to produce their mathematical representations (by taking numerical units a given number of times). But in the case of relationships involving qualities—as to how my understanding may form for itself concepts of things completely a priori, with which concepts the things must necessarily agree, and as to how my understanding may formulate *real* principles concerning the possibility of such concepts, with which principles experience must be in exact agreement, and which nevertheless are independent of experience—this question, of how the faculty of understanding achieves this conformity with the things themselves, is still left in a state of obscurity.

(*PC* 10: 129–135)

But The Extended Benacerraf Dilemma does not exhaust the philosophical power of The Original Benacerraf Dilemma. Indeed, as I mentioned earlier, there is a generalized version of The Original Benacerraf Dilemma that brings out its deep structure and then projects that deep structure onto a priori knowledge of any kind whatsoever.[51] Moreover as it turns out, and not entirely coincidentally, The Generalized Benacerraf Dilemma was also fully anticipated by Kant in 1772, under the rubric of what I call *the problem of cognitive-semantic luck*.

It is well-known that Kant himself was a fully committed classical rationalist in the tradition of Leibniz and Christian Wolff, during his Pre-Critical period. Kant's Pre-Critical period, in turn, runs from the 1740s until at least the middle-to-late 1760s or

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[51] See also, e.g., Field, "Recent Debates About the A Priori"; Bedke, "Intuitive Non-Naturalism Meets Cosmic Coincidence"; and Thurow, "The Defeater Version of Benacerraf's Problem for A Priori Knowledge." In "Grasping the Third Realm," John Bengson correctly notes that any adequate solution to the problem must provide an "explanation of non-accidentally correct [rational] intuitions, given a realist view of the nature or character of what they are about" (p. 5). And by way of a solution, Bengson proposes an explanatory appeal to the existence of a *non-causal constitution-relation* between abstract truth-makers and rational intuitions. A similar proposal, to the effect that intuitional experiences are partially constituted by the abstract objects intentionally-targeted by those experiences, is made by Elijah Chudnoff in "Awareness of Abstract Objects," although not explicitly in the context of The Original Benacerraf Dilemma, The Extended Benacerraf Dilemma, or The Generalized Benacerraf Dilemma. In any case, I do think that Bengson's and Chudnoff's "constitutionalist" proposals are both definitely on the right track, and also that Bengson's particular formulation of the problem appropriately fuses The Generalized Benacerraf Dilemma with the classical "explanatory problem" about rational intuitions (see section 7.4). My critical worries about their proposals, however, are (i) that they both simply avoid the *causal* dimension of The Original Benacerraf Dilemma without adequate philosophical motivation, and (ii) that they both leave open a new explanatory gap about what metaphysically accounts for the *constitution-relation* in this connection. As will become clear in the rest of this chapter, and in chapters 7 and 8, my formulation of and proposed solution to The Generalized Benacerraf Dilemma (i) specifically emphasize the fundamental need for an *essentially* reliable connection between rational intuitions and their abstract truth-makers (or abstract objects), in order to solve The Original Benacerraf Dilemma, The Extended Benacerraf Dilemma, and The Generalized Benacerraf Dilemma, (ii) clearly demonstrate the Kantian provenance of every version of The Benacerraf Dilemma, (iii) clearly demonstrate that transcendental idealism is a leading candidate for an adequate solution to every version of The Benacerraf Dilemma, (iv) adequately preserve the causal component in every version of The Benacerraf Dilemma, and (v) also yield, as a direct consequence of the appeal to transcendental idealism, a synthetic a priori constitution-relation between abstract truth-makers and rational intuitions.

the early 1770s, when, by his own retrospective testimony in 1783, he was suddenly jolted out of his Leibnizian and Wolffian dreams by a skeptical Humean Empiricist wake-up call:

I openly confess that my remembering David Hume was the very thing which many years ago first interrupted my dogmatic slumber and gave my investigations in the field of speculative philosophy a quite new direction. I was far from following him in the conclusions at which he arrived . . . [But if] we start from a well-founded, but undeveloped, thought which another has bequeathed to us, we may well hope by continued reflection to advance further than the acute man to whom we owe the first spark of light. (*Prol* 4: 260)

In the *Treatise of Human Nature* and again in the *Enquiry Concerning Human Understanding*, Hume defends and develops three crucial theses, each of which importantly influenced Kant, whether positively or negatively, after 1770:

   (i) all human cognition is strictly limited as to its content, truth, and epistemic scope by sensory experience,
  (ii) the class of all judgments is exhaustively divided into those concerning "relations of ideas" (i.e., necessary a priori definitional or stipulative truths, for example, truths of logic or mathematics) and those concerning "matters of fact" (i.e., contingent a posteriori experimental truths, e.g., truths of natural science), and
 (iii) all our judgments concerning supposedly necessary causal relations in fact refer exclusively to experience and matters of fact, and their content and justification is determined solely by non-rational "custom" or "habit," not reason.

In the *Critique of Pure Reason* Kant fully accepts a carefully qualified version of Hume's thesis (i), namely,

(i*) all human cognition begins in causally-triggered, direct, non-conceptual, non-inferential sense perception of contingent natural objects or facts, but at the same time neither the form nor the content of human cognition is necessarily or constitutively determined by sensory experiences and/or contingent natural objects or facts, i.e., the form and the content of human cognition is necessarily and constitutively underdetermined by all sense experiences and/or contingent natural objects or facts, i.e., the form and content of human cognition necessarily is, at least in part, *non-empirical or a priori*,

and also firmly rejects Hume's theses (ii) and (iii).

In another fundamentally important and closely related autobiographical remark in the *Reflexionen*, Kant says that "the year '69 gave me great light" (*R* 5037, 18: 69). By this, I think, he means that in that particular year—falling exactly midway between his seminal 1768 essay "Concerning the Ultimate Ground of the Differentiation of Directions in Space" and his breakthrough 1770 Inaugural Dissertation, "On the Form and Principles of the Sensible and Intelligible World"—he discovered and formulated two brilliantly original ideas.

First, he discovered and formulated what I call *cognitive dualism*. In contrast to both Rationalists and Empiricists, who hold that the human mind has only one basic cognitive faculty—reason or sense perception, respectively—Kant holds that the

human mind has *two* basic cognitive faculties: (i) the "understanding" (*Verstand*), the faculty of concepts, thought, and discursivity, and (ii) the "sensibility" (*Sinnlichkeit*), the faculty of intuitions/non-conceptual cognitions, sense perception, and mental imagery (*CPR* A51/B75). The essential difference between the faculties of understanding and sensibility, and correspondingly the essential difference between concepts and intuitions (A50–52/B74–76), as distinct kinds of representational content, is a fundamental commitment of Kant's theory of cognition. Hence Kant is both a cognitive *capacity* dualist (understanding vs. sensibility) and also a cognitive *content* dualist (concepts vs. intuitions).

Second, he discovered and formulated what I will call *transcendental idealism with respect to sensibility*:

(i) all the proper objects of a rational but also specifically human capacity for sensibility are only manifest, apparent, or phenomenal objects of the human senses, and never non-manifest, non-apparent, essentially non-relational or monad-like, Really Real objects—i.e., "things-in-themselves" (*Dinge an sich*) or "noumena," and

(ii) the ontic structures of manifest, apparent, or phenomenal physical spacetime necessarily conform to the innate and non-empirical mentalistic structure of the rational human cognitive capacity for causally-triggered, direct, non-conceptual sensory intuition (*Anschauung*), whose fundamental forms are the representation of space (for outer sense) and the representation of time (for inner sense).

But Kant's great philosophical breakthrough to transcendental idealism came in two stages. In 1770, even despite his transcendental idealism with respect to sensibility, he was still a noumenal realist with respect to pure reason and the understanding, who held that the intellectual capacities of rational human beings could represent noumenal entities directly. By 1772, however, primed by his intellectual encounter with Hume, and also by his discovery of the antinomies of pure reason,[52] Kant also added a third, fourth, and fifth part to transcendental idealism, namely, what I will call *transcendental idealism with respect to the understanding*, and *radical agnosticism with respect to pure reason*:

(iii) all the proper objects of a rational but also specifically human capacity for cognition, whether sensible cognition via intuitions or discursive cognition via concepts, are only manifest, apparent, or phenomenal objects of the human senses, and never non-manifest, non-apparent, essentially non-relational or monad-like, Really Real objects—"things-in-themselves"(*Dinge an sich*) or "noumena,"

(iv) pure human reason by its very nature purports and yearns to know things-in-themselves or noumena, but on the contrary, in view of the inherent limitation of human cognition to what can be known via sensibility, it is also knowable that it is strictly unknowable (iva) whether things-in-themselves exist or do not exist, (ivb) what the essence or nature of a thing-in-itself or noumenon would be, were it to exist, and

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[52] See, e.g., Forster, *Kant and Skepticism*; and Hanna, "The Kantian's Revenge: On Forster's *Kant and Skepticism*."

(v)   the ontic structures of all manifest, apparent, or phenomenal natural objects and facts, together with all the causal-dynamic relations between manifest, apparent, or phenomenal natural objects and facts, also necessarily conform to the innate and non-empirical mentalistic structure of the rational human cognitive capacities for conceptualization, judgment, understanding or thought, and logical reasoning.

Significantly, moreover, it took Kant nine more years, until 1781, in the first or A edition of the *Critique of Pure Reason*, to work out the core argument for transcendental idealism with respect to the understanding, namely, The Transcendental Deduction of the Pure Concepts of the Understanding, aka Categories. It then took him another six years, until 1787, in the second or B edition of the first *Critique*, to work out the revised version of the Transcendental Deduction. So all in all, Kant worked on his core argument for transcendental idealism with respect to the understanding for *fifteen years*. That is a long time, and a lot of work. But even so, it is arguable that the B edition Transcendental Deduction is unsound.[53] In any case, I will call the conjunction of theses (i), (iii), and (iv) **The Idealism Thesis**, and the conjunction of theses (ii) and (v), **The Conformity Thesis**.

What would justify Kant's asserting **The Idealism Thesis** and **The Conformity Thesis**—in other words, what would justify his asserting the truth of transcendental idealism? I think that we can rationally reconstruct his basic argument for transcendental idealism in the following way. Suppose that we accept, as initial suppositions, (i) the minimal Empiricist assumption that all human cognition begins in causally triggered, direct, non-conceptual, non-inferential sense perception of contingent natural objects or facts, (ii) the minimal Rationalist assumption that we rational human animals actually cognitively possess some non-empirical or a priori mental representations, and that we also have non-empirical or a priori knowledge of some objectively necessary truths, for instance, in mathematics, logic, and metaphysics, and (iii) the minimal cognitive-semantic assumptions that (iiia) truth is the agreement (*Übereinstimmung*) of a belief with the object described by the propositional content of that belief, and (iiib) reference is the direct relation (*Beziehung*) between any cognition and its object.

For expository convenience, let us call all non-empirical or a priori mental representations, including a priori beliefs and a priori knowledge, *a priori cognitions*. What then rules out the possibility that the cognitive-semantic connection between our a priori cognitions, on the one hand, and the truth-making objects or facts, on the one hand, is nothing but a cosmic accident or massive coincidence? And if it is a cosmic accident or massive coincidence, then the connection between our a priori cognitions and their truth-making objects or facts is merely accidental or contingent, and could just as easily have failed to obtain in at least some introspectively cognitively indistinguishable situations. If so, then a priori cognition is inherently unreliable and cannot

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[53] See, e.g., Hanna, "Kant's Non-Conceptualism, Rogue Objects, and the Gap in the B Deduction"; Hanna, "Blind Intuitions, Rogue Objects, and Categorial Anarchy"; Hanna, "Kant, Hegel, and the Fate of Non-Conceptual Content,"; and Hanna, "Directions in Space, Non-Conceptual Form, and the Foundations of Transcendental Idealism."

constitute a priori knowledge. This deep skeptical worry is the problem of cognitive-semantic luck.

Now, one possible solution to the problem of cognitive-semantic luck is that the truth-making objects or facts are all platonically abstract, non-spatiotemporal, non-natural, non-sensory, causally irrelevant, and causally inert in nature. Let us say, for example, that they are constituted by platonic Essences, Forms, Ideas, or *eide*, and that those truth-making objects or facts are directly encountered by our immortal souls in a previous condition of disembodied mindedness. Then in this "human, all too human" embodied life, or perhaps in another later more fortunate embodied life of the same soul, we "remember" that earlier direct encounter, by means of philosophical dialectic. That is Plato's theory of *anamnesis*, and of course it is an early version of the "innate ideas" theory later held by Descartes, the Cambridge Platonists, and Leibniz. But not only does the classical platonic theory require the transmigration of immortal souls. It also provides no explanation whatsoever of how immortal souls in an original state of disembodied mindedness can ever directly encounter platonically abstract, non-spatiotemporal, non-natural, non-sensory, causally irrelevant, and causally inert objects or facts. Nor does it explain how souls in their "human, all too human" embodied state can ever *re*-encounter them. In short, such encounters and re-encounters are a metaphysical mystery.

Another possible solution to the problem of cognitive-semantic luck is that the objects and facts are all and only concrete, spatiotemporal, natural, sensory, causally relevant, and causally efficacious objects and facts, and that they thereby naturally cause our a priori cognitions. That is the *classical Empiricist* or Lockean-Humean solution. The basic problem with the classical Empiricist solution, however, is that it is incompatible with the initial assumption that the cognitions naturally caused by these truth-making object or facts states of affairs are a priori, and not a posteriori. Otherwise put, how could these cognitions be other than a posteriori, if their truth-making objects are strictly concrete, spatiotemporal, natural, sensory, causally relevant, causally efficacious natural causes of those cognitions?

Another pair of possible solutions to the problem of cognitive-semantic luck take the following two-step strategy. **First**, the truth-making objects or facts are all, again, platonically abstract, non-spatiotemporal, non-natural, non-sensory, causally irrelevant, and causally inert. **Second**, an all-powerful, all-knowing, and all-good or non-deceiving God creates either (i) a direct non-causal cognitive-semantic relation of acquaintance (*kennen*), or (ii) an indirect non-relational cognitive-semantic "pre-established harmony," between the a priori cognitions, on the one hand, and the platonically abstract, non-spatiotemporal, non-natural, non-sensory, causally irrelevant, and causally inert truth-making objects or facts, on the other. Those, respectively, are the classical rationalist Cartesian and Leibnizian solutions. But consider the fact that all the proper objects of a rational but also specifically human capacity for cognition are apparent, phenomenal, or manifest natural objects, and never things-in-themselves or noumena. Then the appeal to a non-deceiving God and to God's creation of humanly inaccessible mysterious cognitive acquaintance relations or equally mysterious pre-established harmonies seems no better justified—in effect, no more than an arbitrary and question-begging appeal to a *deus ex machina*—than the skeptical hypothesis that the correspondence is nothing but a massive coincidence.

Indeed, in the light of the implausibility of the Cartesian and Leibnizian *deus ex machina*-style solutions, what could decisively rule out the further skeptical possibility that the correspondence is simply illusory and has been created by an Evil Demon—by a God-like being who is also an inveterate deceiver—given the introspective cognitive indistinguishability of at least some worlds in which this is possible?

So the classical Rationalist platonic, classical Empiricist Lockean-Humean, classical Rationalist Cartesian, and classical Rationalist Leibnizian solutions to the problem of cognitive-semantic luck all fail. And let us assume that these four possible solutions exhaust the logical space of all the most promising and relevant solutions to the problem. Then we can infer the truth of transcendental idealism, by philosophical abduction or inference-to-the-best-philosophical-explanation, as the only adequate solution to the problem of cognitive-semantic luck.[54]

In the famous letter to Marcus Herz of February 21, 1772, that I have already partially quoted as the second epigraph of this section, and then again fifteen years later in the B edition of the first *Critique*, Kant formulates this basic argument for transcendental idealism in the following ways:

As I thought through the theoretical part [of *The Limits of Sense and Reason*], considering its whole scope and the reciprocal relations of its parts, I noticed that I still lacked something essential, something that in my long metaphysical studies I, as well as others, had failed to pay attention to and that, in fact, constitutes the key to the whole secret of hitherto still obscure metaphysics. I asked myself: What is the ground of the relation of that in us which we call "representation" to the object? If a representation is only a way in which the subject is affected by the object, then it is easy to see how the representation is in conformity with this object, namely as an effect in accord with its cause, and it is easy to see this modification of our mind can *represent* something, that is, have an object. Thus the passive or sensuous representations have an understandable relationship to objects, and the principles that are derived from the nature of our soul have an understandable validity for all things insofar as those things are supposed to be objects of the senses. In the same way, if that in us which we call "representation" were active with regard to the object, that is, if the object were created by the representation (as when divine cognitions are conceived as the archetypes of all things), the conformity of these representations to their objects could be understood. Thus the possibility of both an *intellectus archetypi* (on whose intuitions the things themselves would be grounded) and an *intellectus ectypi* (which would derive the data for its logical procedure from the sensible intuition of things) is at least intelligible. However, our understanding, through its representations, is not the cause of the object. . . . nor is the object the cause of the intellectual representations in the mind. . . . Therefore the pure concepts of the understanding must not be abstracted from sense perceptions, nor must they express the reception of representations through the senses; but though they must have their origin in the nature of the soul, they are neither caused by the object nor bring the object into being. In my dissertation I was content to explain the nature of intellectual representations in a merely negative way, namely, to state that they were not modifications of the soul brought about by the object.

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[54] See also sections 1.0 and 4.7 herein, as well as section 8.4, on inference-to-the-best-explanation, inference-to-the-best-philosophical-explanation, transcendental arguments, and transcendental explanations.

However I silently passed over the further question of how a representation that refers to the object without being in any way affected by it can be possible. I had said: The sensuous representations present things as they appear, the intellectual representations present them as they are. But by what means are these things given to us, if not by the way in which they affect us? And if such intellectual representations depend on our inner activity, whence comes the agreement that they are supposed to have with objects—objects that are nevertheless not possibly produced thereby? And the axioms of pure reason concerning these objects—how do they agree with these objects, since the agreement has not been reached with the aid of experience? In mathematics this is possible, because the objects before us are quantities and can be represented as quantities only because it is possible for us to produce their mathematical representations (by taking numerical units a given number of times). But in the case of relationships involving qualities—as to how my understanding may form for itself concepts of things completely a priori, with which concepts the things must necessarily agree, and as to how my understanding may formulate *real* principles concerning the possibility of such concepts, with which principles experience must be in exact agreement, and which nevertheless are independent of experience—this question, of how the faculty of understanding achieves this conformity with the things themselves, is still left in a state of obscurity.

Plato assumed a previous intuition of divinity as the primary source of the pure concepts of the understanding and of first principles. [Malebranche] believed in a still-continuing perennial intuition of this primary being. Various moralists have accepted precisely this view with respect to basic moral laws. Crusius believed in certain implanted rules for the purpose of forming judgments and ready-made concepts that God implanted in the human soul just as they had to be in order to harmonize with things. Of these systems, one may call the former the *influxum hyperphysicum* and the latter the *harmonium preastabilitatem intellectualem*. But the *deus ex machina* is the greatest absurdity one could hit on in the determination of the origin and validity of our knowledge. It has—beside its deceptive circle in the conclusion concerning our cognitions—also this additional disadvantage: it encourages all sorts of wild notions and every pious and speculative brainstorm. (*PC* 10: 129–135)

Up to now it has been assumed that all our cognition must conform to the objects; but all attempts to find out something about them *a priori* through concepts that would extend our cognition have, on this presupposition, come to nothing. Hence let us once try whether we do not get farther with the problems of metaphysics by assuming that the object must conform to our cognition, which would agree better with the requested possibility of an *a priori* cognition of them, which is to establish something about objects before they are given to us.... If intuition has to conform to the constitution of the objects, then I do not see how we can know anything of them *a priori*; but if the object (as an object of the senses) conforms to the constitution of our faculty of intuition (*Anschauungsvermögens*), then I can very well represent the possibility to myself. (*CPR* B xvi–xvii)

Now there are only two ways in which a **necessary** agreement of experience with the concepts of its objects can be thought: either the experience makes these concepts possible, or these concepts make the experience possible. The first is not the case with the categories (nor with pure sensible intuition); for they are *a priori* concepts, hence independent of experience (the assertion of an empirical origin would be a sort of *generatio aequivoca*). Consequently only the second way remains (as it were a system of the **epigenesis** of pure reason): namely, that the categories contain the grounds of the possibility of all experience in general from the side of the understanding.... If someone still wanted to propose a middle way between the only two, already named ways,

namely, that the categories were neither **self-thought** *a priori* first principles of our cognition, nor drawn from experience, but were rather subjective predispositions of our thinking, implanted in us along with our existence by our author in such a way that their use would agree exactly with the laws of nature along which experience runs (a kind of **preformation-system** of pure reason), then (besides the fact that on such a hypothesis no end can be seen to how far one might drive the presupposition of predetermined predispositions for future judgments) this would be decisive against the supposed middle way: that in such a case the categories would lack the **necessity** that is essential to their concept. For, e.g., the concept of cause, which asserts the necessity of a consequent under a presupposed condition, would be false if it rested only on a subjective necessity, arbitrarily implanted in us, of combining certain empirical representations according to a rule of relation. I would not be able to say that the effect is combined with the cause in the object (i.e., necessarily), but only that I am so constituted that I cannot think of this representation otherwise than as so connected; which is precisely what the skeptic wishes most, for then all our insight through the supposed objective validity of our judgments is nothing but sheer illusion, and there would be no shortage of people who would not concede this subjective necessity (which must be felt) on their own; at least one would not be able to quarrel with anyone about that which merely depends on the way in which his subject is organized. (*CPR* B166–168)

Unfortunately for Kant-scholars and contemporary Kantians, the positive formulation of transcendental idealism at *CPR* B xvi–xvii is not itself perfectly clear and distinct. It could, at least in principle, express any one of the four following versions of **The Conformity Thesis**, where the options run from the strongest formulation to the weakest.

(i) There is a physical-to-mental "type-type-identity" relation between (ia) the ontic forms or structures of manifestly real, apparent, or phenomenal physical spacetime, together with the causal-dynamic relations between apparent, phenomenal, or manifestly real natural objects and natural facts on the one hand, and (ib) the innate mentalistic forms or structures of rational human sensibility, understanding, and reason on the other, such that the former are "upwardly type-identical" to the latter.

or

(ii) There is a mental-to-physical logical-supervenience-without-"type-type-identity" relation between (iia) the innate mentalistic forms or structures of rational human sensibility, understanding, and reason, on the one hand, and (iib) the ontic forms or structures of apparent, phenomenal, or manifestly real natural spacetime together with the causal-dynamic relations between apparent, phenomenal, or manifestly real natural objects and natural facts, on the other hand, such that the latter logically supervene on the former but are not type-identical to the former.

or

(iii) There is a physical-to-mental isomorphism-without-either-"type-type-identity" - or-logical-supervenience relation between (iiia) the ontic forms or structures of apparent, phenomenal, or manifestly real natural spacetime together with

the causal-dynamic relations between apparent, phenomenal, or manifestly real natural objects and natural facts, on the one hand, and (iiib) the innate mentalistic forms or structures of rational human sensibility, understanding, and reason, on the other hand, such that the former necessarily have the same form or structure as the latter but are not either type-identical to or logically supervenient on the latter.

or most weakly of all:

(iv) There is a physical-to-mental strong modal actualist counterfactual dependency relation between (iva) the ontic forms or structures of apparent, phenomenal, or manifestly real natural spacetime together with the causal-dynamic relations between apparent, phenomenal, or manifestly real natural objects and natural facts, on the one hand, and (ivb) the innate mentalistic forms or structures of rational human sensibility, understanding, and reason, on the other, such that the former metaphysically depend on the latter in the sense that necessarily, if the manifestly real natural world actually exists, then if rational human cognizers were also to exist, then they would be able to know the ontic structures of manifestly real natural spacetime veridically through autonomous essentially non-conceptual content (= intuition, *Anschauung*), and also would be able to know the causal-dynamic relations between manifestly real natural objects and natural facts veridically through concepts (*Begriffe*), judgments (*Utreile*), and inferences (*Vernuftschlüße*), at least to some extent.

As I previewed it in section 6.0, my own view is that the most philosophically defensible version of **The Conformity Thesis** is the conjunction of (iii) and (iv), which I call *Weak or Counterfactual Transcendental Idealism*. In turn, the weak or counterfactual transcendental ideality of something, it should be noted for the purposes of later discussion, holds even if, and whenever, no rational human minds, or any other kinds of minds, actually do exist, or ever have existed.

With the Kantian provenance of the problem of cognitive-semantic luck clearly in front of us, I will now formulate The Generalized Benacerraf Dilemma in a step-by-step way.

(1) All knowledge is factive, that is, all knowledge contains an objective truth-making component, so all a priori knowledge whatsoever is factive, especially including a priori knowledge in mathematics, logic, and philosophy.

(2) If all a priori knowledge is factive in that it contains an objective truth-making component, then what rules out the possibility that its factive component is nothing but the result of a cosmic accident or massive coincidence, in that its truth-maker is merely accidentally connected to rational human belief and justification in the actual world (which is the classical Gettier worry, now extended to a priori knowledge),[55] and also introspectively cognitively indistinguishable from connection with falsity-makers in relevantly similar possible worlds (which is "new evil demon" global

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[55] See also BonJour, *In Defense of Pure Reason,* pp. 156–61.

skepticism,[56] now extended to a priori knowledge)? Let us call this "the possibility of cognitive-semantic luck."

(3) If nothing rules out the possibility of cognitive-semantic luck, then a priori knowledge of any kind whatsoever is impossible.[57]

(4) There are only two possible candidates for ruling out the possibility of cognitive-semantic luck: either (i) non-naturalism about the objective truth-makers and their connection with rational human beliefs, or else (ii) naturalism about the objective truth-makers and their connection with rational human beliefs.

(5) Consider non-naturalism about the objective truth-makers and their connection with rational human beliefs—for instance, as per classical Rationalist platonism, Cartesian innate clear and distinct ideas of real essences, grounded in God's existence and non-deceitfulness, Leibnizian pre-established harmony, and so on. This puts the truth-makers outside of space and time, and renders their connection with rational human beliefs a metaphysical mystery. Hence non-naturalism about the objective truth-makers and their connection with rational human beliefs does not explain how rational human a priori knowers can stand in a non-accidental, global-skepticism-resistant connection with the known truth-making objects of a priori knowledge.

(6) And now consider naturalism about the objective truth-makers and their connection with rational human beliefs. At least prima facie, naturalism can account for how rational human knowers can stand in a non-accidental, global-skepticism-resistant connection with the known truth-making objects—for instance, via some or another causally reliable connection.[58] But naturalism cannot explain how rational human beliefs can be either necessary or a priori. Indeed, on the contrary, what naturalism shows is that those rational human beliefs are contingent and a posteriori, as per classical either Lockean-Humean Empiricism or Quinean radical Empiricism. Hence naturalism about the objective truth-makers and their connection with rational human beliefs does not explain how rational human a priori knowers can stand in a non-accidental, global-skepticism-proof connection with the known truth-making objects of specifically a priori knowledge.

(7) So, since the possibility of cognitive-semantic luck cannot be ruled out, then a priori knowledge of any kind whatsoever is impossible, including a priori knowledge in mathematics, logic, philosophy, morality, axiology, linguistics, semantics, and so on.

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[56] See, e.g., Cohen, "Justification and Truth."

[57] This premise is equivalent to what Joshua Thurow calls the "defeater" premise in his generalized version of The Original Benacerraf Dilemma—see Thurow, "The Defeater Version of Benacerraf's Problem for A Priori Knowledge."

[58] As it turns out, however, this prima facie plausible thesis that causal reliability will somehow provide a non-accidental, global-skepticism-resistant connection between rational human knowers and the known truth-making objects ultimately fails. In order to see this, all we need to do is universally generalize Lehrer's "Truetemp" example over all (merely) causally reliable knowledge-connections, which thereby yields a causal-reliability version of new evil demon global skepticism. This, of course, is just another version of the problem of cognitive-semantic luck.

6.4 Conclusion

For our purposes here, there are three crucial points to notice about The Generalized Benacerraf Dilemma.

First, The Generalized Benacerraf Dilemma captures the deep structure of The Original Benacerraf Dilemma and The Extended Benacerraf Dilemma alike. Since the latter two versions of The Dilemma already raise fundamental epistemological and metaphysical worries about mathematical and logical a priori knowledge, then it follows that The Generalized Benacerraf Dilemma raises an even more fundamental epistemological and metaphysical worry about a priori knowledge of any kind whatsoever.

Second, given the internal structural connection among The Original Benacerraf Dilemma, The Extended Benacerraf Dilemma, and The Generalized Benacerraf Dilemma, then in order to be able to provide an adequate solution to The Generalized Benacerraf Dilemma, one will also have to be able to provide adequate solutions to The Original Benacerraf Dilemma and The Extended Benacerraf Dilemma alike. Indeed, the failure of a theory to provide an adequate solution to either The Original Benacerraf Dilemma or The Extended Benacerraf Dilemma entails a corresponding failure to provide an adequate solution to The Generalized Benacerraf Dilemma.

Third and finally, given (i) the fact of the Kantian historical-philosophical origins of The Generalized Benacerraf Dilemma in the problem of cognitive-semantic luck, and given (ii) the further fact that transcendental idealism was specifically designed to solve The Problem in the face of the failure of the other leading philosophical contenders—classical Rationalist platonism, classical Lockean-Humean Empiricism, and classical Cartesian or Leibnizian Rationalism—then (iii) it is at least prima facie arguable that *only* transcendental idealism will be able to provide an adequate solution to it. Correspondingly, (iv) it is at least prima facie arguable that *only* transcendental idealism will be able to provide an adequate solution to The Original Benacerraf Dilemma and The Extended Benacerraf Dilemma. This, in turn, entails that (v) it is at least prima facie plausible that *only* transcendental idealism will be able to provide an adequate general theory of a priori knowledge.

In order to begin to vindicate this very bold fifth claim, however, I must first go somewhat further into the nature of a priori knowledge, and then also say something more about the nature of transcendental idealism.

7

Rationalism Regained 2
A Priori Knowledge and the Nature of Intuitions

[W]e will understand by *a priori* cognitions not those that occur independently of this or that experience, but rather those that occur *absolutely* independently of all experience. Opposed to these are empirical cognitions, or those that are possible only *a posteriori*, i.e., through experience....Experience teaches us, to be sure, that something is constituted thus and so, but not that it could not be otherwise. **First**, then, if a proposition is thought along with its **necessity**, then it is an *a priori* judgment;...**Second:** Experience never gives its judgments true or strict but only assumed and comparative **universality** (through induction), so properly it must be said: as far as we have perceived, there is no exception to this or that rule. Thus if a judgment is thought in strict universality, i.e., in such a way that no exception is allowed to be possible, then it is not derived from experience, but is rather valid absolutely *a priori*....Necessity and strict universality are therefore secure indicators (*Kennzeichen*) of an *a priori* cognition, and also belong together inseparably. But since in their use it is sometimes easier to show the empirical limitation in judgments than contingency in them, or is often more plausible to show the unrestricted universality that we ascribe to a judgment than its necessity, it is advisable to employ separately these two criteria, each of which is infallible.

(*CPR* B2–4)

7.0 Introduction

What is a priori knowledge? In section 1.2, I presented an account of the nature of knowledge in terms of categorical epistemology and The Two-Dimensional Conception of rational normativity. And in particular, against this theoretical backdrop, I introduced a fundamental distinction between High-Bar knowledge and Low-Bar knowledge. Here, again, are the four basic kinds of knowledge recognized by categorical epistemology:

(i) **Non-Conceptual Knowledge:** Perception P in an animal subject S is Non-Conceptual Knowledge if and only if (ia) P is based on essentially non-conceptual content, and (ii) S possesses a properly functioning and context-sensitive causally reliable cognitive capacity or mechanism that yields S's conscious evidence E for P.

(ii) **Low-Bar Knowledge:** Belief B in an animal subject S is Low-Bar knowledge if and only if (iia) B is true, (iib) S possesses a properly functioning and at least

contingently reliable cognitive capacity or mechanism that yields S's conscious evidence E for B, and (iic) S has a reason for asserting B based on E—in other words, S has a Low-Bar justification for B.

(iii) **Context-Sensitive Causally Reliable Low-Bar Knowledge:** Belief B in an animal subject S is context-sensitive causally reliable Low-Bar knowledge if and only if (iiia) B is true, (iiib) S possesses a properly functioning and context-sensitive causally reliable cognitive capacity or mechanism that yields S's conscious evidence E for B, and (iiic) S has a reason for asserting B based on E—in other words, S has a Low-Bar justification for B.

(iv) **High-Bar Knowledge:** Belief B in an animal subject S is High-Bar knowledge if and only if (iva) B is true, (ivb) S possesses a properly functioning and essentially reliable cognitive capacity or mechanism that yields S's intrinsically compelling conscious evidence E for B, and (ivc) S has a sufficient reason for asserting B based on E—in other words, S has a High-Bar justification for B.

In this chapter, presupposing that account of knowledge, I will present an account of the nature of a priori knowledge specifically, in three steps. **First**, I will discuss the nature of apriority. **Second**, I will consider the a priori–a posteriori distinction and its eleven major varieties. And **third**, I will spell out the nature of transcendental idealism as the metaphysical foundation of an adequate theory of a priori knowledge. The rest of the chapter will be devoted to critically clearing a place in logical space for a contemporary Kantian theory of rational intuitions, *Kantian Intuitionism*, as the core of my account of a priori knowledge. Kantian Intuitionism, in turn, will be fully elaborated against its transcendental idealist metaphysical backdrop in chapter 8.

The philosophical debate over the possibility of authentic a priori knowledge, that is, non-stipulative, non-trivial knowledge of the way the world necessarily is, obtained sufficiently independently of any and all sense-experiential episodes and/or contingent natural facts, is no less important today than it was when Plato posited in the *Meno* that we are able to have such knowledge owing to a pre-natal close encounter that our disembodied souls had with the Forms, and when Descartes posited in the *Meditations on First Philosophy* that such knowledge is infallible because it is guaranteed by a non-deceiving God. Of course, neither the platonic story nor the Cartesian story about our purported a priori abilities has many adherents today. Nevertheless, a large majority of philosophers (71.1 percent, according to a recent PhilPapers survey I have already mentioned in section 4.1[1]) do indeed believe that a priori knowledge is really possible.

But how can such knowledge be really possible? The classical story, shared by Plato and Descartes, goes something like this: Rational human animals have special non-empirical cognitive capacities—perhaps minimally analogous to sense-perceptual capacities—that connect them, rational human cognizers, directly to certain abstract and necessary features of the world. These capacities yield what are called "rational intuitions," and by consulting these rational intuitions, rational human cognizers are able to receive reliable information about the way the world necessarily is. These

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[1] See Bourget and Chalmers, "Philosophical Papers Survey 2009."

rational intuitions, in turn, act as sufficient justifiers of rational human cognizers'
beliefs about certain kinds of propositions, or necessary truths, and because of these
intuitional sufficient justifiers, authentic a priori knowledge is really possible. I will
call the thesis that a priori knowledge of necessary truth is really possible, via the
human cognitive capacity for rational intuitions, *rationalism*. The *old* rationalism, in
addition, says (i) that rational intuitions always deliver absolutely infallible informa-
tion about the abstract truth-making objects of necessary propositions, and (ii) that
the abstract truth-making objects of rational human intuitional a priori knowledge
are non-spatiotemporal, causally irrelevant, and causally inert entities (e.g., Plato's
Forms, or Descartes's "true and immutable natures"). The *new* rationalism, or *neo-
rationalism*, by an important contrast, says (i*) that rational intuitions do at least
sometimes, but not always, deliver reliable, but not absolutely infallible, information
about the abstract truth-making objects of necessary propositions. And the con-
temporary Kantian neo-rationalism that I am proposing in this book, by another
important contrast, also says (ii*) that the truth-making objects of rational human
intuitional a priori knowledge are indeed abstract, but neither non-spatiotemporal
nor causally irrelevant, precisely because they are abstract in the non-platonic,
Kantian sense only.

Opposed to this rationalist story, whether old or new, and whether non-Kantian or
Kantian, is an equally prestigious tradition that is skeptical about our purported
capacity to achieve a priori knowledge of necessary truth via rational-intuitional
means. Such intuition-skeptical attacks on rationalism come in many forms. Some
attacks attempt to show that rationalists can tell no satisfactory story about the
connection between the mind and the world such that rational intuitions could
reliably deliver a priori knowledge of necessary features of the world. Other attacks
attempt to show that rational intuitions are so inherently fallible that they can never
satisfactorily justify purportedly a priori knowledge. Further attacks attempt to
show that we can gain all the knowledge we think we have (both a posteriori and
purportedly a priori) via purely sense-experiential means, and that parsimony
requires that we not posit other (perhaps metaphysically and epistemically dubious)
epistemic capacities. And still other attacks claim that, contrary to widely held
methodological and meta-philosophical beliefs, philosophers do not really rely on
rational intuitions as evidence either for philosophical theories or for any other
significant claims.[2] I will call the constellation of skeptical views just described,
intuition-skeptical empiricism.

Whatever the plausibility of intuition-skeptical empiricist attacks on rationalism,
at the same time many contemporary philosophers are reluctant to accept intuition-
skeptical empiricist conclusions. Indeed, since the late 1980s there has been a
renewed and steadily growing interest in rationalism and the a priori; and gradually,
what George Bealer has very aptly and rightly dubbed a *rationalist renaissance* has
emerged onto the contemporary philosophical scene.[3] At the same time, however,

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[2] See, e.g., Cappelen, *Philosophy without Intuitions*; and Williamson, *The Philosophy of Philosophy*.
[3] See, e.g., Bealer, "The Incoherence of Empiricism"; Bealer, "Intuition and the Autonomy of Philoso-
phy"; Bealer, "A Theory of the A Priori"; Bealer, "Modal Epistemology and the Rationalist Renaissance";
Boghossian and Peacocke, *New Essays on the A Priori*; BonJour, "In Defense of the *A Priori*"; BonJour, *In*

even despite this rationalist renaissance, the all-important neo-rationalist notion of rational intuition has not been either adequately defended or fully developed, especially as regards solving the two core problems about rational intuition: **first**, how rational intuitions can sufficiently justify beliefs (the justification problem), and **second**, how to explain the real possibility of rational intuitions (the explanation problem).[4]

So here is where contemporary philosophers now find themselves, after these dialectical skirmishes: intuition-skeptical empiricism is arguably false; but intuition-skeptical attacks on rationalism are, as yet, not directly answered, or at least not decisively answered. Given this fact, many contemporary philosophers will, as it were, talk out of both sides of their mouths, by (on the one side) declaring themselves neo-rationalists, while (on the other side) also ruefully admitting, at least implicitly in their work, that they have no direct or decisive responses to the most important intuition-skeptical empiricist attacks on rationalism, and correspondingly, no direct or decisive solutions to one or both of the two core problems about rational intuition—the justification problem, and the explanation problem.

Given that unstable dialectical situation, this chapter and the next constitute an attempt, **first**, to respond critically, directly, and decisively to the most important intuition-skeptical empiricist attacks on rationalism, and **second**, to sketch and defend a contemporary Kantian neo-rationalism, with a special emphasis on the theory of rational intuitions and its two core problems, as epitomized by The Generalized Benacerraf Dilemma.

7.1 The Nature of Apriority

What is apriority? As I noted in section 4.7, in the first *Critique*, Kant says that

Although all our cognition commences with experience, yet it does not on that account all arise from experience. . . . It is therefore a question requiring closer investigation, and one not to be dismissed at first glance, whether there is any such cognition independent of all experience and even of all impressions of the senses. One calls such cognitions *a priori*, and distinguishes them from empirical ones, which have their sources *a posteriori*, namely in experience. (*CPR* B1–2)

Nevertheless, this text must also be juxtaposed with the text I quoted as the epigraph of this chapter, namely

[W]e will understand by *a priori* cognitions not those that occur independently of this or that experience, but rather those that occur *absolutely* independently of all experience.

Defense of Pure Reason; Casullo, *A Priori Justification*; Casullo (ed.), *Essays on A Priori Knowledge and Justification*; Casullo and Thurow (eds.), *The A Priori in Philosophy*; Hanson and Hunter (eds.), *The Return of the A Priori*; Huemer, *Ethical Intuitionism*; Katz, *Realistic Rationalism*; Lynch, *In Praise of Reason*; and Moser (ed.), *A Priori Knowledge*.

[4] For surveys of recent and contemporary work on intuitions, see Graper Hernandez (ed.), *The New Intuitionism*; Grundmann, "The Nature of Rational Intuitions and a Fresh Look at the Explanationist Objection"; Nagel, "Epistemic Intuitions"; Pust, "Intuition"; Sosa, *Intuitions: Oxford Bibliographies Online Survey Guide*; and Stratton-Lake (ed.), *Ethical Intuitionism*.

Opposed to these are empirical cognitions, or those that are possible only *a posteriori*, i.e., through experience. . . . Experience teaches us, to be sure, that something is constituted thus and so, but not that it could not be otherwise. First, then, if a proposition is thought along with its necessity, then it is an *a priori* judgment; . . . Second: Experience never gives its judgments true or strict but only assumed and comparative universality (through induction), so properly it must be said: as far as we have perceived, there is no exception to this or that rule. Thus if a judgment is thought in strict universality, i.e., in such a way that no exception is allowed to be possible, then it is not derived from experience, but is rather valid absolutely *a priori*. . . . Necessity and strict universality are therefore secure indicators (*Kennzeichen*) of an *a priori* cognition, and also belong together inseparably. But since in their use it is sometimes easier to show the empirical limitation in judgments than contingency in them, or is often more plausible to show the unrestricted universality that we ascribe to a judgment than its necessity, it is advisable to employ separately these two criteria, each of which is infallible. (*CPR* B2–4)

I think that these two Kantian texts collectively express a deep twofold insight that explains how it can be true both that (1) "all our cognition commences **with** experience" and also that (2) there exist "*a priori* cognitions [which are] not those that occur independently of this or that experience, but rather those that occur *absolutely* independently of all experience."

Above all, we need to have a clear and precise account of what "absolute experience-independence" means, and, correspondingly, what "experience-dependence" means. In order to do this, I will need to rehearse some terminological definitions. As I have noted several times, by *empirical facts* I mean inner or outer sensory experiences and/or contingent natural objects or facts. And as I also noted in section 1.1, I am understanding the relation of *necessary determination* to be equivalent to *strong supervenience* in the following way:

X necessarily determines *Y* if and only if the *Y*-facts strongly supervene on the *X*-facts.

In turn,

Y-facts strongly supervene on *X*-facts if and only if *X*-facts necessitate *Y*-facts and there cannot be a change in anything's *Y*-facts without a corresponding change in its *X*-facts.

In other words, in the relation of necessary determination, both the existence of the *Y*-facts and also the specific character of the *Y*-facts are metaphysically controlled by the existence and specific character of the *X*-facts. The necessary determination relation can also be strengthened to a constitutive dependence relation insofar as not only the existence and specific character of the *Y*-facts but also the essences or natures of the *Y*-facts are metaphysically controlled by the existence and specific character of the *X*-facts:

Y-facts constitutively depend on *X*-facts if and only if *X*-facts necessitate *Y*-facts and there cannot be a change in anything's *Y*-facts without a corresponding change in its *X*-facts, and the essence or nature of anything's *Y*-facts presuppose the essence or nature of its *X*-facts.

Then we can also say that the *Y*-facts are "grounded by" the *X*-facts.

Now let us take it as a given that necessarily, all human cognition begins in causally triggered, direct, non-conceptual, non-inferential sense perception of contingent natural objects or facts. Then Kant's deep twofold insight is twofold. **First**, apriority, or experience-independence, is not merely an epistemic notion, but also applies equally to semantic content, the truth/falsity of statements, and cognitive items of various kinds (e.g., cognitive faculties, the mental representations generated by them, and cognitive acts, states, or processes). **Second**, apriority, or experience-independence, is the *underdetermination* of the semantic content, truth/falsity, and/or justification of a mental representation R, of a cognitive faculty, act, state, or process C, or of a statement S *by any and all actual or possible empirical facts*. Otherwise put, apriority is the *necessary and constitutive* underdetermination of the semantic content, truth, and/or justification of R, C, or S by any and all empirical facts. Or still otherwise put, precisely to the extent that R, C, or S is a priori, then the semantic content, truth, and/or justification of R, C, or S is neither strongly supervenient on nor grounded by any and all empirical facts. So, to formulate this conception of apriority as a set of necessary equivalences:

Apriority ⇔ experience-independence ⇔ the necessary and constitutive underdetermination of the semantic content, truth/falsity, and/or justification of a mental representation R, cognitive faculty, act, state, or process C, or statement S by any and all empirical facts ⇔ the semantic content, truth, and/or justification of R, C, or S is neither strongly supervenient on nor grounded by any and all empirical facts.

Correspondingly, then, aposteriority is the determination of the semantic content, truth/falsity, and/or justification of a mental representation R, of a cognitive act, state, or process C, or of a statement S by any or all actual or possible empirical facts. Otherwise put, aposteriority is the necessary or constitutive determination of the semantic content, truth/falsity, and/or justification of R, C, or S by any or all empirical facts. Or still otherwise put, precisely to the extent that R, C, or S is a posteriori, then the semantic content, truth, and/or justification of R, C, or S is either strongly supervenient on or grounded by any or all empirical facts.

So, to formulate this conception of aposteriority as another set of necessary equivalences:

Aposteriority ⇔ experience-dependence ⇔ the necessary or constitutive determination of the semantic content, truth/falsity, and/or justification of a mental representation R, cognitive faculty, act, state, or process C, or statement S by any or all empirical facts ⇔ the semantic content, truth, and/or justification of R, C, or S is either strongly supervenient on or grounded by any or all empirical facts.

For the purposes of later discussion, it must be reemphasized that, according to the Kantian conception of apriority as the not-merely-epistemic necessary and constitutive underdetermination of the semantic content, truth/falsity, and/or justification of R, C, or S by any and all empirical facts, **first**, it is fully acknowledged that

all human knowledge begins in causally-triggered, direct, non-conceptual, non-inferential sense perception of contingent natural objects or facts,

and **second**, it is perfectly possible for a statement S to be such that

(i) S's content must bear some non-trivial relation to empirical facts,
(ii) the truth/falsity of S must be learned or confirmed by means of empirical facts, at least in part, and
(iii) S's belief-justification must be supported by sense-experiential evidence about empirical facts and established by experimental methods, at least in part,

and *also* a necessary and priori.

Here are three incontrovertible examples of a priori necessary truths, such that their content must bear some relation to empirical facts, their truth must be learned or confirmed by means of empirical facts, at least in part, and their belief-justification must be supported by sense-experiential evidence about empirical facts and established by experimental methods, at least in part:

It is not always true that it is the case that Socrates is mortal and also not the case that Socrates is mortal.
If Socrates is a bachelor, then Socrates is an unmarried male.
3 martinis + 4 martinis = 7 martinis, or,

Υ Υ Υ   +   Υ Υ Υ Υ   =   Υ Υ Υ Υ Υ Υ Υ

Otherwise put, Kant's deep twofold insight is this. (1) There is no such thing as a priori cognition, mental representation, or knowledge that altogether *excludes* empirical facts, which yields a minimal Empiricism. But at the same time, (2) it does *not* follow from the minimal Empiricism expressed in (1) that any version of maximal Empiricism—say, classical Lockean-Humean Empiricism, or Quine's radical Empiricism—is true. Maximal Empiricism says that the semantic content, truth/falsity, and/or justification of all mental representations R, of all cognitive faculties, acts, states, or processes C, or of all statements S, are necessarily or constitutively determined by, strongly supervenient on, grounded by, or, even more radically, reducible to empirical facts. But this does not follow from (1) and its minimal Empiricism. That would clearly and simply be, in Peter Strawson's lovely phrase, "a *non sequitur* of numbing grossness."[5]

I want now to consider two possible objections to my thesis about the relationship between apriority, aposteriority, strong supervenience, and grounding.

First objection: Every version of physicalism, whether reductive or non-reductive, and whether or not it deploys the notion of grounding, entails at least the strong supervenience of facts about consciousness, intentionality, or representational content on contingent physical facts. So if apriority in Hanna's contemporary Kantian sense exists, physicalism is false. But that is crazy. Therefore, Hanna's conception of apriority is false, and there is no such thing as apriority in this sense.

This objection obviously just assumes, without further argument, the truth of some or another version of physicalism. But as I argued in section 1.4, it is precisely one of

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[5] Strawson, *The Bounds of Sense: An Essay on Kant's Critique of Pure Reason*, p. 137. Of course the allusion is ironic, since here Strawson is famously (and mistakenly, as it happens) accusing Kant of committing one of these non sequiturs.

the main aims of this book to challenge physicalism about intentionality and content. So I completely agree that if apriority in my contemporary Kantian sense exists, then every version of physicalism is false. And in any case, Maiese and I have already argued at length against both reductive and non-reductive physicalism in *Embodied Minds in Action*. Hence at least for the purposes of *Cognition, Content, and the A Priori*, I am rationally entitled to my *modus ponens* (i.e., if apriority then not physicalism, apriority, therefore not physicalism), whereas the objector is merely dogmatically asserting his *modus tollens* (i.e., if apriority then not physicalism, physicalism, therefore not apriority). So the first objection is mistaken.

Second objection:[6] Since necessary truths hold in every logically possible world, then necessary truths logically strongly supervene on everything, including, of course, some (or all) actual or possible sensory experiences and/or contingent facts. So since—at least for Kantians—necessity and the a priori are necessarily equivalent,[7] then the a priori also logically strongly supervenes on everything, including some (or all) actual or possible sensory experiences and/or contingent facts. This, in turn, directly entails that the a priori is in fact a posteriori by Hanna's contemporary Kantian criterion of aposteriority. So Hanna's criterion of apriority is internally inconsistent.

But I think that this second objection is also mistaken, for the following reason. Even if the existence of all necessary truths logically strongly supervened on everything, it would not follow that either their specific character or their essence or nature logically strongly supervened too. For although all logically necessary truths are necessarily equivalent, their structural senses are different in virtue of their inherently different logical forms. For example, "P→P" does not have the same structural sense as "Pv~P" because its logical form is inherently different. Moreover, it is precisely in virtue of inherently distinct transformation rules—for instance, De Morgan's Equivalences—that we are able to move inferentially with logical spontaneity from one logical truth having a certain structural sense, to another logical truth having a distinct although necessarily equivalent structural sense. So their structural senses can, in a purely logical way, spontaneously vary independently of their being logically necessarily true, and this intensional fact is made manifest by the application of transformation rules. In turn, therefore, their structural senses do not logically strongly supervene on whatever it is that their existence logically supervenes on, under the supposition that their existence logically strongly supervenes on everything. And that is true in every logically possible world: logically necessary truths with inherently different logical forms are all intensionally non-equivalent. So their specific character and their logical essence or nature do not logically strongly supervene on anything, except, of course, on pure logic itself.

One could escape this conclusion only by denying either that logic has a specific character or that it has an essence or nature. This, in turn, amounts to denying that logic has intensional content. But that flies in the face of the very ideas of

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[6] Many thanks to Lloyd Humberstone for raising this objection in conversation.

[7] The trick is to show how the necessary and the a priori are necessarily equivalent without also conflating them. For two different ways of doing this, see Hanna, *Kant and the Foundations of Analytic Philosophy*, section 5.2; and Stang, "Did Kant Conflate the Necessary and the A Priori?"

distinct transformation rules and distinct logical forms. So the second objection is mistaken.

7.2 He Do the A Priori–A Posteriori Distinction in Eleven Different Voices

In Charles Dickens's characteristically big novel, *Our Mutual Friend*, the "very long boy" Sloppy turns the mangle for Mrs. Higden and also reads the newspapers to her, "doing the police in different voices." And T. S. Eliot's working title for his *un*characteristically big poem, *The Wasteland*, was "He Do the Police in Different Voices." So, too, the history of the a priori–a posteriori distinction is, in effect, like Dickens's novel itself, and like Eliot's poem, a "polyphonic" narrative, composed, however, not of many different literary voices but instead of many different philosophical voices. Indeed, and sadly, the history of the a priori–a posteriori distinction might even appear to be ultimately nothing but a babel of mutually incommensurable philosophical theories. In this regard, and in particular, the contemporary Kantian conception that I have sketched in the last section might initially seem, in relation to other classical, recent, or contemporary conceptions of the a priori, and especially in relation to contemporary conceptions, distressingly non-standard and even tendentious: a crackpot, lone, soapbox-shrill voice in the teeming crowd of philosophical theories, quite naturally unacknowledged by any of the others. But this is an illusory seeming, and here are two reasons why.

First, a large majority of contemporary philosophers both explicitly believe in the a priori–a posteriori distinction, and also presuppose and use it in their work. Indeed, the fairly recent online *Philosophical Papers* survey of mainstream contemporary philosophers conducted by David Bourget and David Chalmers in November–December 2009, that I have already mentioned twice, in sections 4.1 and 7.0, showed that 71 percent of the philosophers who replied accepted the existence of a priori knowledge.[8] But even so, very few of these philosophers have formulated the distinction carefully, traced its philosophical history, examined it critically, or ever attempted to determine whether there is in fact what I will call a *minimally adequate* version of the a priori–a posteriori distinction that is held by any of the classical, recent, or contemporary philosophers who believe in it and presuppose and use it in their work. By "a minimally adequate version of the a priori–a posteriori distinction," I mean a version that preserves univocal, complementary, convertible, and jointly exhaustive conceptions of apriority and aposteriority, in the two-part sense that (i) the underlying notion of experience-*independence* that is contained in the notion of apriority is effectively captured under complementation by the underlying notion of experience-*dependence* that is contained in the notion of aposteriority, and conversely, and (ii) all knowledge whatsoever is either a priori or a posteriori but not both. I will call this *the superficiality problem*.

Surprisingly, the superficiality problem holds even for those who have studied the a priori–a posteriori distinction most carefully and comprehensively, and want to

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[8] See Bourget and Chalmers, "Philosophical Papers Survey 2009."

defend it explicitly.[9] Even here, where several different versions of the distinction have been articulated and critically compared and contrasted, no one has been able to show that there is a minimally adequate version of the distinction that preserves univocal, complementary, convertible, and jointly exhaustive conceptions of apriority and aposteriority.

Correspondingly and significantly, the same is true, mutatis mutandis, for those who criticize and reject the distinction. For example, Williamson regards the compatibility between apriority and empirical anchorage in human cognition as decisive evidence of the superficiality of the distinction between a priori and a posteriori knowledge as it is handled in much recent and contemporary work on the a priori.[10] I do fully agree that Williamson's argument shows the superficiality of the distinction as it is handled in much recent and contemporary work on the a priori. But at the same time, since Williamson has also selected for criticism what I regard as a philosophically flawed and indeed hopeless version of the distinction, it is not altogether surprising that he is able to prove that the superficiality problem applies to it.

Second, and following on directly from the first reason, I do think that in fact there are at least *eleven* importantly distinct versions of the a priori–a posteriori distinction. Each one of these needs to be carefully formulated, correlated to the most important traditions in the history of classical, recent, and contemporary philosophy, critically compared and contrasted with one another, and severally critically evaluated as to their intelligibility, defensibility, and truth, and, most importantly, as to their ability to avoid the superficiality problem. As in the case of my taxonomy of negative or skeptical solutions to The Original Benacerraf Dilemma, I make no claim to completeness. My claims are only, first, that there are at least eleven major varieties, or "voices," of the distinction that need to be considered, or "heard," and second, that only one of them in fact withstands all the relevant criticisms, namely the contemporary Kantian not-merely-epistemic, necessary-and-constitutive-underdetermination-by-empirical-facts conception.

What all this means is that even though roughly 71 percent of contemporary philosophers accept the a priori–a posteriori distinction, very few of them really know what they are talking about when they believe in it, and presuppose and use it in their work. So, in all likelihood, they are just talking past one another whenever they discuss it explicitly among and between themselves. More generally, because the a priori–a posteriori distinction plays an essential role in the history of Analytic philosophy, and in recent and contemporary Analytic philosophy alike, this lack of close, critical attention to the distinction constitutes a philosophical scandal of epic proportions.

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[9] See, e.g., BonJour, *In Defense of Pure Reason*; Tidman, "The Justification of A Priori Intuitions"; Bealer, "A Theory of the A Priori"; Casullo, *A Priori Justification*; Wright, "Intuition, Entitlement and the Epistemology of Logical Laws"; Wright, "Warrant for Nothing (and Foundations for Free)?"; Jenkins, *Grounding Concepts*; Chalmers, "Revisability and Conceptual Change in 'Two Dogmas of Empiricism'"; and Casullo, *Essays on A Priori Knowledge and Justification*, esp. "Articulating the A Priori-A Posteriori Distinction," ch. 14.

[10] See, e.g., Williamson, *The Philosophy of Philosophy*; and Williamson, "How Deep Is the Distinction Between A Priori and A Posteriori Knowledge?"

In order to remedy this scandalous situation somewhat, but also in order to support my claim that the Kantian not-merely-epistemic, necessary-and-constitutive-underdetermination-by-empirical-facts conception of the a priori–a posteriori distinction is the one and only version of the distinction that *should* be accepted by contemporary philosophers, both on historical and also independent philosophical grounds alike, I am now going to step up to the plate and take my swings. Less metaphorically put, I am going to spell out these eleven versions, briefly indicate their provenance and sources in classical, recent, or contemporary philosophy, and then also briefly critically examine them, so that they can be critically compared, contrasted, and evaluated. It should be particularly noted, again, that I am not claiming that my catalogue of versions of the a priori–a posteriori distinction exhausts all significantly differing conceptions of the distinction in classical, recent, and contemporary philosophy, although I *am* claiming that my catalogue captures all the basic ones, at least. Moreover, in each case I am not trying for great interpretive depth or subtlety with respect to the views of the philosophers whose names I have associated with the different conceptions: the philosophers I have cited are indeed holders of the views I am critically considering, but only to within a certain acceptable degree of approximation. However, pretty close is very often close enough. So above all, I want in each case only to convey as clearly as possible an important, distinctive conception of the a priori–a posteriori contrast, so that it can be critically considered.

In what follows in this section, by *belief B contains empirical content* I mean that (i) *B* begins in causally triggered, direct, non-conceptual, non-inferential sense perception of contingent natural objects or facts, (ii) *B* involves some sort of learning process involving inner or outer sensory experiences and/or contingent natural objects or facts, and also (iii) *B* consciously refers to or describes inner or outer sensory experiences and/or contingent natural objects or facts. Therefore, in containing empirical content, belief *B* is not only *enabled by* but is also *conscious evidence for* empirical facts.[11]

Conception 1: Classical Rationalism (e.g., Plato, Descartes, Leibniz)

According to **Conception 1 (C1)**,[12]

(1i) Belief *B* is a priori for a rational human subject *S* if and only if *S* rationally asserts[13] *B*, *B* is made true by abstract objects in *the platonic, noumenal sense*, and *B* contains no empirical content whatsoever;

(1ii) *B* is a posteriori for *S* if and only if *B* is not a priori—in other words, if and only if *S* rationally asserts *B*, and *B* contains empirical content;

[11] I borrow the useful distinction between cognitively "enabling" and cognitively "evidential" functions of empirical facts from Williamson, "How Deep Is the Distinction Between A Priori and A Posteriori Knowledge?"

[12] See, e.g., Plato, "Meno," "Parmenides," and "Letter VII." See also Descartes, "Meditations on First Philosophy"; and Leibniz, "Meditations on Knowledge, Truth, and Ideas," "Discourse on Metaphysics," and "The Principles of Philosophy, or the Monadology."

[13] The notion of "rational assertion" here and in some of the following formulations is a fairly weak and permissive one that allows takings-for-true on the basis of any cognitive or non-cognitive reason, and does not necessarily imply rational reflection, self-consciousness, or inferential support. What it rules out are assertions that are merely caused, externally compelled, pathologically forced, or randomly generated.

(1iii) for every *B*, *B* is necessary if and only if *B* can be known a priori in sense (1i); and

(1iv) there are some absolutely necessary a priori truths, for instance, mathematical truths, logical truths, and truths of metaphysics (e.g., "God exists and is not a deceiver").

Problems for C1

(1) If it is true—as I think it most certainly is—that all human knowledge begins in causally triggered, direct, non-conceptual, non-inferential sense perception of contingent natural objects or facts, then apriority in *C1*'s sense is clearly humanly impossible. For *C1* says that rational human animals can and do have knowledge of non-spatiotemporal, non-natural, non-sensory, causally irrelevant, and causally inert objects, without any empirical content whatsoever. But not only does this falsely alienate the embodied subject of rational human cognition from her surrounding natural world, it is also plainly inconsistent with the obvious fact that human knowing is a conscious act, state, or process of mind,[14] and thereby a form of subjective experience.[15] Hence theories of a priori knowledge corresponding to *C1* cannot be adequate theories of a specifically human kind of a priori knowledge.

(2) Theories of a priori knowledge corresponding to *C1* cannot provide a positive solution to The Original Benacerraf Dilemma, The Extended Benacerraf Dilemma, or The Generalized Benacerraf Dilemma. *C1* can indeed explain how a priori beliefs are necessary, and also how these beliefs can have necessary-truth-makers. Nevertheless, its doctrine of cognitive acquaintance or pre-established harmony with non-spatiotemporal, non-natural, non-sensory, causally irrelevant, and causally inert *ante rem* Forms or Ideas, pure or separable essences, real essences, numbers, and other abstracta, is ultimately a metaphysical mystery.

Conception 2: Classical Empiricism (e.g., Locke, Hume)

According to **Conception 2 (C2)**,[16]

(2i) Belief *B* is a priori for a rational human subject *S* if and only if *S* rationally asserts *B*, and *B* is a "trifling proposition" or "relation of ideas,"—a purely definitional or logical *B*;

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[14] See Williamson, "Is Knowing a State of Mind?"

[15] On the two-way necessary connection between intentionality (including cognition) and consciousness, see Hanna and Maiese, *Embodied Minds in Action*, chs. 1–2.

[16] See Locke, *Essay Concerning Human Understanding*; Hume, *An Enquiry Concerning Human Understanding*; and Hume, *Treatise of Human Nature*. Recent interpretations of Hume stress, on the contrary, the depth and sophistication of Hume's epistemic approach to the a priori–a posteriori distinction. See, e.g., Allison, *Custom and Reason in Hume: A Kantian Reading of the First Book of the Treatise*. If those interpretations are correct, then please simply substitute 'Hume*' for 'Hume'. And by 'Hume*' I mean "Hume, according to classical standard readings of the *Enquiry* and *Treatise*."

(2ii) *B* is a posteriori for *S* if and only if *B* is not a priori—if and only if *S* rationally asserts *B*, and *B* is a "matter of fact,"—a *B* that contains empirical content, and is revisable;

(2iii) for every *B*, *B* is necessary if and only if *B* can be known a priori in sense (2i), but then even though *B* contains empirical content, *B* is merely trivial or tautologous; and

(2iv) for every other *B*, either (2iva) contains no empirical content and is non-sensical (e.g., metaphysical *B*s), or else (2ivb) contains empirical content and is a matter of fact.

Problems for C2

(1) *C2* does not explain how apriority reliably relates to truth, and therefore it cannot explain the factive component in a priori knowledge. This is because there are no such things as objective truth-makers in a merely subjectively sense-experiential or merely subjectively phenomenal world.

(2) Theories of a priori knowledge corresponding to *C2* cannot provide a positive solution to The Original Benacerraf Dilemma, The Extended Benacerraf Dilemma, or The Generalized Benacerraf Dilemma. This is primarily because *C2*-type epistemology cannot explain either how a priori beliefs are necessary or how these beliefs can have objective necessary-truth-makers, since there are obviously no such things as objective necessary-truth-makers in an exclusively and merely subjective sensory-experiential world in which there are no such things as objective truth-makers.

It is open to defenders of *C2* to reject the background thesis of The Original Benacerraf Dilemma, The Extended Benacerraf Dilemma, and The Generalized Benacerraf Dilemma alike, to the effect that the semantics of truth is uniform and broadly Tarskian. Nevertheless, the rejection of this thesis would entail, at best, a negative or skeptical solution to any version of The Dilemma, not a positive or anti-skeptical solution. And as I argued in section 6.1, there is a strong theoretical presumption in favor of a positive solution to The Original Benacerraf Dilemma (or indeed to any version of The Dilemma), other things being equal.

(3) Suppose that there is synthetic a priori knowledge, that is, a priori knowledge of non-logical, essentially non-conceptual, "strongly metaphysical," substantive necessary truths whose necessity flows from the nature of things in the manifestly real world, as represented by autonomous essentially non-conceptual content (see chapter 4). Then it follows immediately that *C2* is mistaken in saying that all necessary truths are trivial or tautologous.

Conception 3: Neo-Classical Rationalism (e.g., Frege, early Russell)

According to **Conception 3 (C3)**,[17]

(3i) Belief *B* is a priori for a rational human subject *S* if and only if *B* is made true by abstract objects in the classical platonic, noumenal sense, and *B* contains

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[17] See Frege, "Thoughts"; Frege, "Logic [1897]"; Russell, *The Problems of Philosophy*, esp. chs. V and VII–XI; and Russell, "Knowledge by Acquaintance and Knowledge by Description."

empirical content that is sufficient for S to consider B, but not sufficient to prove B for S;

(3ii) B is a posteriori for S if and only if B is not a priori—in other words, if and only if B contains empirical content that is not only sufficient for S to consider B, but also sufficient to prove B for S;

(3iii) for every B, B is necessary if and only if B can be known a priori in sense (3i); and

(3iv) there are some absolutely necessary a priori truths, for example, analytic truths, including definitional truths and logical truths, and arithmetic truths—because Arithmetic Logicism (i.e., the ontological and explanatory reducibility of arithmetic to logic) is true.

Problems for C3

(1) According to C3's conception of aposteriority, any necessary truth that can be proved via empirical content—for instance, "3 martinis + 4 martinis = 7 martinis," which obviously can be proved just by my pointing to several martinis one-by-one, and adding them up—is a posteriori, but that is clearly false.

(2) Theories of a priori knowledge corresponding to C3 cannot provide a positive solution to The Original Benacerraf Dilemma, The Extended Benacerraf Dilemma, or The Generalized Benacerraf Dilemma. C3-type epistemology can indeed explain how a priori beliefs are necessary and also how these beliefs can have necessary-truth-makers. Nevertheless, just like C1, C3's doctrine of cognitive acquaintance with non-spatiotemporal, non-natural, non-sensory, causally irrelevant, and causally inert senses or Sinne, functions, classes or sets, universals, relations, logical constants, propositions, and other abstracta, is also ultimately a metaphysical mystery.

(3) Arithmetic Logicism is arguably false, in view of (i) Kant's thesis that the truths of (at the very least, and in effect) Primitive Recursive Arithmetic are synthetic a priori, not analytic,[18] (ii) Russell's Paradox, which importantly stands in the way of a reduction of numbers to sets, (iii) Gödel's incompleteness theorems, which equally importantly stand in the way of a reduction of arithmetic truth to logical proof, (iv) Frege's failure to explain how logical definitions of number-theoretic notions are analytic and not synthetic,[19] and (v) Frege's Caesar Problem, that is, the problem of providing necessary and sufficient identity conditions for something's being a natural number (as in "How can you prove to me that Caesar is not a natural number, if we can't adequately identify the numbers?") which importantly stands in the way of any attempt to provide reductive or even sufficient identity-conditions for the natural numbers.[20]

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[18] See note 23, chapter 6 and Tait, "Gödel on Intuition and on Hilbert's Finitism."
[19] See Benacerraf, "Frege: The Last Logicist."
[20] See Benacerraf, "What Numbers Could Not Be."

Conception 4: Logical Empiricism (e.g., C. I. Lewis, Carnap, Ayer)

According to **Conception 4 (C4)**,[21]

(4i)   Belief *B* is a priori for rational human subject *S* if and only if *B* is empirically indefeasible for *S* because, for some pragmatic reason *R*, *S* chooses/decides to assert (= creates by linguistic convention, or stipulates) the analyticity of *B* on the basis of *R*, no matter how empirical content presents *B* to *S*;

(4ii)   *B* is a posteriori for *S* if and only if *B* is not a priori—in other words, if and only if *B* is empirically defeasible for *S* (= *B* is synthetic a posteriori = *B* is contingent = *B* is revisable);

(4iii)   for every *B*, *B* is necessary (= *B* is analytic) if and only if *B* can be known a priori in sense (4i), but then *B* also contains no empirical content and is merely trivial or tautologous;

(4iv)   all meaningful *B*s are either (4iva) analytic a priori, by virtue of meaning or logic, or (4ivb) synthetic a posteriori, by virtue of empirical fact and empirical verifiability (= The Verifiability Criterion of Meaning); and

(4v)   there are no meaningful *B*s that are synthetic a priori.

Problems for C4

(1)   *C4* cannot explain how apriority reliably relates to truth, and therefore cannot explain the factive component in a priori knowledge, for two basic reasons. **First**, as I have mentioned several times already, as Quine famously and compellingly pointed out, the conventionalist/stipulationist theory of logical truth presupposes and uses pre-conventional/pre-stipulated logic, hence its "explanation" of logical truth in terms of linguistic conventions or stipulations plus logic is clearly circular.[22] **Second**, given the strict dependency of *C4*-style apriority on human interest and decision, then there is no sufficient reason why any randomly chosen clearly crazy and false principles—for example,

(i)   "The thought screen helmet scrambles telepathic communication between aliens and humans. Aliens cannot immobilize people wearing thought screens nor can they control their minds or communicate with them using their telepathy. When aliens can't communicate or control humans, they do not take them."[23]

(ii)   3+4≠7, except on rainy Tuesdays, when 3+4=7 all day long.

—could not be a priori, provided that a sufficiently resolute believer or community of believers held those statements to be immune from empirical disconfirmation.

(2)   Theories of a priori knowledge corresponding to *C4* cannot provide a positive solution to The Original Benacerraf Dilemma, The Extended Benacerraf Dilemma, or The Generalized Benacerraf Dilemma. This is essentially because, like *C2*, *C4*, as a version of Empiricism, cannot explain either how a priori beliefs are objectively

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[21]   See, e.g., Ayer, *Language, Truth, and Logic*; Carnap, "The Elimination of Metaphysics through Logical Analysis of Language"; Carnap, *Meaning and Necessity*; Lewis, "A Pragmatic Conception of the A Priori"; Lewis, *Mind and the World Order*; and Lewis, "The Modes of Meaning."
[22]   See Quine, "Truth by Convention."   [23]   See Menkin, "Stop Alien Abductions."

necessary or how these beliefs can have objective necessary-truth-makers, since there are no such things as either objective truth-makers or necessary-truth-makers in a subjectively sensory-experiential or phenomenal world. As before, it is open to defenders of *C4* to reject the preliminary assumption of The Original Benacerraf Dilemma, to the effect that the semantics of truth is uniform and broadly Tarskian. But as a matter of historical fact, all defenders of *C4* actually accept that thesis, by appealing to a Tarskian and model theoretic, and even possible-worlds model theoretic, cognitive-semantic standpoint that is "internal" to conceptual schemes or language-systems. It is not at all clear how *C4's* "internal" standpoint on conceptual schemes or languages, which is broadly Tarskian and model theoretic, can be made compatible with *C4's* corresponding "external" standpoint on conceptual schemes and languages, which is fully pragmatic and anti-realistic.[24] But in any case, as with *C2*, the rejection of the Tarskian thesis by defenders of *C4* would entail at best a negative or skeptical solution to any version of The Dilemma, not a positive or anti-skeptical solution. And as we have seen, there is a strong theoretical presumption in favor of positive solutions over negative solutions, other things being equal.

(3) Notoriously, The Verifiability Criterion of Meaning is neither analytic nor verifiable, and thereby deems itself meaningless. It is sometimes claimed that by means of "semantic ascent," we can see that The Verifiability Criterion is a meta-linguistic thesis, not a first-order statement. But that only moves the worry about reflexive contradiction up one level: If The Revised Verifiability Criterion of Meaning is that all meaningful statements are either analytic, verifiable, or meta-linguistic, then since The Revised Verifiability Criterion is *meta*-meta-linguistic and not analytic, nor verifiable, nor merely meta-linguistic, it deems itself meaningless, and so on.

(4) *C4's* version of the analytic–synthetic distinction is false. Nevertheless, this is not because of Quine's well-known critical arguments against the analytic-synthetic distinction. Instead, it is because of Kantian arguments for the specifically Kantian version of the distinction, which are equally critically effective not only against *C4's* version of the distinction, on the one hand, but also against Quine's arguments against *C4's* version of the distinction, on the other.[25] For example, if there is synthetic a priori knowledge of the truths of (at the very least) Primitive Recursive Arithmetic, then just like *C2*, *C4* is mistaken that all necessary truths are trivial or tautologous. Correspondingly, *C4* is also mistaken that there are no meaningful synthetic a priori beliefs.

Conception 5: Radical Empiricism, aka Quineanism (e.g., Quine)

According to **Conception 5 (C5)**,[26]

   (5i) Belief *B* is a priori for a rational human subject *S* if and only if *B* is empirically indefeasible for *S* because, for some pragmatic reason *R*, *S* chooses/

[24] See, e.g., Carnap, "Empiricism, Semantics, and Ontology."
[25] See Hanna, *Kant and the Foundations of Analytic Philosophy*, chs. 3–5; and chapter 4.
[26] See, e.g., Quine, "Carnap and Logical Truth"; Quine, "Epistemology Naturalized"; Quine, *Philosophy of Logic*; Quine, "Truth by Convention"; Quine, "Two Dogmas of Empiricism"; and Quine, *Word and Object*.

decides to assert *B* on the basis of *R* no matter how empirical content presents *B* to *S*;

(5ii) *B* is a posteriori for *S* if and only if *B* is not a priori—in other words, if and only if *B* is empirically defeasible for *S*;

(5iii) there are no *B*s such that *B* is necessary (or analytic) if and only if *B* can be known a priori in sense (5i), because the analytic-synthetic distinction is unintelligible and/or indefensible;

(5iv) belief-based confirmation holism and semantic holism are both true;

(5v) every *B* is revisable (= every *B* is contingent); and

(5vi) all knowledge is fully continuous with the natural sciences.

Problems for C5

(1) Just like *C4*, *C5* does not explain how apriority reliably relates to truth, and therefore *C5* cannot explain the factive component in a priori knowledge. This is primarily because, correspondingly, given the strict dependency of *C5*-style apriority on human interest and decision, then there is no inherent reason why any randomly chosen clearly crazy and false principles could not be a priori, provided that a sufficiently resolute believer or community of believers held those statements to be immune from empirical disconfirmation in a coherent holistic system, or "web," of mutually reinforcing beliefs. To be sure, Quine and his followers prefer the methods of natural science, especially physics, but why should anyone else with importantly different human interests prefer this? As Quine himself famously points out,

For my part I do, qua lay physicist, believe in physical objects and not in Homer's gods; and I consider it a scientific error to believe otherwise. But in point of epistemological footing the physical objects and the gods differ only in degree and not in kind. Both sorts of objects enter our conception only as cultural posits.[27]

So by Quine's own reckoning, those who prefer the methods of natural science, like Quine himself, and those who prefer Homeric methods instead, are epistemologically on all fours. Or in other words, Cole-Porter-wise, *anything goes*.

(2) *C5* cannot provide a positive solution to The Original Benacerraf Dilemma, The Extended Benacerraf Dilemma, or The Generalized Benacerraf Dilemma. Since *C5* holds that every statement is revisable and that all knowledge is continuous with the natural sciences, it rejects the very idea of objectively necessary truth and objective necessary-truth-makers. At best, via "ontological relativity," *C5* can hold that certain kinds of abstract objects—say, linguistic types, numbers, or sets—are indispensable for natural science, insofar as its true statements either quantify over them or presuppose statements that quantify over them. But *C5* cannot hold that any of these abstracta are inherently or intrinsically necessary. As with *C2* and *C4*, and their rejection of the basic Tarskian thesis, so too *C5*'s rejection of the modal Tarskian thesis entails at best a negative or skeptical solution to any version of The Dilemma, not a positive or anti-skeptical solution. Yet again there is a strong

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[27] Quine, "Two Dogmas of Empiricism," p. 44.

theoretical presumption in favor of a positive solution to any version of The Dilemma, other things being equal.

(3) Just as *C4*'s version of the analytic–synthetic distinction fails for essentially Kantian but not Quinean reasons, so too *C5*'s rejection of the analytic–synthetic distinction fails for essentially Kantian reasons. But even if that were not so, as Grice and Strawson in the 1950s, and more recently Chalmers,[28] have pointed out, intelligible and at least somewhat defensible versions of the analytic–synthetic and a priori–a posteriori distinctions are available that are fully consistent with Quine's belief-based confirmation holism and semantic holism.

(4) *C5*'s Scientific Naturalism entails *Psychologism* about logic and mathematics, which says that the laws of logic and mathematics are explanatorily and ontologically reducible to empirical laws of nature—empirical laws of cognitive psychology, laws of fundamental biology, laws of fundamental chemistry, and ultimately laws of fundamental physics. But, arguably, Psychologism is self-refuting and therefore false.[29]

(5) The thesis that every *B* is revisable, when applied to itself, is self-refuting. And in any case it is clear that *not* every *B* is revisable, for example, **Minimal Non-Contradiction**: "Not every sentence or statement in any or every language or logical system whatsoever is both true and false," i.e., "~(∀S) (S & ~ S)" and truths of basic arithmetic, for instance, "3+4=7."

Conception 6: Kripke-Putnamism (e.g., Kripke, Putnam, Chalmers)

According to **Conception 6 (*C6*)**,[30]

>   (6i) Belief *B* is a priori for a rational human subject *S* if and only if *S* can know *B* in such a way that, even though *S* learns *B* via some or another empirical content, nevertheless no actual or possible empirical content is required for knowing *B*, and *B* is empirically indefeasible for *S* (aka "epistemically necessary" for *S*);

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[28] Grice and Strawson, "In Defense of a Dogma"; and Chalmers, "Revisability and Conceptual Change in 'Two Dogmas of Empiricism.'"

[29] See Hanna, *Rationality and Logic*, ch. 1.

[30] See, e.g., Kripke, "Identity and Necessity"; Kripke, *Naming and Necessity*; Putnam, "Analyticity and Apriority: Beyond Wittgenstein and Quine"; Putnam, "The Meaning of 'Meaning'"; and Putnam, "There is At Least One *A Priori* Truth." Chalmers's conception of the a priori–a posteriori distinction is based on "two-dimensionalism," a modal-semantic conception that in turn is based mainly on earlier work by Kripke, David Kaplan, Robert Stalnaker, Gareth Evans, Martin Davies, and Lloyd Humberstone. See Chalmers, "The Foundations of Two-Dimensional Semantics." The basic idea behind two-dimensionalism is that there are two distinct types of semantic functions from worlds to extensions, depending on the type of concept or intension one uses: (1) the "primary" or "a priori" intension (a function from subject-centered worlds considered as actual, to extensions) and (2) the "secondary" or "a posteriori" intension (a function from worlds considered as counterfactual variants on the indexically fixed actual world, to extensions). To each function or intension also corresponds a different type of logical necessity. Logical or conceptual necessity corresponds to the primary or a priori intension; and a posteriori necessity corresponds to the secondary intension. Apriority then consists in the language-using or cognitive subject's knowing (by meeting the concept-possession-conditions on) the primary intension, whereas aposteriority consists in the subject's knowing (by meeting the concept-possession-conditions on) the secondary intension. Two-dimensionalism is also sometimes called "textbook Kripkeanism" because, in effect, it is simply a systematization of Kripke's modal semantics and epistemology, with some of the rough edges smoothed out. In any case, for my purposes, it is not importantly different from Kripke's view.

(6iI) *B* is a posteriori for *S* if and only if *B* is not a priori—in other words, if and only if *S* learns *B* via some or another empirical content and this empirical content is also required for knowing *B*; and

(6iii) for some *B*s, *B* is metaphysically necessary if and only if *B* can be known a priori in sense (6i), for example, **Minimal Non-Contradiction** and "3+4=7," but it is not the case that for every *B*, *B* is metaphysically necessary if and only if *B* can be known a priori in sense (6i), because (6iiia) there exist some metaphysically necessary a posteriori *B*s, for instance, "Water = H_2O," "Hesperus = Phosphorus," and Goldbach's Conjecture, and/or some metaphysically contingent a priori *B*s, for instance, "Stick *S* is one meter long at t0" and "Water is the watery stuff," and (6iiib) some metaphysically necessary truths are unknowable by human cognizers.

Problems for C6

(1) According to *C6*'s conception of aposteriority, any necessary truth that *must* be known via empirical content is a posteriori, but that seems clearly false. For example, clearly both "If Socrates is a bachelor, then Socrates is unmarried" and "If John and Paul are two, and George and Ringo are two, then they add up to four" must be known via empirical content, yet both are also obviously a priori.

(2) Williamson has persuasively argued that the compatibility between apriority and empirical anchorage in human cognition is decisive evidence of the superficiality of *C6*'s distinction between a priori and a posteriori knowledge.[31]

(3) *C6* cannot solve The Original Benacerraf Dilemma, The Extended Benacerraf Dilemma, or The Generalized Benacerraf Dilemma. This is simply because *C6* fully accepts all of the preliminary assumptions and basic reasoning of The Original Benacerraf Dilemma, The Extended Benacerraf Dilemma, and The Generalized Benacerraf Dilemma, yet cannot reconcile them. More precisely, *C6* fully even if only implicitly accepts these two two-handed claims. **First**, *C6* accepts, on the one hand, that mathematical truth and logical truth involve abstract and causally inert truth-makers—whether as a direct implication of the nature of metaphysical necessity, or as the result of an indispensability argument—and also accepts, on the other hand, that human knowledge begins in causally triggered, direct, non-conceptual, non-inferential sense perception of contingent natural objects or facts. **Second**, *C6* accepts, on the one hand, that it is necessary to rule out the possibility of cognitive-semantic luck, and also accepts, on the other hand, that the truth-makers of knowledge are either non-natural or natural. So, to summarize, because *C6* accepts a broadly Cartesian, property dualist, and essentialist epistemological and metaphysical framework, it cannot explain how all these theses could ever be compatible. In short, *C6* is the paradigm case of a philosophical view that is subject to The

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[31] See Williamson, *The Philosophy of Philosophy*, pp. 165–69; and Williamson, "How Deep Is the Distinction Between A Priori and A Posteriori Knowledge?"

Original Benacerraf Dilemma, The Extended Benacerraf Dilemma, and The Generalized Benacerraf Dilemma.

(4) It is plausibly arguable that it has not been soundly demonstrated by Kripke that there are either metaphysically necessary a posteriori beliefs/statements or contingent a priori beliefs/statements.[32] More than that, it is also plausibly arguable that there really are *no such things* as either metaphysically necessary a posteriori beliefs/statements or contingent a priori beliefs/statements. These points flow not only from the arguable falsity of Scientific Essentialism, but also from the arguable soundness of arguments I provided in chapter 4, for the eliminability of the very ideas of the necessary a posteriori and the contingent a priori alike.[33]

Conception 7: Factualist Neo-Quineanism (e.g., Philip Kitcher)

According to **Conception 7 (C7)**,[34]

(7i) Belief *B* is a priori for a rational human subject *S* if and only if no matter how empirical content presents *B* to *S*, *S* can rationally assert *B*, because some non-naturalistic human cognitive mechanism (e.g., "Kantian pure or a priori intuition") exists for doing this;

(7ii) *B* is a posteriori for *S* if and only if *B* is not a priori—in other words, if and only if empirical content presents *B* to *S*, and *S* can rationally assert *B* because some reliable naturalistic human cognitive mechanism exists for doing this;

(7iii) there are no *B*s such that *B* can be known a priori in sense (7i), because there are no reliable non-naturalistic human cognitive mechanisms;

(7iv) it is not the case that for every *B*, *B* is necessary if and only if *B* can be known a priori in sense (7i), because there exist contingent a priori *B*s; and

(7v) every *B* is revisable (= every *B* is contingent).

Problems for C7

(1) Like *C4* and *C5*, *C7* does not explain how apriority reliably relates to truth, and therefore cannot explain the factive component in a priori knowledge. In the case of *C7*, however, this is not due to the strict dependency of apriority on human interest and decision, but instead on the strict dependency of *C7*-style apriority on unreliable cognitive mechanisms.

(2) The truth of the unreliability thesis, in turn, presupposes *C7*'s commitment to Scientific Naturalism in the Quinean sense, which, just like *C5*, entails Psychologism about logic and mathematics. But, again, arguably, Psychologism is self-refuting and therefore false.

(3) *C7* cannot solve The Original Benacerraf Dilemma, The Extended Benacerraf Dilemma, or The Generalized Benacerraf Dilemma. This is essentially because

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[32] See, e.g., Casullo, "Kripke on the A Priori and the Necessary"; and Casullo, *A Priori Justification*, ch. 7.

[33] See, e.g., Hanna, "A Kantian Critique of Scientific Essentialism"; Hanna, "Why Gold Is Necessarily a Yellow Metal"; and section 4.5 above.

[34] See, e.g., Kitcher, "A Priori Knowledge"; Kitcher, *The Nature of Mathematical Knowledge*; and Kitcher, "A Priori Knowledge Revisited."

C7 rejects the preliminary assumption of The Original Benacerraf Dilemma to the effect that a priori mathematical knowledge requires abstract, causally inert truth-makers. Therefore, C7 can provide at best a negative or skeptical solution to any version of The Dilemma, and not a positive or anti-skeptical solution; but, yet again, there is a strong theoretical presumption in favor of a positive solution to any version of The Dilemma, other things being equal.

(4) Just as in the case of C5, C7's thesis that every belief is revisable, when applied to itself, is self-refuting, and again it is clear that *not* every belief is revisable, for example, **Minimal Non-Contradiction**: "Not every sentence or statement in any or every language or logical system whatsoever is both true and false," i.e., "~(∀S) (S & ~ S)" and truths of simple arithmetic, for example, "3+4=7."

Conception 8: Non-Factualist/Fictionalist Neo-Quineanism (e.g., Hartry Field, Stephen Yablo)

According to **Conception 8 (C8)**,[35]

(8i) Belief B is a priori (as Field puts it, "in the strong sense of apriority") for a rational human subject S if and only if no matter how empirical content presents B to S, S can still rationally assert B (which, on its own, constitutes only "the weak sense of apriority") and B is empirically indefeasible for S (aka "epistemically necessary") because, for some pragmatic reason R, S chooses/decides to assert B on the basis of R no matter how empirical content presents B to S;

(8ii) B is a posteriori for S if and only if B is not a priori—in other words, if and only if B is empirically defeasible for S;

(8iii) all human knowledge (or in Field's case, knowledge-attribution) is fundamentally either evaluative or fictive in that it fundamentally expresses human interests, value-commitments, games-playing, or other pretence-based practices, and is not factive;

(8iv) it is not the case that for any B, B is necessary if and only if B can be known a priori in sense (8i), because knowledge is non-factive or fictive and does not relate to necessary truth; and

(8v) every B is revisable (= every B is contingent).

Problems for C8

(1) Because C8 is either non-factualist or fictionalist, it cannot explain the factive component in a priori knowledge, and therefore cannot explain how apriority reliably relates to truth.

(2) Following on directly from the first problem, C8 cannot solve The Original Benacerraf Dilemma, The Extended Benacerraf Dilemma, or The Generalized Benacerraf Dilemma. This is because, as either non-factualist or fictionalist, C8 rejects the preliminary assumption of The Original Benacerraf Dilemma to the effect that, via a uniform, standard semantics for truth, a priori mathematical

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[35] Field, "The Aprioricity of Logic"; Field, "Epistemological Non-Factualism and the Aprioricity of Logic"; Field, "Apriority as an Evaluative Notion"; and Yablo, "Apriority and Existence."

knowledge requires objective truth-makers. Therefore, *C8* can provide at best a negative or skeptical solution to any version of The Dilemma, and not a positive or anti-skeptical solution—and as always, there is a strong theoretical presumption in favor of a positive solution to any version of The Dilemma, other things being equal.

(3) Just as in the case of *C5*, and *C7*, *C8*'s thesis that every *B* is revisable, when applied to itself, is self-refuting, and yet again it is clear that *not* every *B* is revisable, for instance, **Minimal Non-Contradiction**: "Not every sentence or statement in any or every language or logical system whatsoever is both true and false," i.e., "~(∀S) (S & ~ S)" and truths of simple arithmetic, for example, "3+4=7."

Conception 9: Conceptualist Neo-Rationalism (e.g., Boghossian, Brandom, Peacocke)

According to **Conception 9 (*C9*)**,[36]

(9i) Belief *B* is a priori for rational human subject *S* if and only if *B* is knowable by virtue of *S*'s conceptual/discursive competence or concept-possession alone;

(9ii) *B* is a posteriori for *S* if and only if *B* is not a priori in sense (9i)—in other words, if and only if *B* is not knowable by virtue of *S*'s conceptual/discursive competence or concept-possession alone, but also requires empirical content;

(9iii) Conceptualism (which holds that all representational content is necessarily or constitutively determined by conceptual capacities alone—see chapter 2) is true for a priori knowledge, at the very least; and

(9iv) conceptual role semantics and inferentialism are true for a priori knowledge, at the very least.

Problems for C9

(1) As McDowell correctly points out in *Mind and World*, unless the scope of conceptual reasoning is strictly "unbounded," then conceptual/discursive competence or concept-possession can systematically fail to connect either (i) with the natural world as a whole or (ii) with any or all of the "elusive" or "rogue" truth-making objects in the natural world that are cognitively accessible only by essentially non-conceptual means.[37] And as Paul Horwich points out, in order to guarantee that the scope of conceptual reasoning is strictly unbounded, it would have to be shown that all concepts *must* have referential

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[36] See, e.g., Boghossian, "Knowledge of Logic"; Brandom, *Articulating Reasons*; and Peacocke, "Explaining the A Priori: The Programme of Moderate Rationalism." As I read him, Peacocke is a state Non-Conceptualist and a content Conceptualist, hence in effect, if not in name, a defender of *Highly Refined Conceptualism*. See section 2.2. Jenkins's *Grounding Concepts* is an interesting fusion of *C2*, *C7*, and *C9*, in that it is at once empiricist, post-Quinean naturalist, factualist, and conceptualist. But from a critical standpoint, this means only that it inherits all the problems of *C2*, *C7*, and *C9* conjoined.

[37] See Hanna, "Kant's Non-Conceptualism, Rogue Objects, and the Gap in the B Deduction"; and Williamson, *The Philosophy of Philosophy*, pp. 16–17.

semantic values just by virtue of their conceptual contents alone—which seems wholly unjustified.[38] Or to put the same semantic point in a metaphysical way, the scope of conceptual reasoning would be strictly unbounded if and only if either (i) the natural world is literally made out of concepts or (ii) the natural world is necessarily determined by concepts. And that is absolute idealism in the Hegelian sense. Therefore, short of Hegelian absolute idealism, *C9* cannot explain how a priori knowledge reliably relates to truth.

(2) Following on directly from the first problem, short of Hegelian absolute idealism, *C9* cannot solve The Original Benacerraf Dilemma, The Extended Benacerraf Dilemma, or The Generalized Benacerraf Dilemma.

(3) Conceptualism is arguably false for all kinds of cognition and knowledge.[39]

(4) Conceptual role semantics and inferentialism are arguably false for a priori knowledge, at the very least.[40]

Conception 10: Realistic Neo-Rationalism (e.g., Bealer, BonJour, Katz)

According to **Conception 10 (*C10*)**,[41]

(10i) Belief *B* is a priori for a rational human subject S if and only if *S* can know *B* in such a way that, even though *S* learns *B* via some or another empirical content, nevertheless no actual or possible empirical content is required for knowing *B*, and *B* is empirically indefeasible for *S* (aka "epistemically necessary" for *S*), because *B* is made true by abstract objects in the platonic, noumenal sense, and *B* is also known by modal intuition—a noninferential modal "intellectual seeming"—involving conceptual competence with respect to, or concept possession of, semantically stable concepts and conceptually true propositions—concepts and true propositions that apply across all qualitatively identical cognitive communities and are not undermined by Twin Earth scenarios;

(10ii) *B* is a posteriori for *S* if and only if *B* is not a priori in sense (10i)—in other words, if and only if *S* learns *B* via some or another empirical content and this empirical content is also required for knowing *B*; and

(10iii) for some *B*s, *B* is metaphysically necessary if and only if *B* can be known a priori in sense (10i), for example, truths of logic, truths of mathematics, and truths of metaphysics, but it is not the case that for every *B*, *B* is metaphysically necessary if and only if *B* can be known a priori in sense (i), because (10iiia) there exist some metaphysically necessary a posteriori *B*s, for example, "Water = H_2O" and "Hesperus = Phosphorus," and/or some metaphysically contingent a priori *B*s, for example, "Stick S is one meter

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[38] See, e.g., Horwich, "Stipulation, Meaning, and Apriority," esp. pp. 163–65.

[39] See chapter 2.

[40] See Hanna, *Rationality and Logic*, ch. 6; and Williamson, *The Philosophy of Philosophy*, ch. 4.

[41] See Bealer, "The Incoherence of Empiricism"; Bealer, "*A Priori* Knowledge and the Scope of Philosophy"; Bealer, "Intuition and the Autonomy of Philosophy"; Bealer, "Modal Epistemology and the Rationalist Renaissance"; and Bealer, "A Theory of the A Priori"; Bonjour, *In Defense of Pure Reason*; Bonjour, "A Rationalist Manifesto"; and Katz, *Realistic Rationalism*. To simplify my presentation of *C10*, I have focused only on Bealer's version.

long at t0" and "Water is the watery stuff," and (10iiib) some metaphysically necessary truths are unknowable by human cognizers.

Problems for C10

(1) According to *C10*, intuitions are noninferential modal "intellectual seemings," but these provide at best super-weak evidence that is no better than mere opinion. This is because, considered on their own, such seemings are cognitively indistinguishable from what might have been produced by a Cartesian evil demon, an epistemically malicious mad scientist, The Matrix, or a coherent hallucination or non-veridical dream: therefore they provide no minimally reliable or truth-indicating rational warrant for belief (see also section 7.3). What is supposed to guarantee the reliability of modal intuitions in this intellectual-seemings sense, according to *C10*, is the fact that they can, under increasingly ideal conditions, be expressions of conceptual competence or concept-possession with respect to semantically stable concepts and conceptual truths. But, just like *C9*, unless it can be shown that all concepts must have referential semantic values just by virtue of their conceptual contents alone, or unless Hegelian absolute idealism is true, then *C10*'s version of conceptual/discursive competence or concept-possession is not "unbounded." This failure of conceptual unboundedness, in particular, means that our concepts can systematically fail to connect with either (i) the natural world as a whole or (ii) any or all of the "elusive" or "rogue" truth-making objects in the natural world that are cognitively accessible only by essentially nonconceptual means. Hence, just like *C9*, short of absolute idealism, *C10* also cannot explain how a priori knowledge reliably relates to truth.

(2) Following on directly from the first problem, just like *C9*, short of absolute idealism, *C10* cannot solve The Original Benacerraf Dilemma, The Extended Benacerraf Dilemma, or The Generalized Benacerraf Dilemma. This is principally due to the narrowly platonic and noumenal conception of abstractness built into its realism about abstract objects, which, just like *C1* and *C3*, makes it extremely difficult for *C10* to explain how our knowledge of nonspatiotemporal, non-natural, non-sensory, causally irrelevant, and causally inert objects is really possible.

(3) Just like *C6*, according to *C10*'s conception of aposteriority, any necessary truth that must be known via empirical content, for example, "If Socrates is a bachelor, then Socrates is unmarried" and "If John and Paul are two, and George and Ringo are two, then they add up to four" is a posteriori. But that seems clearly false.

(4) As we saw earlier, Williamson has persuasively argued that the compatibility between apriority and empirical anchorage in human cognition is decisive evidence of the superficiality of *C6*'s distinction between a priori and a posteriori knowledge. And the same critical argument goes for *C10*'s version of the distinction, mutatis mutandis.

(5) Just like *C6*, *C10* is also open to the critical argument that it has not been soundly demonstrated by Kripke that there are metaphysically necessary a posteriori beliefs/statements or contingent a priori beliefs/statements.

Moreover, it is arguable that there really are no such things as either metaphysically necessary a posteriori beliefs/statements or contingent a priori beliefs/statements.

Conception 11: Contemporary Kantian Neo-Rationalism (e.g., R. H.)

According to **Conception 11 (C11)**,[42]

(11i) Belief *B* is a priori for a rational human subject *S* if and only if even though all human cognition begins in causally triggered, direct, non-conceptual, non-inferential sense perception of contingent natural objects or facts, and even if *S* learns *B* via some or another *EC*, and even if some actual or possible *EC* is required for knowing *B*, nevertheless neither the semantic content of *B*, nor the specific modal status of *B* (= whether *B* is necessarily true, necessarily false, contingently true, or contingently false), nor the general modal status of *B* (= whether *B* is necessary, contingent, or possible),[43] nor the justification of *B*, is necessarily or constitutively determined by empirical content. This, in turn, is because *B*, which is made true by abstract objects in the non-platonic, Kantian sense only, is either non-inferentially known by or inferentially grounded on basic authoritative rational intuition (= an intrinsically compelling or self-evident, cognitively virtuous, and essentially reliable, self-conscious or reflective intentional cognitive performance in which *S* takes *B* to be necessarily true and a priori—see section 7.4), and also because the essentially reliable connection between *B* and the objective necessary-truth-maker of *B* is guaranteed by Weak or Counterfactual Transcendental Idealism (see section 7.3);

(11ii) *B* is a posteriori for *S* if and only if *B* is not a priori—in other words, if and only if the meaning of *B*, or the specific modal status of *B*, or the general modal status of *B*, or *S*'s justification for *B*, is necessarily or constitutively determined by (or: either strongly supervenient on or grounded by) empirical content;

(11iii) for every *B*, *B* is necessary if and only if *B* can be known a priori in sense (11i), because (11iiia) there really are no such things as either metaphysically necessary a posteriori *B*s or contingent a priori *B*s, and (11iiib) there are no necessary *B*s that are unknowable by rational human cognizers;

(11iv) not every *B* is revisable, because there are some absolutely necessary a priori truths, including (11iva) analytic truths, for instance, definitional truths, truths of monadic logic, and **Minimal Non-Contradiction** (aka "conceptual truths") and (11ivb) synthetic a priori truths, for example, truths of Primitive Recursive Arithmetic, truths of Peano Arithmetic, logical truths of classical first-order non-monadic predicate logic, true essentialist identity statements, and philosophical truths yielded by transcendental arguments or transcendental explanations.

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[42] See, e.g., Hanna, *Kant, Science, and Human Nature*, ch. 7; and chapter 8 below.
[43] I borrow the apt distinction between a statement's *specific modal status* and its *general modal status* from Casullo, "Kripke on the A Priori and the Necessary."

Three Leading Theoretical Virtues of *C11*:

(1) Unlike *C1* through *C10*, *C11*, by virtue of its not-merely-epistemic, necessary-and-constitutive-underdetermination-by-empirical-facts conception of apriority, preserves univocal, complementary, convertible, and jointly exhaustive conceptions of apriority and aposteriority. Hence, unlike *C1* through *C10*, *C11* avoids the superficiality problem and provides a minimally adequate version of the a priori–a posteriori distinction.

For example, both Crispin Wright and Albert Casullo think that cognitive subjects can have a kind of "entitlement," rational warrant, or justification for true beliefs that is not itself premised on conscious-evidence-based reasons whose cognitive source is either non-empirical or empirical—a thesis which, if true, entails that some knowledge is neither a priori nor a posteriori.[44] But from the standpoint of *C11*, every putative example of such knowledge—Wright's supposed case-in-point is our knowledge of basic laws of logic, but he might also have appealed to our knowledge of basic arithmetic, for instance, our knowledge of "3+4=7"—is, in fact, either non-inferentially known by or inferentially grounded on basic authoritative rational intuition, hence necessarily and constitutively underdetermined by any and all empirical facts as to its fundamental semantic, alethic, cognitive, and justificatory features. It is therefore clearly a priori in the sense of (11i). I will show this for the case of our knowledge of basic arithmetic in sections 8.2 to 8.3 herein, and also for the case of our knowledge of basic laws of logic in section 8.4.

(2) Unlike *C1* though *C10*, *C11* can explain how apriority essentially reliably relates to objectively necessary truth, and therefore can explain the factive component in High-Bar a priori knowledge. *C11* does this by appealing to its non-platonic, Kantian conception of abstractness, to basic authoritative rational intuition, and to Weak or Counterfactual Transcendental Idealism.

(3) In view of (2), unlike *C1* though *C10*, *C11* can adequately solve The Original Benacerraf Dilemma, The Extended Benacerraf Dilemma, or The Generalized Benacerraf Dilemma alike. *C11* does so by appealing to its non-platonic, Kantian conception of abstractness, to basic authoritative rational intuition, and to Weak or Counterfactual Transcendental Idealism. For confirmation of this claim, see sections 7.3 to 7.7 and chapter 8 herein.

Given these three leading theoretical virtues, it is clear that *C11*, and *C11* alone, can adequately explain a priori knowledge. Therefore, *C11* is arguably true.

7.3 In Defense of Weak Transcendental Idealism

In section 7.1 I have already critically considered, and then explicitly argued against, two possible objections that could be raised about *C11*—namely, (i) that *C11*'s conception of apriority entails the denial of physicalism about consciousness

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[44] See, e.g., Wright, "Intuition, Entitlement and the Epistemology of Logical Laws"; Wright, "Warrant for Nothing (and Foundations for Free)?"; and Casullo, "Articulating the A Priori–A Posteriori Distinction."

and content, and (ii) that in view of the strong supervenience of logical truth on everything, *C11*'s conception of apriority and aposteriority is internally incoherent. So I will not rehearse those counter-arguments here, but instead critically examine what is probably the most obvious possible objection to *C11*. This objection says that if Weak or Counterfactual Transcendental Idealism is false, then *C11*'s three leading theoretical virtues all come tumbling down like a house of cards. After all, I used the implicit commitment to Hegelian absolute idealism as a critical defeater for *C9* and *C10*. So what is so great about Kantian transcendental idealism? Indeed, a possible critic might well rhetorically ask, after prefacing this with the contemporary Analytic philosopher's classic put-down, the blank stare of incomprehension:

"Isn't every version of idealism just crazy and philosophically indefensible?"

Before going on, then, I need to say more about transcendental idealism in general and Weak or Counterfactual Transcendental Idealism in particular.

According to Kant, a mental representation is *transcendental* when it is either part of, or derived from, our non-empirical (hence a priori) innately specified spontaneous cognitive capacities (*CPR* A11/B25) (*Prol* 4: 373n.). Then transcendental idealism can be stated as a two-part philosophical equation: *Transcendental Idealism = (1) Representational Transcendentalism + (2) Cognitive Idealism.*

(1) **Representational Transcendentalism**: Necessarily, all the forms or structures of rational human cognition are generated a priori by the empirically triggered, yet stimulus-underdetermined, activities of our innately specified spontaneous cognitive capacities (= cognitive competences, cognitive faculties, cognitive powers).

(2) **Cognitive Idealism**: Necessarily, all the proper objects of rational human cognition are nothing but sensory appearances or phenomena (i.e., mind-dependent, spatiotemporal, directly perceivable, manifestly real objects) and never things-in-themselves or noumena (i.e., mind-independent, non-sensible, non-spatiotemporal, real essences constituted by intrinsic non-relational properties) (*CPR* A369 and *Prol* 4: 293–294, 375).

Now (1) + (2) also = Kant's "Copernican revolution" in metaphysics:

Up to now it has been assumed that all our cognition must conform to the objects; but all attempts to find out something about them *a priori* through concepts that would extend our cognition have, on this presupposition, come to nothing. Hence let us once try whether we do not get farther with the problems of metaphysics by assuming that the objects must conform to our cognition, which would agree better with the requested possibility of an *a priori* cognition of them, which is to establish something about objects before they are given to us. This would be just like the first thoughts of Copernicus. . . . (CPR Bxvi),

which I will rationally reconstruct as **The Conformity Thesis**:

It is not the case that rational human minds passively conform to the objects they cognize, as in classical Rationalism and classical Empiricism. On the contrary, necessarily, all the proper objects of rational human cognition conform to—i.e., they have the same form or structure as, or are isomorphic to—the forms or structures that are non-empirically generated by our

innately specified spontaneous cognitive capacities. So necessarily, the essential forms or structures of the manifestly real world we cognize are mind-dependent.

In this way, all versions of transcendental idealism hold that the manifestly real world we directly perceive conforms to the non-empirical forms or structures of our innately specified cognitive capacities in some modally robust sense. Many Kantians are also committed to *Strong Transcendental Idealism*, which says:

(i) Things-in-themselves (aka "noumena," or Really Real things—things as they could exist in a "lonely" way, altogether independently of rational human minds or anything else, by virtue of their intrinsic non-relational properties) really exist and cause our perceptions, although rational human cognizers only ever perceive mere appearances or subjective phenomena.

(ii) Rational human cognizers actually impose the non-empirical structures of their innate cognitive capacities onto the manifestly real world they cognize— necessarily, all the essential forms or structures of the proper objects of human cognition are literally type-identical to the a priori forms or structures that are non-empirically generated by our innately specified spontaneous cognitive capacities.

(iii) Necessarily, if either all rational human cognizers went out of existence or all minded beings of any kind went out of existence, then so would the manifestly real world they cognize, and if either no rational human cognizers had ever existed or no minded beings of any kind had ever existed, then the manifestly real world would never have existed.

But some other Kantians think that Kant's Strong Transcendental Idealism is objectively false and are committed instead only to the objective truth of Weak or Counterfactual Transcendental Idealism, which says:

(i) Things-in-themselves/noumena are logically possible, but at the same time it is knowably unknowable and unprovable whether things-in-themselves/noumena exist or not, hence for the purposes of an adequate anthropocentric or "human-faced" metaphysics, epistemology, and ethics, they can be ignored (= **radical agnosticism and methodological eliminativism about things-in-themselves/noumena**).

(ii) Necessarily, all the proper objects of rational human cognition have the same forms or structures as—they are isomorphic to—the forms or structures that are non-empirically generated by our innately specified spontaneous cognitive capacities, but at the same time those manifestly real worldly forms or structures are not literally type-identical to those a priori cognitive forms or structures (= **the isomorphism-without-type-identity thesis**).

(iii) It is a necessary condition of the existence of the manifestly real world that if some rational human animals *were* to exist in that world, then they *would* veridically cognize that world, via either autonomous essentially non-conceptual content or conceptual content, at least to some extent (= **the counterfactual cognizability thesis**).

(iv) The manifestly real world has at some earlier times existed without rational human minded animals, or any other minded beings, to cognize it veridically,

and could exist even if no rational human minded animals, or any other minded beings, ever existed to cognize it veridically, even though some rational human animals now actually exist in that world—for instance, I (R. H.) now actually exist in the manifestly real world—who do in fact cognize it veridically, at least to some extent (= **the existential thesis**).

Here is a slightly more precise formulation of Weak or Counterfactual Transcendental Idealism's crucial thesis (iii), the counterfactual cognizability thesis:

$$\text{SynAp}\square(\forall x)(\exists y)[\text{MRWx} \rightarrow \{(\text{RHAy\&MRWy})\square \rightarrow \text{VCyx}\}]$$

Definitions:

Syn Ap □ = synthetically a priori necessarily
P □→ Q = If P were the case, then Q would be the case
MRWx = x belongs to the manifestly real world
MRWy = y belongs to the manifestly real world
RHAy = y is a rational human animal
VCyx = y veridically cognizes x, at least to some extent = either y veridically cognizes x via autonomous essentially non-conceptual content or y veridically cognizes x via conceptual content, at least to some extent

Natural Language Translation:
  Synthetically a priori necessarily, anything that belongs to the manifestly real world is such that if some rational human animals were to exist in that world, then they would veridically cognize that thing, at least to some extent, via either autonomous essentially non-conceptual content or conceptual content.

Two Crucial Implications:

  (1) The counterfactual cognizability thesis holds even if no rational human minded animals, or any other minded beings, actually exist, or ever existed.[45]
  (2) If anything is such that rational human minded animals are unable to cognize it veridically, via autonomous essentially non-conceptual content or conceptual content, at least to some extent—for instance, things-in-themselves or noumena—then that thing does not belong to the manifestly real world.

Crucial implication (1) conveys the weak mind-independence and ontic integrity of the manifest world. The manifest world is what it is, even if no minds exist or ever existed. And crucial implication (2) conveys the weak mind-dependence and inherent knowability of the manifest world. The manifest world is what it is, only in relation to actual or possible minds like ours. The single upshot of the two crucial implications is that the manifest world is as real as anything can ever possibly be, on the reasonable assumption that some luck-resistant, skepticism-resistant rational human knowledge of that world is actual or really possible. Or in

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[45] Katz claims that "however Kant's transcendental idealism is understood, it locates the ground of [real] facts within ourselves in at least the minimal sense that it entails that such facts could not have existed if we (or other intelligent beings) had not existed" (*Realistic Rationalism*, p. 9). Although this claim is true of Strong Transcendental Idealism, it is false of Weak or Counterfactual Transcendental Idealism.

other words, and perhaps most surprisingly of all for anti-Kantians: any epistemically tenable realism—that is, any realism that is truly capable of avoiding cognitive-semantic luck and global skepticism—requires Weak or Counterfactual Transcendental Idealism.

Now imagine a possible critic who is a *rabid* anti-Kantian. Can anything explain the obtaining of theses (ii), (iii), and (iv) of Weak or Counterfactual Transcendental Idealism in a way that involves no specifically Kantian premises? The answer is: yes— liberal or inclusive naturalism. Liberal or inclusive naturalism, it will be remembered (see section 1.1), says the following.

Liberal or inclusive naturalism: Mental properties are as basic in nature as biological properties and are also metaphysically continuous with biological properties in the dual sense that

  (i) **necessarily all mental facts are also biological facts, and**
  (ii) **although not every living complex thermodynamic system is itself sentient or sapient, nevertheless biological life always contains all the basic properties constitutive of mental properties, even if their instances are not always organized in the right way for embodied mentality to occur at just that time and place—hence not every biological fact is also a mental fact.**

Now if liberal or inclusive naturalism is true, then mental properties are as basic in manifestly real nature as biological properties, and mental properties are metaphysically continuous with biological properties. Hence the essential structure of biological life necessarily conforms to the essential structure of minds like ours.

Biological properties, in turn, can exist in manifestly real physical nature only if the essential structure of manifestly real physical nature necessarily conforms to the essential structure of biological life. And biological properties do actually exist in manifestly real physical nature. Hence the essential structure of manifestly real physical nature necessarily conforms to the essential structure of biological life.

But the essential structure of biological life necessarily conforms to the essential structure of minds like ours. Therefore, the essential structure of manifestly real physical nature necessarily conforms to the essential structure of minds like ours.

In this way, *if* liberal or inclusive naturalism is true, then this explains in a non-Kantian framework why theses (ii), (iii), and (iv) of Weak or Counterfactual Transcendental Idealism are all true. They are strongly metaphysically necessary implications of liberal or inclusive naturalism. And my independently sufficient reason for holding liberal or inclusive naturalism to be true is that it is essentially required by the best overall philosophical solution to the mind-body problem and the problem of mental causation. Therefore, *since* liberal or inclusive naturalism is true because it is essentially required by the best overall philosophical solution to the mind-body problem and the problem of mental causation, *then* this fact non-Kantian-ly explains why theses (ii), (iii), and (iv) of Weak or Counterfactual Transcendental Idealism are all true.

I have now stated and explicated Weak or Counterfactual Transcendental Idealism as carefully as I can, and I have also provided a non-Kantian explanation for it. Nevertheless, there are at least two significant philosophical questions that can still be raised about it.

The **first** question is the historical-philosophical question of whether Kant's own transcendental idealism should be understood as some or another version of Strong Transcendental Idealism, or instead as Weak or Counterfactual Transcendental Idealism. My own view on this question is that Kant himself simply oscillated between some or another version of Strong Transcendental Idealism, on the one hand, and Weak or Counterfactual Transcendental Idealism, on the other hand. Some Kant-texts support one reading, and other Kant-texts support the other reading. The Transcendental Aesthetic and the Analytic of Concepts in the first *Critique* mostly support the Strong Transcendental Idealism reading. But Kant's remarks about "empirical realism," the Refutation of Idealism, and the Analytic of Principles more generally (especially the Postulates of Empirical Thought), mostly support the Weak or Counterfactual Transcendental Idealism reading. So the historical philosophical question cannot be definitively answered on the basis of the texts alone—hence almost 240 years of vigorously controverted, and sometimes even outright combative, Kant-interpretation.[46]

The **second** question—and for me, the massively more important of the two questions—is the objective philosophical question of whether either some or another version of Strong Transcendental Idealism, or instead Weak or Counterfactual Transcendental Idealism, is in fact objectively true, or whether both are in fact objectively false. My own view on this question is that every version of Strong Transcendental Idealism is objectively false, whereas Weak or Counterfactual Transcendental Idealism is objectively true. Here are my basic reasons for asserting those two claims.

On the one hand, I think that it is clearly false that if either all actual human minds, including mine, or all other kinds of minds, went out of existence, then the manifestly real world would necessarily go out of existence too. I think that it is clearly false that, for instance, the actual existence of Pike's Peak (a fourteen-thousand-foot mountain near Colorado Springs, Colorado, with a cog railway that runs right to the summit[47]) strictly depends on the actual existence of human minds, including mine, or on the actual existence of any other kinds of minds. Clearly, I think, Pike's Peak can exist even if everyone, and every minded being, including myself, does not actually exist, and in fact I think that Pike's Peak actually existed millions of years before any conscious minds of any kind existed, including, of course, the conscious minds of all rational human animals, obviously including mine. In this way, a great many things, including mountains like Pike's Peak, exist objectively—shoes, ships, sealing wax, cabbages, kings, seas that do not boil, and pigs without wings. They are, all of them, neither subjective (i.e., strictly dependent on individual minds of any kind) nor relative (i.e., strictly dependent on cultures or societies of any kind). They are all weakly mind-independent. So Strong Transcendental Idealism is clearly objectively false.

But on the other hand, I do also think that it is clearly objectively true that necessarily, if the manifestly real natural world were not veridically cognizable by

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[46] See, e.g., Anishchuk and Williams, "Man Shot in Russia in Argument over Kant."
[47] See, e.g., Wikipedia, "Pike's Peak." I visited the summit of Pike's Peak during summer 2010, and confirmed this claim by direct, veridical sense perception.

some conscious rational minded animals like us, via either autonomous essentially non-conceptual content or conceptual content, at least to some extent, then the manifestly real world would not exist. The manifestly real world, insofar as it now actually exists in its weakly mind-independent way, could not be such that it is inherently impossible for rational human minded animals to cognize it veridically, at least to some extent. And the manifestly real world, insofar as it now actually exists in its weakly mind-independent way, could not be such that its actual existence renders our conscious rational minded animal actual existence impossible. How could that be the case, given these three actual facts? **First**, it is an actual fact that the manifestly real world actually exists now in its moderately mind-independent state. **Second**, it is another actual fact that we ourselves do actually exist now as rational human minded animals in the manifestly real world. And **third**, it is a further actual fact that we do now directly, veridically perceive and recognize some parts of the actual manifestly real world, for instance, our own living animal bodies in actual space and actual time?[48] Therefore, necessarily, the actual existence of the manifestly real world does not render our conscious rational human minded animal actual existence in that world impossible. On the contrary, the actual existence of the manifestly real world renders our conscious rational human minded animal actual existence in that world necessarily possible.

Here, and now more explicitly, I am arguing in the following way, by using one empirical premise and two modal principles, in addition to the familiar classical logical principle of **Existential Generalization**:

Empirical premise: I, R. H., a rational human minded animal, actually exist in the manifestly real world.

Modal principle 1: Actually P → Possibly P

Modal principle 2: Possibly P → Necessarily Possibly P (i.e., the characteristic modal axiom of S5).

(1) I, R. H., a rational human minded animal, actually exist in the actual manifestly real world. (Empirical premise.)

(2) Some rational human minded animals actually exist in the actual manifestly real world. (From (1), by Existential Generalization.)

(3) Therefore, given the actual existence of the manifestly real world, some rational human minded animals actually exist in that world. (From (2).)

(4) Whatever is actual is also possible. (Premise, from Modal principle 1.)

(5) Therefore, given the actual existence of the manifestly real world, it is possible that some rational human minded animals actually exist in that world. (From (3) and (4).)

(6) If anything is possible, then it is necessarily possible. (Premise, from Modal principle 2.)

(7) Therefore, given the actual existence of the manifestly real world, it is necessarily possible that some rational human minded animals actually exist in that world. (From (5) and (6).) QED

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[48] See Hanna, "The Inner and the Outer: Kant's 'Refutation' Reconstructed"; and Hanna, *Kant, Science, and Human Nature*, ch. 1.

This argument is sound whether, on the one hand, the modalities are logically, conceptually, "weakly metaphysically," or analytically a priori necessary or possible, or, on the other hand, they are non-logically, essentially non-conceptually, "strongly metaphysically," or synthetic a priori necessary or possible. On the basis of these reasons, then—and also for several other reasons, to be worked out in chapter 8—I conclude that Strong Transcendental Idealism is objectively false and that Weak or Counterfactual Transcendental Idealism is objectively true.

Which several other reasons, more specifically, am I referring to? In chapter 8, I will show, step-by-step, how Kantian Intuitionism and Weak or Counterfactual Transcendental Idealism jointly solve The Original Benacerraf Dilemma, The Extended Benacerraf Dilemma, and The Generalized Benacerraf Dilemma. And from that I will conclude that Kantian Intuitionism and WCTI are objectively true, by inference-to-the-best-philosophical-explanation. But before I can do that, I need to discuss the nature of intuitions in some detail.

7.4 What Are Intuitions?

One apparently distinctive feature of current methodology in the broad tradition known as "analytic philosophy" is the appeal to *intuition*. Crude rationalists postulate a special knowledge-generating faculty of rational intuition. Crude empiricists regard "intuition" as an obscurantist term for folk prejudice, a psychological or social phenomenon that cannot legitimately constrain truth-directed inquiry. Linguistic or conceptual philosophers treat intuitions more sympathetically, as the deliverances of linguistic or conceptual competence.... [T]he common assumption of philosophical exceptionalism is false. Even the distinction between the *a priori* and the *a posteriori* turns out to obscure underlying similarities. Although there are real methodological differences between philosophy and the other sciences, as actually practiced, they are less deep than is often supposed. In particular, so-called intuitions are simply [armchair] judgments (or dispositions to [armchair] judgment); neither their content nor the cognitive basis on which they are made need be distinctively philosophical.

—T. Williamson[49]

Of course, we are not clueless on the factors relevant to our cognitive reliability. We know, for example, that the reliability of our eyesight suffers when it is too dark or too foggy, or when the object seen is too far or too small. We more easily introspect headaches than many of our attitudes or emotions. And we know that simple propositions of arithmetic, geometry, and logic are prime candidates for reliable intuition. The more systematic our knowledge of the conditions within which a faculty is reliable, the better our epistemic perspective on that faculty, and the better our knowledge deriving from that faculty. These are matters of degree, however, and here intuition seems not inferior to introspection or perception.

—E. Sosa[50]

[49] Williamson, *The Philosophy of Philosophy*, pp. 2–3.
[50] Sosa, "Minimal Intuition," p. 268.

Epistemic appeals to intuitions go at least as far back as Plato's *Republic* and *Seventh Letter* and Aristotle's *Nicomachean Ethics*, and can also be found in Descartes's *Rules for the Direction of the Mind* and *Meditations on First Philosophy*, and in Spinoza's *Ethics*, as well as in Leibniz's epistemological writings, in Kant's *Critique of Pure Reason* and his *Logic*, in Bolzano's *Theory of Science*, in Husserl's *Logical Investigations* and his later phenomenological writings, in Brentano's *Origin of the Knowledge of Right and Wrong*, in G. E. Moore's *Principia Ethica*, in Russell's *Problems of Philosophy*, in Brouwer's and Hilbert's writings on the foundations of mathematics, in W. D. Ross's *The Right and the Good*, in Kurt Gödel's later philosophically oriented writings on the foundations of mathematics and logic, in Arthur Pap's *Semantics and Necessary Truth*, and also in the work of recent or contemporary post-Quinean epistemologists, post-Rawlsian ethicists, metaphysicians, and philosophers of language, logic, or mathematics, including Robert Audi, George Bealer, Lawrence Bonjour, Albert Casullo, Michael Huemer, Frances Kamm, Jerrold Katz, Saul Kripke, Derek Parfit, Charles Parsons, John Rawls, Ernest Sosa, and Judith Jarvis Thomson.

Obviously there are important differences between appeals to intuitions by classical Platonists and Aristotelians, classical Rationalists, Kantians, neo-Kantians, post-Kantians, post-Quineans, and post-Rawlsians. But formulated at a suitably high level of generality, here is the classical theory of intuitions shared by all (or at least most) of those philosophers:

(1) an intuition is always a rational intuition, in that it directly expresses the operations of some of our innately specified and specifically rational cognitive capacities or cognitive competences, including self-consciousness, logical reasoning, mathematical reasoning, practical reasoning, linguistic understanding, judgment or propositional thinking, conceptualization, and/or the "productive imagination"—the ability to generate, scan, reproduce, and manipulate schematic mental imagery,

(2) a rational intuition is a noninferential rational cognition,

(3) rational intuition can be either (3i) rational intuition-that some proposition *P* is (necessarily) true (and a priori), or (3ii) rational intuition-of special abstract or non-empirical objects of some sort,

(4) rational intuition-that presupposes rational intuition-of, and

(5) rational intuitions can sufficiently justify claims to objective a priori knowledge and also explain the cognitive acts, states, or processes by means of which objective a priori knowledge of necessary truth occurs.

According to the classical theory of intuitions, then, there are two different basic types of rational intuitions, namely (i) rational intuitions-that, which are non-inferential propositional cognitions aimed at objective a priori knowledge of necessary truth, and (ii) rational intuitions-of, which are non-inferential directly referential cognitions aimed at objective a priori knowledge of necessary truth. This distinction captures the important difference between, for example, on the one hand, propositionally intuiting the necessarily true arithmetical statement that 3+4=7 via the cognitive construction and manipulation of a Hilbert-style stroke diagram for that proposition or statement, e.g.,

$$| \; | \; | + | \; | \; | \; | = | \; | \; | \; | \; | \; | \; |$$

And, on the other hand, directly referentially intuiting the number 7 via a Hilbert-style stroke diagram for that number, e.g.,

$$| \; | \; | \; | \; | \; | \; |$$

Another example of the same difference is that between, on the one hand, propositionally intuiting the necessarily true logical statement that it is not the case that every sentence or statement in any or every language or logical system whatsoever is both true and false, in effect, **Minimal Non-Contradiction**, via the cognitive construction and manipulation of a perspicuous formal translation of that proposition or statement into a standard system of logical symbols, e.g.,

$$\sim (\forall S) (S \; \& \sim S)$$

and, on the other hand, directly referentially intuiting the logical constant Negation via a standard logical symbol for Negation such as the tilde, e.g.,

$$\sim$$

So the ultimate cognitive goals of rational intuitions-that and rational intuitions-of are the same—objective a priori knowledge of necessary truth—but both their immediate intentional targets and also their individuating intentional contents are importantly different.

Now rational intuitions-that can also be called *discursive* or *propositional* rational intuitions. This is because, at the very least, they imply our joint possession of the cognitive capacities involved in conceptualization, judgmental or propositional intentionality, and inferential intentionality, including self-consciousness in the sense of possessing a concept of oneself and the capacity to make psychological self-reports, logical reasoning, mathematical reasoning, practical reasoning, inferential justification of all kinds, and also "reasons responsiveness" and "reasons seeking-ness" more generally.

By contrast, rational intuitions-of could also be called *non-conceptual* or *non-discursive* rational intuitions. And this is because, independently of and even altogether apart from our capacity for discursivity, they imply our joint possession of the cognitive capacities involved in directly referential cognition generally, consciousness in the sense of pre-reflectively or non-self-consciously conscious embodied egocentric centering in space and time, and spatiotemporal cognition of all kinds, including minimal episodic memory,[51] the location of objects, the tracking of objects, representing events, representing motion, representing direction, representing orientation, and representing abstract spatial or temporal local displays, or global systems of spatial or temporal relations. As we saw in chapter 2, contemporary Kantians are—or should be!—particularly interested in non-conceptual or non-discursive rational intuitions, whether empirical or non-empirical. This would flow from their natural interest in Kant's own theory of empirical and pure or a priori spatial and temporal "intuitions," or *Anschauungen,* in the Transcendental Aesthetic, and

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[51] See, e.g., Russell and Hanna, "A Minimalist Approach to the Development of Episodic Memory."

correspondingly in his spatiotemporal intuition-based philosophy of mathematics.[52] But it would also flow from their natural interest in Kant's theory of the role of non-conceptual or non-discursive "productive imagination," or *produktive Einbildungs-skraft*, in mathematical reasoning. Other philosophers in the intuitionist tradition like Plato, Descartes, Russell, Husserl, Brouwer, Hilbert, and Parsons have also talked about what I am calling "non-conceptual or non-discursive rational intuitions" under the rubrics of "acquaintance" (*Kennen*), "seeing essences" (*Wesensschau*), "insight" (*Einsicht*), "the perception of a move of time," "immediate experience prior to all thought," and so on.

   Most recent and contemporary philosophers who are interested in rational intuitions have focused solely on discursive or propositional rational intuitions, and have either just neglected or else outright rejected non-conceptual or non-discursive rational intuitions. I think that this is an important mistake. Indeed, Conceptualists and many other epistemologists or philosophers of mind who are not officially committed to Conceptualism simply assume without argument that a priori rationality and non-conceptuality are mutually incompatible.[53] Historically, this completely overlooks Kant's philosophy of mathematics. But more generally, it simply assumes without argument that the very idea of non-conceptual content conforms to The Myth of the Given, which, as we saw in chapter 2, is nothing but The Myth of the Myth. In any case, for the rest of this section and the next section as well, in order to keep things relatively simple, I will follow the lead of the majority and focus only on discursive or propositional rational intuitions. Rational intuitions-of, in effect, non-conceptual or non-discursive rational intuitions, will return, however, and play a co-starring role in chapter 8.

   In the early 1960s, rather like the contemporaneous craze for seeing UFOs, something strange also happened to the philosophical concept of an intuition. Looking back at the philosophical 1960s with 20/20 hindsight in 1999, Jaakko Hintikka very accurately described this socio-intellectual event:

Where does the current popularity of appeals to intuition come from? The timing of the great revival of intuitionist methodology gives us a clue to its causes. Before the early 1960s, you could scarcely find any overt references, let alone appeals, to intuitions in the pages of philosophical journals and books in the analytical tradition. After the mid-1960s, you will find intuitions playing a major role in the philosophical argumentation of virtually every article or book. Why the contrast? The answer is simple. Intuitions came into fashion in philosophy as a consequence of the popularity of Noam Chomsky's linguistics and its methodology. According to a widespread conception, generative linguists like Chomsky were accounting for competent speakers' intuitions of grammaticality by devising a grammar, that is, a set of generative rules that produces all and only such strings that are intuitively accepted by these speakers. This kind of methodology was made attractive by the tremendous perceived success of Chomsky's theories in the 1960s and 1970s. Not only was transformational grammar the *dernier cri* in linguistics, it was seen as a major

[52] See note 3, chapter 2.
[53] See, e.g., BonJour, *In Defense of Pure Reason*; and Schear (ed.), *Mind, Reason, and Being-in-the-World*.

revolution in the study of language. What is more, it was taken to provide a methodological paradigm of what can be done in those fields where the subject matter involves the tools of human thought and cognition. The use of intuitions in philosophical argumentation thus originated from philosophers' attempt to get on the bandwagon of transformational grammar.[54]

In other words, the justly famous and wildly successful research program of Chomskyan psycholinguistics, flowing outward from MIT in the 1960s and '70s in concentric wave-circles, like an intellectual cannon ball dropped into Walden Pond, made "intuition"-talk in philosophy highly popular.

And in fact contemporary philosophy is still riding this post-early-'60s Chomskyan wave-pattern. This is because, as Judith Jarvis Thomson so correctly noted in the text I quoted in section 6.0 from her 2012 Dewey Lecture, until very recently, philosophers since the 1960s have failed to make any appreciable progress in meta-philosophy. Correspondingly, according to many contemporary epistemologists, intuitions are either (i) "intellectual seemings"[55]—non-inferential, sense-perception-like, self-conscious, sui generis propositional attitudes in which we are appeared-to or presented-to intellectually—or else (ii) "armchair judgments,"—spontaneous, unreflective, pre-theoretical, conscious non-inferential, or non-conscious inferential, uncalibrated or untested judgments (or dispositions so to judge) about thought experiments and actual-world topics of actual or possible concern to philosophers,[56] perhaps with a further minimal requirement that these topics be "abstract."[57] Nowadays, these two views about intuitions are called, respectively, (i) the *sui generis* view and (ii) the *doxastic* view.

But on my view, rational intuitions are not intellectual seemings, for three reasons. **First**, the very idea of an intellectual seeming falsely assimilates the conceptual and propositional content of rational a priori cognitions to the perceptual content of empirical a posteriori cognitions. **Second**, the very idea of an intellectual seeming also falsely suggests that rational intuitions are passive mental states rather than active intentional performances, for which we must take rational responsibility. And **third**, most importantly, intellectual seemings provide, at best, super-weak evidence that is no better than mere opinion, precisely because such seemings, considered on their own, are cognitively indistinguishable from what might have been produced by a Cartesian evil demon, an epistemically malicious mad scientist, The Matrix, or a coherent hallucination or non-veridical dream. Therefore, they provide no minimally reliable or truth-indicating rational warrant for belief.

Furthermore, with respect to armchair judgments (or dispositions so to judge), it is precisely at this point that a fundamental error arises in the recent and contemporary

[54] Hintikka, "The Emperor's New Intuitions," p. 127.

[55] See note 41, this chapter. See also Huemer, *Ethical Intuitionism*, esp. the Introduction and part II. For interesting spins on the "intellectual seemings" view, see Bengson, "The Intellectual Given"; Chudnoff, "What Intuitions Are Like"; Chudnoff, "The Nature of Intuitive Justification"; and Chudnoff, "Intuitive Knowledge."

[56] See, e.g., Williamson, *The Philosophy of Philosophy*, esp. chs. 1, 2, and 7. For a persuasive critique of Williamson's view, see Malmgren, "Rationalism and the Content of Intuitive Judgments."

[57] See, e.g., Sosa, "Minimal Intuition," p. 259.

epistemology of intuitions. Crucially, intuitions construed as armchair judgments are nothing like what classical epistemologists (e.g., Plato, Aristotle, Descartes, Leibniz, Kant, Bolzano, Brentano, Husserl, Moore, Russell, Brouwer, Hilbert, Ross, or Gödel) meant by their use of the term "intuitions." No classical epistemologist ever held that there is anything epistemically special, or especially reliable, about ordinary unreflective or shoot-from-the-hip *philosophical* opinions, for instance, in introductory philosophy classes or more advanced courses or seminars, in the debating periods after conference presentations or departmental philosophy colloquia, or in hallway philosophical discussions, or in philosophical discussions in coffee shops or pubs, just as no classical epistemologist ever seriously thought that there is anything epistemically special, or especially reliable, about ordinary unreflective or shoot-from-the-hip *mathematical* opinions or ordinary unreflective or shoot-from-the-hip *logical* opinions. Why would anyone ever think that any special mathematical or logical credence should be given to what people—all the way from undergraduate students, to graduate students, to professors, but also including amateur aficionados or casual discussants of mathematics and logic—spontaneously assert in mathematics classes or seminars and logic classes or seminars, or in other more-or-less formal or informal academic or non-academic settings, including coffee shops and pubs? Correspondingly, then, why should anyone ever think that any special philosophical credence should be given to what people—all the way from undergraduate students, to graduate students, to professors, but also including amateur aficionados or casual discussants of philosophy—spontaneously assert in philosophy classes or seminars, or in other more or less formal or informal academic or non-academic philosophical settings, including coffee shops and pubs?

In short, the armchair judgments, or doxastic, approach to intuitions falsely assimilates and downgrades rational intuitions to ordinary unreflective or "shoot-from-the-hip" opinions. No wonder, then, that contemporary intuition-skeptical empiricists "discover" that there is a problem about the reliability of philosophical intuitions, or "discover" that, contrary to widely held methodological and meta-philosophical beliefs, philosophers do not really rely on intuitions as evidence either for philosophical theories or for any other significant claims.[58] That would be like "discovering" that there is a similar problem about the reliability of ordinary or unreflective shoot-from-the-hip mathematical or logical intuitions, or like "discovering" that mathematicians and logicians do not really rely on ordinary or unreflective shoot-from-the-hip mathematical or logical intuitions as evidence for significant mathematical or logical claims. Of course there is a problem. Yet it is nothing but the problem of the reliability of ordinary unreflective or shoot-from-the-hip opinions about these matters, and has essentially nothing to do with the problem of the reliability of rational intuitions, whether in mathematics, logic, or philosophy. And of course, mathematicians and logicians do not really rely on such intuitions as evidence. But that is simply because mathematicians and logicians do not really rely on ordinary unreflective or shoot-from-the-hip opinions about significant

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[58] See, e.g., Cappelen, *Philosophy without Intuitions*; and Williamson, *The Philosophy of Philosophy*.

mathematical and logical matters, not because they do not really rely on rational intuitions as evidence for significant mathematical and logical claims.

As against either the intellectual seemings (sui generis) or the armchair judgments (doxastic) approaches to intuitions, then, according to my Kantian neo-rationalist account, intuitions are specifically rational intuitions in the classical sense. That is, they are non-inferential beliefs or thoughts, insofar as they are actively and self-consciously or reflectively conceptually adopted or taken as candidates for a priori necessary truth and knowledge. In intentionally and responsibly performing a rational intuition, at least dispositionally or implicitly, we actively and self-consciously or reflectively conceptually adopt or take certain non-inferential beliefs or thoughts not merely as true, but also as if-true-then-necessarily-true, and a priori.

Even more precisely, according to my Kantian neo-rationalist account, in intentionally and responsibly performing a rational intuition, at least dispositionally or implicitly, we actively and self-consciously or reflectively conceptually adopt or take certain non-inferential beliefs or thoughts as: (i) if-true-then-necessarily-true, hence necessarily and constitutively underdetermined by any and all empirical facts—any and all sensory experiences and/or contingent natural objects or facts, hence semantically necessary and a priori, (ii) objectively knowable by means of our innately specified rational cognitive capacities or cognitive competences in a way that is necessarily and constitutively underdetermined by any and all empirical facts, hence epistemically necessary and a priori, and (iii) inherently open to, or poised for, critical reflection.

Here are two follow-up comments on the Kantian neo-rationalist account of intuitions, to forestall misunderstandings.

First, it is sometimes said that accounts of intuition like the one I have just presented are "elitist," on the dual grounds (i) that they "privilege" necessity, apriority, and critical reflectiveness, and (ii) that they are the sorts of mental activities that only serious mathematicians, logicians, philosophers, and so on, ever engage in, not ordinary folks.

But that objection merely presupposes the truth of either classical Lockean-Humean or radical Quinean Empiricism and the thesis that intuitions are ordinary, unreflective, shot-from-the-hip opinions, and doubly begs the question. My view is just that rational intuitions are not such things, whatever post-Chomskyan wave-riding philosophers may want to call "intuitions," and that it is not "elitist" merely to identify a concept of intuition that is equally or even more classical, but also rationalist, and also distinct from some mainstream contemporary views since the 1960s. It is simply a fact about the history of philosophy, that from Plato to Descartes to Kant to Husserl to Russell to Gödel to contemporary Kantian neo-rationalists, by "intuitions," philosophers have meant rational intuitions. If this is "elitist," then by the same token it is also "elitist" to distinguish pure mathematics from applied mathematics. That is absurd, however, and nothing but a tendentious misuse of the pejorative term "elitist."

Second, by saying that the beliefs or thoughts targeted by rational intuitions are "non-inferential," I do not mean that these beliefs or thoughts *cannot be* cognized or justified by means of arguments and inferences, or that they cannot be critically reflected upon. Instead I mean only that, as occurrent intentional performances, they

need not be cognized or justified by means of arguments and inferences in that very performance, and that they *need not be* critically reflected upon in that very intentional performance. Therefore they still can be known without argumentative or inferential mediation, or without critical reflection, in that very intentional performance. Indeed, necessarily and at least in principle, rational intuitions inherently can also be cognized or justified by means of arguments and inferences, whether deductive, inductive, abductive, or transcendental, and inherently can also be critically reflected upon.

(To anticipate, by a *transcendental inference*, I mean an inference to an a priori necessary presupposition of some statement, belief, or thought such that, synthetically a priori necessarily, were this a priori necessary presupposition and also appropriately many other a priori necessary presuppositions and empirical assumptions to hold, then this statement, belief, or thought would be fully meaningful, true, and/or justified. So transcendental inferences are a species of synthetic a priori subjunctive conditionals. See section 8.5.)

So qualified, then, this general three-part Kantian neo-rationalist description of intuitions is intended to hold for all rational intuitions in mathematics, logic, and philosophy, but not for intellectual seemings or armchair judgments (or dispositions so to judge) in these domains.

Moreover, I think that there is also a crucial difference between

(i) *authoritative rational intuitions*, which are rational intuitions that are completely convincing, intrinsically compelling, or self-evident, via our properly functioning cognitive capacities or mechanisms, and essentially reliable—non-accidentally or inherently connected to their necessary-truth-makers—that retain their maximal, thick factive epistemic value under critical reflection, and that we categorically ought to believe if we are to achieve the High-Bar standards of rational human normativity,

(ii) *constructed rational intuitions*, which are rational intuitions that presuppose one or more authoritative intuitions as a generative basis, but also include some evidence that is context-sensitive, contingent, and partially empirical, partially holistic, and partially inferential, and not itself fully authoritative, which means that they possess a middle-range and moderately thick factive epistemic value, under certain critical restrictions—*fairly reliable* rational intuitions, and

(iii) *prima facie rational intuitions*, which are rational intuitions that we have some sort of minimal, thin conscious evidential warrant for, but can be discounted upon critical reflection—*defeasible/fairly unreliable* intuitions.

According to my account, then, authoritative rational intuitions are inherently robust under critical reflection, full-stop—without qualification, constructed rational intuitions are inherently robust under critical reflection if and only if some well-specified set of other things remains equal, in effect inherently robust under critical reflection ceteris paribus, and merely prima facie rational intuitions are inherently non-robust under critical reflection. So, for instance, my rational intuition that 3+4 = 4+3, or

||| + |||| = |||| + |||

is authoritative and essentially reliable; my rational intuition that for all natural numbers x and y, $x+y = y+x$, is constructed and fairly reliable; and my off-the-cuff rational intuition that 43,311 is a prime number is prima facie and fairly unreliable.

To be sure, the generative basis for my constructed rational intuition that for all natural numbers x and y, $x+y = y+x$, includes a large set of basic authoritative rational intuitions such as my rational intuitions that 1+1=1+1, that 1+2=2+1, that 1+3=3+1,..., or

+	=	+
+		=		+
+			=			+
   and so on.

But it is also plainly true that neither my grasp of the concept of a natural number, nor my grasp of the structural system of the natural numbers, nor my grasp of the concept or structure of the commutativity of the operation of addition over the natural numbers, is itself basic authoritative.

In view of what I have just proposed, it is also important to note that authoritative rational intuitions can be either basic or non-basic. Basic authoritative rational intuitions, as a class, are axiomatic or primitive premises in mathematical, logical, moral, or philosophical reasoning. But if a statement S_2 follows immediately as a logical or mathematical consequence from a statement S_1, and statement S_1 is (High-Bar) known by a basic authoritative rational intuition, then S_2 is inferentially (High-Bar) knowable a priori by means of a non-basic logical or mathematical authoritative rational intuition of the following strict conditional statement S_3:

   (S_3) Necessarily, if S_1 then S_2.

So non-basic authoritative intuitions are rational intuitions of strict logical or mathematical conditionals with antecedents containing statements (High-Bar) known a priori by basic authoritative rational intuitions. In this way, then, non-basic authoritative rational intuitions are distinct from constructed rational intuitions, since non-basic authoritative rational intuitions are all logical or mathematical authoritative rational intuitions of strict conditionals grounded on basic authoritative rational intuitions of axiomatic premises in logical, mathematical, or philosophical reasoning, and as such, are essentially reliable. By contrast, constructed intuitions are authoritatively grounded but partially empirical, partially holistic, and partially inferential (hence only relatively non-inferential), and therefore do not depend on basic authoritative rational intuitions plus non-basic logical or mathematical authoritative rational intuitions alone, and as such, are only fairly reliable.

To summarize so far, then, I think that there are three significant theoretical advantages of my Kantian neo-rationalist account of intuitions as rational intuitions, with its three distinct types of rational intuition, over the intellectual seemings, or sui generis, and armchair judgments, or doxastic, approaches to intuitions. **First**, my account lays down some fairly clear standards for what will count as an "intuition" in the specifically philosophical sense of that much abused and misused term. **Second**, my account connects directly and relevantly with classical epistemology and its history. And **third**, my account does not deploy an overly simplified univocal theory

of intuition. Following up on that third point, there seems to be no good reason to hold that everything anyone casually or unreflectively calls an "intuition" (e.g., "I have an intuition that there is a big martini sitting on the kitchen table" or "I have an intuition that the next president after Obama's second term will be a Democrat too") is going to count as an intuition in the specifically philosophical sense. Nor is there any good reason to think that the recent or contemporary (ab)use of the term "intuition" by mainstream post-Chomskyan philosophers is in any way relevantly or significantly continuous with what the classical epistemologists were talking about. There is also no good reason to hold that whatever we decide to call an "intuition" in the specifically philosophical sense must be of one kind only.

In this connection, it needs to be especially emphasized that according to my Kantian neo-rationalist account, all three kinds of rational intuition (i.e., authoritative, constructed, and prima facie) are, in a certain definite sense, fallible. By this, I mean that all three kinds of rational intuition are such that their connection to the truth is not analytically, conceptually, or logically necessitated.[59] Candidates for being objective a priori necessary truth and knowledge are never, as a matter of analytic, conceptual, or logical necessity, automatically elected to the status of being objective a priori necessary truth and knowledge. All candidates for election can, as a matter of analytic, conceptual, or logical possibility, fall short.

In this way, Descartes was simply wrong about the infallibility of clear and distinct rational intuition. This is clearly and distinctly shown by his explicit appeal to the existence and non-deceitfulness of God as a required mediating principle between clear and distinct rational intuition, on the one hand, and necessary truth, on the other. If either God does not exist or, assuming even that God exists and is a perfect being, if deceit is compatible with God's perfect nature as an omnipotent, omniscient, and omnibenevolent (aka "3-O") being, then infallibility fails. But it is analytically, conceptually, and at the very least logically possible that God does not exist, and it is also analytically, conceptually, and at the very least logically possible that deceit is compatible with God's 3-O nature. Contrary to what Descartes at least implicitly held, it is not an analytic, conceptual, or logical truth that God exists and is not a deceiver. Therefore, even given the fact of a clear and distinct rational intuition, neither its maximal, thick factive epistemic force nor its necessity-to--believe—which, when conjoined, yield its indubitability—itself analytically, conceptually, or logically entails either necessary truth or sufficient justification. Otherwise put, all authoritative rational intuitions analytically, conceptually, or logically *can* be false.

Nevertheless, even in this fully natural and "human, all too human," hence thoroughly nonideal, world, authoritative rational intuitions *just are* objectively necessarily true and sufficiently justified priori—for instance,

3+4=7, or, $|\,|\,|$ + $|\,|\,|\,|$ = $|\,|\,|\,|\,|\,|\,|$

It is not the case that every statement in any or every language or logical system whatsoever is both true and false., i.e., ~ ($\forall$S) (S & ~ S), aka Minimal Non-Contradiction.

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[59] See also Hoffmann, "Two Kinds of A Priori Infallibility."

This, in turn, is as much as to say that for authoritative rational intuitions, the connection between justification and truth *is infallible* precisely because the connection between such intuitions and the truth is inherent and synthetic a priori, but this connection *is not infallible* in an analytic, conceptual, or logical sense. *Analytic fallibilism* about authoritative rational intuitions is not the same as *skepticism* about authoritative rational intuitions, and therefore analytic fallibilism about authoritative rational intuitions is also fully compatible with synthetic a priori infallibilism about authoritative rational intuitions.

To conclude this section now, intuitions, according to my Kantian neo-rationalist account, are (i) rational intuitions—non-inferential beliefs or thoughts, generated in intentional performances by our innately specified rational cognitive capacities or competences, insofar as those beliefs or thoughts are, at least dispositionally or implicitly, actively and self-consciously or reflectively conceptually adopted or taken as candidates for a priori knowledge of objectively necessary and a priori truth, where (ii) apriority, or experience-independence, is the necessary and constitutive under-determination of the semantic content, truth, and/or justification of a mental representation R, of a cognitive faculty, act, state, or process C, or of a statement S by any and all actual or possible empirical facts, where (iii) these rational intuitions can be either (iiia) authoritative (intrinsically compelling or self-evident, cognitively virtuous, and essentially reliable), (iiib) constructed (authoritatively grounded, but partially empirical, partially holistic, and partially inferential, hence only fairly reliable), or (iiic) prima facie (defeasible/fairly unreliable), and, if authoritative, then (iv) either (iva) basic (axiomatic or primitive) or (ivb) non-basic (derived), where (v) all rational intuitions of any kind, including authoritative rational intuitions, are analytically fallible, although (vi) authoritative rational intuitions are also synthetic a priori infallible, objectively necessarily true, and a priori.

7.5 Rational Intuitions and the Irrelevance of Experimental Philosophy

Philosophical intuition is epistemologically useless, since it can be calibrated only when it is not needed. Once we are in a position to identify artifacts and errors in intuition, philosophy no longer has any use for it. Moreover, the most plausible account of the origins of philosophical intuitions is that they derive from tacit theories that are very likely to be inaccurate. There is a sense, then, in which philosophical intuitions can always be "explained away": when a dispute arises, I can always, with some plausibility, suppose your intuitions are the artifacts of bad tacit theory. This is a game everyone can play, and I think we should all play it. We should, that is, dismiss philosophical intuitions as epistemologically valueless.

—R. Cummins[60]

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[60] Cummins, "Reflections on Reflective Equilibrium," p. 125.

So ought we trust intuitions in philosophy? The first part of my answer is: no, when the intuitions are participating in practices that are hopeless, lacking any substantive means of error-detection and error-correction; and yes, when the intuition is embedded in practices that are hopeful. The second part of my answer is to suggest that [philosophers' appeals to intuitions] falls into the first of those categories and thus ought be considered untrustworthy. But some uses of intuition, including those about logic and math and about epistemic principles whose merits can be partially tested in the laboratory of the history of science, can reasonably be placed in the second category, and we can trust them for establishing premises to use in our arguments—including (I hope!) my arguments here. In general, though, we can now see a way for the opponent to answer the question from the Sosa quote from §1: "Can intuition enjoy relative to philosophy an evidential status analogous to that enjoyed by perception relative to empirical science?" The opponent may now reply, "No, for intuition, as philosophers tend to appeal to it, lacks the hopefulness that perception has in science (and, indeed, in our ordinary lives). Once we learn *how* to be careful with our philosophical intuitions—that is, when our practices have been rendered hopeful—then we will have a successful analogy between [philosophers' appeals to intuition] and scientist[s'] appeals to perception."

—J. Weinberg[61]

From Plato to the present, appeal to intuition has played a central role in philosophy. However, recent work in experimental philosophy has shown that in many cases intuition cannot be a reliable source of evidence for philosophical theories. Without careful empirical work, there is no way of knowing which intuitions are unreliable. Thus the venerable tradition that views philosophy as a largely a priori discipline that can be pursued from the armchair is untenable.

—S. Stich[62]

[U]nder dialectical pressure Experimental Philosophers have applied the term "philosophical intuition" so broadly that it fails to capture anything useful.

—T. Williamson[63]

Are intuitions epistemically reliable? So formulated, I think that there is no philosophically relevant answer to this question, precisely because the question radically underspecifies what is meant by the word "intuitions." And, by direct implication, the very same thing goes, as Williamson has pointed out, for the phrase "philosophical intuitions" as it is used by Experimental Philosophers.

But once we have stated carefully what we take intuitions to be—*rational* intuitions in the Kantian neo-rationalist sense I just spelled out in section 7.3—then it seems to me that there are at least four distinct views one could take about the reliability of intuitions in this sense. These are: (i) preservationism about rational

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[61] Weinberg, "How to Challenge Intuitions Empirically Without Risking Skepticism," p. 340.
[62] See Stich, "Experimental Philosophy and the Bankruptcy of the Great Tradition."
[63] Williamson, "Review of Joshua Alexander, *Experimental Philosophy*."

intuitions generally, (ii) radical skepticism about rational intuitions generally, (iii) preservationism about philosophical rational intuitions specifically, and (iv) radical skepticism about philosophical rational intuitions only.

Preservationism about rational intuitions generally says that all rational intuitions are at least minimally reliable, and it also postulates a mutually exclusive categorization of all rational intuitions into the three sub-classes of (i) authoritative (i.e., intrinsically compelling or self-evident, cognitively virtuous, and essentially reliable, synthetic a priori infallible) rational intuitions, (ii) constructed (partially empirical, partially holistic, and partially inferential, hence only fairly reliable) rational intuitions, and (iii) prima facie (defeasible/fairly unreliable) rational intuitions, Correspondingly, it also holds that at least some rational intuitions in mathematics, logic, and philosophy are authoritative.

Radical skepticism about rational intuitions generally says that all rational intuitions are completely unreliable and proposes the elimination of the very idea of a rational intuition.

Preservationism about philosophical rational intuitions says that all specifically philosophical rational intuitions are at least minimally reliable. It also postulates a mutually exclusive categorization of all specifically philosophical rational intuitions into the three sub-classes of (i) authoritative (i.e., completely convincing, intrinsically compelling, or self-evident, and essentially reliable, synthetic a priori infallible) philosophical rational intuitions, (ii) constructed (authoritatively grounded, but partially empirical, partially holistic, and partially inferential, hence only fairly reliable) philosophical rational intuitions, and (iii) prima facie (defeasible/fairly unreliable) philosophical rational intuitions. Correspondingly, it also holds that at least some specifically philosophical rational intuitions are authoritative. Finally, preservationism about philosophical rational intuitions specifically is also fully consistent with preservationism about rational intuitions generally.

Finally, radical skepticism about philosophical rational intuitions only says that all and only philosophical rational intuitions are completely unreliable and proposes the elimination of the very idea of a philosophical rational intuition. But it accepts that at least some rational intuitions in mathematics or logic are somewhat reliable, and also accepts that possibly some rational intuitions in mathematics or logic are even very reliable.

Perhaps the most important thing to notice, again, about the way I have sliced things up, is that I have explicitly narrowed the focus of all these views about the reliability of intuitions to rational intuitions in the Kantian neo-rationalist sense. This means that issues about the reliability of intellectual seemings, as per the sui generis view, and armchair judgments (or dispositions so to judge), as per the doxastic view, as such, are essentially not relevant to this categorization. Indeed, they are essentially not relevant to the modal epistemology of rational intuitions in mathematics, logic, and philosophy. For the basic motivation that moves contemporary intuition-skeptical empiricists to defend either radical skepticism about rational intuitions generally or radical skepticism about philosophical rational intuitions only, is the actual fact that intellectual seemings and armchair judgments are all or mostly completely unreliable. But that actual fact is essentially irrelevant to the question of the reliability of rational intuitions.

Experimental Philosophy, or X-Phi, is the contemporary fusion of either classical Lockean-Humean Empiricism or radical Quinean Empiricism, Sellars's version of Scientific Naturalism, and/or Quine's version of Scientific Naturalism.[64] But it goes beyond earlier forms of philosophical naturalism by actually *doing* scientific experiments of some kind, usually in cognitive neuroscience. And above all it has a special (although not necessarily exclusive) focus on the critical study of "intuitions," in the sense of either "intellectual seemings" or "armchair judgments."[65] As such, all or at least most defenders of X-Phi explicitly or implicitly hold that

(i) all human cognition and knowledge both begins in empirical facts and also derives from empirical facts—in effect, is necessarily or constitutively determined by (or: either strongly supervenient on or grounded by) empirical facts,

(ii) natural science—and in particular, empirical scientific psychology (e.g., cognitive neuroscience), fundamental biology, fundamental chemistry, and fundamental physics—tells us the ultimate truth about the world and ourselves, and all facts are necessarily or constitutively determined by the fundamental biological, chemical, and physical facts,

(iii) empirical scientific psychology (e.g., cognitive neuroscience) tells us the truth about human knowledge, and

(iv) empirical scientific psychology (e.g., cognitive neuroscience) tells us the truth about all intuitions of any kind, including rational intuitions.

Granting me, for the current purposes of argument, my strategic narrowing of focus to rational intuitions in the Kantian neo-rationalist sense, as I spelled it out in section 7.4, then the leading proponents of X-Phi—for instance, Cummins, Gendler, Goldman, Knobe, Nichols, Stich, and Weinberg[66]—can all be classed as defenders of either radical skepticism about rational intuitions generally or radical skepticism about philosophical rational intuitions only. Sometimes it is difficult to know precisely which grade of radical skepticism is being defended. But for my purposes, it does not matter. As Cummins very accurately and bluntly puts the radical skepticism about philosophical rational intuitions only thesis: "philosophical intuition is epistemologically useless." In a slightly more guarded way, Stich says that "recent work in experimental philosophy has shown that in many cases intuition cannot be a reliable source of evidence for philosophical theories." Weinberg's philosophical rhetoric, as encoded in his influential paper's title, "How to Challenge Intuitions Empirically

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[64] See Hume, *Treatise of Human Nature*; Sellars, "Empiricism and the Philosophy of Mind"; and Quine, "Epistemology Naturalized."

[65] See, e.g., Appiah, *Experiments in Ethics*; Knobe and Nichols, "An Experimental Philosophy Manifesto"; and Prinz, "Empirical Philosophy and Experimental Philosophy."

[66] In addition to Cummins's and Weinberg's papers (see notes 60–61, this chapter), see also: Alexander, *Experimental Philosophy: An Introduction*; Appiah, *Experiments in Ethics*; Gendler, *Intuition, Imagination, and Philosophical Methodology*; Goldman and Pust, "Philosophical Theory and Intuitional Evidence"; Goldman, "Philosophical Naturalism and Intuitional Methodology"; Horvath and Grundmann (eds.), *Experimental Philosophy and Its Critics*; Knobe and Nichols (eds.), *Experimental Philosophy*; Stich, *The Fragmentation of Reason*; and Stich, "Reflective Equilibrium, Analytic Epistemology, and the Problem of Cognitive Diversity."

Without Risking Skepticism," suggests that his view is non-skeptical or at least non-radically skeptical. But it is clear enough from the text I quoted earlier that although he rejects radical skepticism about rational intuitions generally, nevertheless just like the blunter Cummins and the slightly more careful Stich, Weinberg too holds radical skepticism about philosophical rational intuitions only.

It should be particularly emphasized, re-emphasized, and even re-re-emphasized, that I do not have any quarrels with the empirical scientific study of so-called "intuitions" as such. Empirical scientific evidence about the nature of human cognition, or empirical scientific evidence concerning what philosophers or non-philosophers are actually doing cognitively when they produce non-inferential passive propositional pro-attitudes of all sorts, or spontaneous philosophical judgments, spontaneous moral judgments, spontaneous logical judgments, spontaneous mathematical judgments, and so on—when they produce ordinary unreflective or shoot-from-the-hip opinions on matters of interest to philosophers—or what they actually say in response to various kinds of questionnaires, under various kinds of experimental conditions, across a wide range of cultural and social contexts, are always relevant to the philosophy of mind and knowledge, and they are always philosophically interesting and illuminating in their own right. In all those respects, X-Phi is philosophically OK by me.

But at the same time, I do have four serious worries in regard to radical skepticism about rational intuitions generally and radical skepticism about philosophical rational intuitions only. And if these worries are cogent, then X-Phi, for all its philosophical OK-ness in certain respects, is nevertheless essentially irrelevant to the modal epistemology of rational intuitions.

First, in light of what I argued earlier in this section, the fact that it can be empirically shown that most people's, including most philosophers', reported intellectual seemings or armchair judgments are not reliable has no more direct bearing on the epistemic status and value of rational intuitions, than the fact that it can be empirically shown that most people, including most philosophers, are not good at simple arithmetic, probability judgments, or logical deduction tests, has any sort of direct bearing on the epistemic status and value of arithmetic, probability theory, or logic.[67] After all, the fact that experimental findings show that most people, including most philosophers, are quite bad and unreliable at these cognitive tasks presupposes that the experimenters already know what it is to be good and reliable at these cognitive tasks. To conclude from these findings that "arithmetic intuitions are epistemologically useless," that "probability intuitions are epistemologically useless," or that "logical intuitions are epistemologically useless" obviously would completely overlook the experimenters' implicit and fundamental reliance on their own arithmetic intuitions, probability intuitions, and logical intuitions. After all, the epistemic buck stops somewhere. It would be like arguing from the all-too-obvious fact that most people are not good at living up to their own moral principles, to the conclusion that "moral intuitions are ethically useless." Moral rational intuitions deliver knowledge of moral principles, not context-sensitive moral judgments, and how could the

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[67] See Hanna, *Rationality and Logic*, ch. 5.

most basic moral principles, for example, the following moral principle, fail to be objectively necessarily true and (High-Bar) knowable a priori?

Against Wanton Torture: Torturing randomly chosen, completely innocent people to death, for no good reason whatsoever, like the Nazis did, is impermissible no matter what the consequences.[68]

So just as in rational-intuition-based moral epistemology, the sharp difference between the categorical *ought* and the factual *is* is partially constitutive of the very idea of rational-intuition-based epistemology in mathematics, logic, and philosophy, not counter-evidence against it.

Second, and correspondingly, the sharp difference between the basic or non-basic authoritative rational intuitions we categorically ought to have and only sometimes do have, and the constructed and prima facie rational intuitions that we mostly actually do have, is partially constitutive of the very idea of rational intuition, not counter-evidence against the epistemic status and value of rational intuitions.

Third, if either radical skepticism about rational intuitions generally or radical skepticism about philosophical rational intuitions only were (High-Bar) known to be true, then how would they be (High-Bar) known to be true, except by means of authoritative philosophical rational intuitions? Neither radical skepticism about rational intuitions generally nor radical skepticism about philosophical rational intuitions only is itself an empirical claim. On the contrary, if they are (High-Bar) knowable at all, then they are necessarily true and a priori knowable. This is clear enough from the fact that both radical skepticism about rational intuitions generally and radical skepticism about philosophical rational intuitions only implicitly pre-suppose minimal Empiricism, the second preliminary assumption of The Original Benacerraf Dilemma:

All human knowledge begins in causally-triggered, direct, non-conceptual, non-inferential sense perception of contingent natural objects or facts.

But minimal Empiricism, if true and known at all, is an objectively necessary truth that is known a priori by basic authoritative rational intuition. So it is clear that if either radical skepticism about rational intuitions generally or radical skepticism about philosophical rational intuitions only is (High-Bar) knowable at all, then it must be by means of at least some basic authoritative rational intuitions. It then directly follows that radical skepticism about rational intuitions generally and radical skepticism about philosophical rational intuitions only are both a priori

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[68] Of course, as very-far-from-ideal, the actual world is *a vale of tears*, and the Nazis are also massively far from being the only ones who have wantonly tortured people. But for the purposes of formulating this specific moral principle, the qualifications are crucially important. Putative counter-examples involving torturing non-innocent people, in a relatively non-Nazi-like way, in order to save thousands or even millions of people, or for some other good reason, are all irrelevant to the truth of this moral principle. If someone were then to object that **Against Wanton Torture** is question-beggingly formulated in such a way as to be clear, distinct, and indubitable, then I would reply that by the same token, the clarity, distinctness, and indubitability of "3+4=7" and "~ (∀S) (S & ~ S)," i.e., **Minimal Non-Contradiction**, would also be question-begging. You cannot make basic authoritative rational intuitions go away just by calling their self-evidence "question-begging."

self-contradictory, and also rationally and strongly normatively self-stultifying. In the case of radical skepticism about rational intuitions generally, how could the epistemic reliability of aprioristic human rationality be radically challenged or definitively rejected without presupposing the essential reliability of aprioristic global skeptical human rationality? And in the more special case of radical skepticism about philosophical rational intuitions only, how could the epistemic reliability of aprioristic human philosophical rationality be radically challenged or definitively rejected without presupposing the essential reliability of aprioristic anti-philosophical skeptical human rationality? So radical skepticism about rational intuitions generally and radical skepticism about philosophical rational intuitions only are not only, in effect, cognitive suicide—they are categorically cognitively impermissible.

Fourth and finally, the most interesting and seemingly powerful argument in X-Phi's repertoire for either radical skepticism about rational intuitions generally or radical skepticism about philosophical rational intuitions only—Cummins's Dilemma of Calibrating Intuitions—is in fact clearly unsound.[69]

Here is Cummins's argument in a nutshell. To "calibrate" intuitions is to have an effective way of testing them for reliability, and all intuitions are in-principle so testable. The Dilemma of Calibrating Intuitions then says that either (i) intuitions *can* be calibrated, in which case philosophers do not need to appeal intuitions, or else (ii) intuitions *cannot* be calibrated, in which case philosophers should not appeal to intuitions. So no matter how you look at it, intuitions are "epistemologically useless."

But on the contrary, I think that The Dilemma of Calibrating Intuitions is a false dilemma, and that correspondingly, Cummins's argument fails. This is because Cummins—or, anyhow, other defenders of The Dilemma of Calibrating Intuitions, even if not Cummins himself—make at least eight unargued assumptions, each of which is also presupposed by The Dilemma, and each of which is independently plausibly challengeable.

(i)   There is one and only one kind of intuitions-that—discursive or propositional intuitions—and this single kind is either the class of intellectual seemings, as per the sui generis view, or the class of armchair judgments, as per the doxastic view [**the single kind assumption**].

(ii) There is one and only one method of calibrating intuitions [**the single method assumption**].

(iii) If any method of inquiry can calibrate intuitions, it must be a method belonging to the natural sciences [**the naturalistic assumption**].

(iv) Natural science does not itself require calibration [**the no-fault-naturalism assumption**].

(v)   Intuitions cannot be used to calibrate other intuitions [**the no-meta-calibration assumption**].

(vi) No intuitions are self-calibrating [**the no-reflexive-calibration assumption**].

(vii) Intuitions are all cognitively generated by a distinct, encapsulated "intuition faculty" or "intuition module" [**the modularity assumption**].

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[69] See also Talbot, "The Dilemma of Calibrating Intuitions."

(viii) An epistemology of intuitions must be either classically Foundationalist or classically Coherentist, and there are no other intelligible options [**the Foundherentist assumption**].[70]

Nevertheless, if what I have already argued is correct, and if what I will argue in this chapter and the next one is also correct, then all eight of these assumptions are false.

As against assumption (i), **the single kind assumption**, there are at least three mutually distinct classes or kinds of rational intuitions: namely, authoritative, constructed, and prima facie, and none of the authoritative or constructed rational intuitions are either intellectual seemings or armchair judgments. Prima facie rational intuitions are closest to intellectual seemings and armchair judgments, in their being evidentially defeasible/fairly unreliable as a class. But even there, prima facie rational intuitions are importantly different. This is because (i) intellectual seemings or armchair judgments are either passive or unreflective mental states, whereas prima facie rational intuitions are always, at least dispositionally, self-conscious or reflective a priori intentional performances, for which we must take rational responsibility, and for which we can be held rationally responsible, and (ii) intellectual seemings or armchair judgments can be, and often are, directed at merely contingent a posteriori truths, whereas prima facie rational intuitions are always intentionally directed at objectively necessary and a priori truths.

It is relevant to note here that many contemporary *enemies* of The Dilemma of Calibrating Intuitions also hold **the single kind assumption**, for instance, Bealer, Huemer, and Sosa. So if it is plausibly arguable that **the single kind assumption** is false, then this suffices to refute both all the friends and also many of the contemporary enemies of The Dilemma of Calibrating Intuitions.

It is equally relevant to note here that another unargued assumption and presupposition of The Dilemma of Calibrating Intuitions is that intuitions are neither already calibrated nor not in need of calibration. I will call this **the neither-nor assumption**. Should we challenge this assumption? No: I think that it is *not* plausibly arguable either that intuitions are already calibrated or that intuitions are not in need of calibration. This is obviously true of prima facie rational intuitions, since by hypothesis these are all fairly unreliable, hence they can be neither already calibrated nor not in need of calibration. But if one holds **the single kind assumption**, as many contemporary enemies of The Dilemma of Calibrating Intuitions do, then it is also not plausibly arguable either that intuitions are already calibrated or that intuitions are not in need of calibration. For as I noted earlier in this section, intellectual seemings and armchair judgments (or dispositions so to judge) are, at best, super-weakly justified in that they are not completely open to radical skepticism—not completely unreliable. But since this epistemic status is just the status of mere opinion, then it is perfectly consistent with Evil Demon scenarios, Matrix scenarios, and hallucinations or non-veridical dreams, and is not truth-indicative, merely truth-consistent. Hence on its own it falls far short of showing that intellectual seemings and armchair judgments (or dispositions so to judge) are either already calibrated or not in need of calibration, since calibration is just an effective test for reliability, and

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[70] This particular assumption is skeptically deployed by Hales in "The Problem of Intuition."

no intellectual seemings or armchair judgments (or dispositions so to judge) as such, can claim either to be already effectively tested for reliability or not in need of an effective test for reliability. So, ironically enough for many contemporary enemies of The Dilemma of Calibrating Intuitions, **the neither-nor assumption** is an unargued assumption and presupposition that a defender of The Dilemma of Calibrating Intuitions actually *would be* rationally entitled to hold.

As against, assumption (ii), **the single method assumption**, rational intuitions need to be calibrated by at least three co-basic and inherently complementary methods: namely, (1) authoritative rational intuitions in mathematics, logic, philosophy, morality, axiology, linguistics, semantics, and so on, (2) direct, veridical sense perception, and (3) natural science.

As against assumption (iii), **the naturalistic assumption**, natural science is only one of three co-basic and inherently complementary ways of calibrating rational intuitions. Moreover, natural science is not an entirely independent way of calibrating, since it presupposes, at the very least, some basic authoritative rational intuitions in mathematics and logic, for instance, the mathematical rational intuition that

$$3 + 4 = 7, \text{or}, ||| + |||| = |||||||$$

and the logical rational intuition that

it is not the case that every statement in any or every language or logical system whatsoever is both true and false., or, ~ ($\forall$S) (S & ~ S)—Minimal Non-Contradiction.

Natural science without basic arithmetic or minimal logical consistency would be either impossible, full stop, or at the very least crazy and self-stultifying.

Furthermore, both the mathematical rational intuition that

$$3 + 4 = 7, \text{or}, ||| + |||| = |||||||$$

and also the logical rational intuition that

it is not the case that every statement in any or every language or logical system whatsoever is both true and false., or, ~ ($\forall$S) (S & ~ S)—Minimal Non-Contradiction,

require direct, veridical sense perceptions of numeral tokens, arithmetic operation-sign tokens, stroke tokens, ordinary natural language symbol tokens, or logic symbol tokens. Or, in a word, both of these rational intuitions require direct, veridical sense perceptions of Hilbert's basic objects of finitistic mathematical reasoning. Therefore, natural science without direct, veridical sense perception would also be either impossible, full stop, or at the very least crazy and self-stultifying.

As against assumption (iv), **the no-fault-naturalism assumption**, natural science *itself* needs to be calibrated by, at the very least, some presupposed basic authoritative rational intuitions in mathematics and logic, including the ones I just mentioned, and also by direct, veridical sense perception.

As against assumption (v), **the no-meta-calibration assumption**, prima facie rational intuitions can be calibrated either by basic or non-basic authoritative rational intuitions, or by constructed rational intuitions, or by a combination of the two, in mathematics, logic, philosophy, morality, axiology, linguistics, semantics,

and so on, in necessary conjunction with direct, veridical sense perception and the natural sciences.

As against assumption (vi), **the no-reflexive-calibration assumption**, basic authoritative rational intuitions, such as the ones cited earlier, by virtue of the specific modal character of their internal justificational structure, together with their non-accidental or necessary connections to their necessary-truth-makers, via properly functioning cognitive mechanisms, constitute intrinsically compelling or self-evident, cognitively virtuous, and essentially reliable, synthetic a priori infallible, absolutely skepticism-resistant a priori knowledge. They are thereby self-calibrating. Two other examples of self-calibrating rational intuitions that we have encountered already are (i) the philosophical rational intuition that truth is uniform and broadly Tarskian, and (ii) the philosophical rational intuition that all human knowledge begins in causally triggered, direct, non-conceptual, non-inferential sense perception. In the next section, and also again in the next chapter, we will also encounter the self-calibrating philosophical rational intuition that at least some of the truths of Primitive Recursive Arithmetic are (High-Bar) knowable a priori by basic authoritative rational intuitions directed at Hilbert-style basic objects of finitistic mathematical reasoning. Our intuitional epistemic access to these Hilbert-style basic objects, I will argue, is through the cognitive generation, scanning, reproduction, and manipulation of veridical schematic imagery—sensible forms in Kantian pure or a priori intuition via the "productive imagination." Such self-calibrating rational intuitions are also fully confirmed by direct, veridical sense perception and by the natural sciences alike.

As against assumption (vii), **the modularity assumption**, rational intuitions in the Kantian neo-rationalist sense are in fact generated by the complete "central" or "global," and thereby *non*-modular, innately specified human cognitive capacity or cognitive competence for non-instrumental or categorically normative theoretical or practical rationality. This central or global cognitive competence for categorically normative rationality involves all of the other basic or non-basic innately specified human cognitive capacities or cognitive competences, including consciousness, self-consciousness or reflection, sense perception, memory, imagination, conceptualization, non-conceptual cognition, judgment, and inference.

Finally, as against assumption (viii), **the Foundherentist assumption**, the best overall epistemological explanation of authoritative rational intuitions is neither classical Foundationalism nor classically Coherentism, but in fact Weak or Counterfactual Transcendental Idealism.

Classical Foundationalism says that knowledge is grounded solely on some non-normative primitive facts, whether internal or external, that somehow fully justify corresponding foundational beliefs just by means of causing, or otherwise strictly determining, those beliefs. By contrast, classical Coherentism says that knowledge is grounded solely on networks of consistency or entailment relations between beliefs. The standard problem with classical Foundationalism is that non-normative primitive facts cannot normatively support (i.e., justify, via reasons) beliefs. And the standard problem with classical Coherentism is that compatibility-relations and inferential networks on their own do not guarantee any sort of correspondence with the actual facts—they do not guarantee truth.

By sharp contrast to classical Foundationalism and classical Coherentism alike, the epistemology of Weak or Counterfactual Transcendental Idealism says that (High-Bar) a priori knowledge is necessarily true a priori belief that is sufficiently justified by conscious evidence, delivered by properly functioning cognitive mechanisms, that includes an intrinsic connection to the truth. This is a non-accidental or necessary connection that is inherently governed by categorically normative a priori theoretical and practical principles, and also metaphysically guaranteed by the necessary conformity of the underlying formal or structural features of the manifestly real world to the underlying formal or structural features of the innately specified cognitive capacities of rational human animals. Even if I am wrong that the Weak or Counterfactual Transcendental Idealist explanation of authoritative rational intuitions is the best overall epistemological account, nevertheless I am still right that it constitutes a distinct and intelligible *third* kind of epistemological explanation that is fundamentally distinct from classical Foundationalism and classical Coherentism alike, and also from any "Foundherentist" conjunction of a foundational condition and a coherence condition.

Therefore, The Dilemma of Calibrating Intuitions is not a real dilemma at all. Furthermore, whatever real epistemic issues are raised by it can arguably all be resolved in a way that entails the denial of both radical skepticism about rational intuitions generally and radical skepticism about philosophical rational intuitions only, and also the essential irrelevance of X-Phi to the modal epistemology of rational intuitions. I have also sufficiently rationally motivated the denials of each of the unargued assumptions or presuppositions of The Dilemma of Calibrating Intuitions, with the sole exception of **the neither-nor assumption**, which I take to be true.

By way of summary and conclusion, here are the four main points I have been making in this section.

First, X-Phi is not irrelevant to philosophy as such. As a natural science-driven, classical or radical Empiricism-oriented study of intellectual seemings or armchair judgments—of non-inferential passive propositional pro-attitudes of all sorts, or spontaneous philosophical judgments, spontaneous moral judgments, spontaneous logical judgments, spontaneous mathematical judgments, and so on, under various sorts of experimental conditions, and across a wide range of cultural and social contexts—X-Phi is always relevant to the philosophy of mind and knowledge, and always interesting and illuminating in its own right.

Second, nevertheless X-Phi is just the natural science-driven, classical or radical Empiricism-oriented study of passive or unreflective, shot-from-the-hip opinions, for which cognitive subjects need not take any rational responsibility. That is, X-Phi is just natural science-driven, classical or radical Empiricism-oriented doxology—the theory of opinions and as it were, the theory of cognitive idle chatter, not the theory of knowledge.

Third, because doxology (the theory of opinions) is not epistemology (the normative theory of knowledge, especially High-Bar knowledge), then X-Phi is categorically not the modal epistemology of rational intuitions. In other words, X-Phi is essentially irrelevant to the modal epistemology of rational intuitions.

Fourth, given the three points just described, and also given the manifest unsoundness of Cummins's Dilemma of Calibrating Intuitions, then not only preservationism about

rational intuitions in general, but also preservationism about philosophical rational intuitions specifically, are strongly warranted, at least as working hypotheses.

In the next section, I will provide a direct argument for the falsity of radical skepticism about rational intuitions generally, radical skepticism about philosophical rational intuitions only, and X-Phi alike. Equally but oppositely, this anti-skeptical and anti-X-Phi argument will also provide direct support for the truth of preservationism about rational intuitions in general and preservationism about philosophical rational intuitions specifically.

7.6 Philosophical Intuitions, Scientific Naturalism, and The Mathematico-Centric Predicament

> [H]ow does mathematical language function? Does it relate the world in the same ways as the language of natural science? What happens when human beings come to understand mathematical theories? How does mathematics work in various kinds of applications? And so on. To answer these questions, [the scientific-naturalist philosopher of mathematics] must face many of the metaphysician's concerns: do mathematical entities exist, and if so, what is the nature of that existence? Are mathematical claims true, and if so, how do humans come to know this? These are not detached, extra-scientific pseudo-questions, but straightforward components of our scientific study of human mathematical activity, itself part of our scientific investigation of the world around us.
>
> —P. Maddy[71]

As I pointed out in section 7.5, Experimental Philosophy, X-Phi, is the contemporary fusion of either classical Lockean-Humean Empiricism or radical Quinean Empiricism, Sellars's version of Scientific Naturalism, and/or Quine's version of Scientific Naturalism. As I also pointed out, X-Phi transcends earlier forms of philosophical naturalism by actually doing scientific experiments of some kind, usually in cognitive neuroscience. And its principal, although not necessarily exclusive, focus is on the critical study of intuitions, in the sense of either intellectual seemings, as per the sui generis view, or armchair judgments (or dispositions so to judge), as per the doxastic view. And as I also pointed out, as such, all or at least most defenders of X-Phi explicitly or implicitly hold that

   (i) all human cognition and knowledge both begins in empirical facts and also derives from empirical facts—is necessarily or constitutively determined by (or: either strongly supervenient on or grounded by) empirical facts,

  (ii) natural science—and in particular, empirical scientific psychology (e.g., cognitive neuroscience), fundamental biology, fundamental chemistry, and fundamental physics—tells us the ultimate truth about the world and ourselves, and all facts are necessarily or constitutively determined by (or: either

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[71] Maddy, *Second Philosophy*, p. 367.

strongly supervenient on or grounded by) the fundamental biological, chemical, and physical facts,

(iii) empirical scientific psychology (e.g., cognitive neuroscience) tells us the truth about human knowledge, and

(iv) empirical scientific psychology (e.g., cognitive neuroscience) tells us the truth about all intuitions of any kind, including rational intuitions.

In this section I will argue that (i) through (iv) are all false. Therefore X-Phi is false too.

The two-part philosophical thesis that the natural sciences (and in particular cognitive neuroscience, fundamental biology, fundamental chemistry, and fundamental physics) adequately and truly explain everything in terms of functional (i.e., second-order physical, causal-operational or computational) properties and facts, fundamental biological properties and facts, fundamental chemical properties and facts, and fundamental physical properties and facts, and that all knowledge claims are adequately justified only to the extent that they are warranted by empirical evidence and by natural scientific methods alone, is *Scientific Naturalism*. This is most crisply and gnomically expressed by Sellars's well-known slogan:

> In the dimension of describing and explaining the world, science is the measure of all things, of what is that it is, and of what is not that it is not.[72]

X-Phi is clearly a sub-species of Scientific Naturalism. More precisely, X-Phi is clearly Scientific Naturalism as applied either to intuitions in general or to philosophical intuitions in particular, with a robustly critical attitude toward them that is inherited directly from classical Lockean-Humean Empiricism or radical Quinean Empiricism.

X-Phi is also committed to Psychologism. By *Mathematical Psychologism*, I mean the thesis that mathematical laws and principles, mathematical computation, and mathematical knowledge are all adequately explained and justified by empirical scientific psychology, for instance, contemporary cognitive neuroscience. Mathematical Psychologism is directly entailed by Scientific Naturalism and also by X-Phi. The leading contemporary proponent of Mathematical Psychologism is Penelope Maddy,[73] and although (as far as I know) she is not officially a member of the X-Phi movement, she is certainly a fellow traveler.

Now consider the following interesting item reported in *Newsweek* in February 2010:

Native Chinese speakers use a different region of the brain to do simple arithmetic (3 + 4) or decide which number is larger than native English speakers do, even though both use Arabic numerals. The Chinese use the circuits that process visual and spatial information and plan movements (the latter may be related to the use of the abacus). But English speakers use language circuits. It is as if the West conceives numbers as just words, but the East imbues them with symbolic, spatial freight. . . . "One would think that neural processes involving

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[72] Sellars, "Empiricism and the Philosophy of Mind," p. 173.
[73] See, e.g., Maddy, *Second Philosophy*, part IV.

basic mathematical computations are universal," says [Tufts psychologist Nalinin] Ambady, but they "seem to be culture-specific."[74]

What should we conclude from this? Here is what I would want to conclude:

Well-formed and sound mathematical computations in basic arithmetic, as performed by rational human animals, although universally and necessarily true and also objectively knowable a priori by basic authoritative mathematical rational intuition, as the result of the activities of our innately specified cognitive capacities or cognitive competences, are nevertheless multiply instantiated in, and are therefore not identical to, neural computational processes, which in some cases are culturally specific.

But here is what a proponent of Mathematical Psychologism[75] would argue:

The two kinds of psychological processes (roughly, Western mathematical cognition and Eastern mathematical cognition) are non-identical. In which case there would not be a single mental kind multiply realized (after all, the processing differs in important ways). Content properties of the neural vehicles can be shared (i.e., the neural structures can share content-constituting—say, causal—relations to objectively existing mathematical properties in the world); so, the naturalist can still have her mathematical realism. But, to the extent that these content properties are relational complexes individuated by their relata (some of which are the varying neural vehicles), the relational complexes as wholes are of distinct kinds in the two cases. Thus, beyond the mathematical properties themselves, there remains only one shared portion across cultures: the content-determining relations various neural structures bear to mathematical properties; and these relations are reducible—to patterns of causal relations, in the first instance. Problem solved.

In immediate reply to the Mathematical Psychologicist, I would want to claim that Ockham's Razor—which says that the entities postulated by explanations and theories should not be multiplied without necessity—for a change favors the non-reductionist side of this debate. It seems significantly more explanatorily economical to postulate one non-reducible mathematical human cognitive process-type (i.e., the process-type of consciously and self-consciously calculating that 3+4 =7), drawing on one underlying innately specified cognitive capacity or cognitive competence with two distinct culturally specific neurobiological instances, than to postulate two distinct mathematical human cognitive process-types, each of which is then physically reducible to a culturally specific brain process-type. That is not only pleasingly philosophically ironic, but also a point in favor of innatist, intuitionist Mathematical Anti-Psychologism: given these interesting empirical data, innatist, intuitionist Mathematical Anti-Psychologism is a simpler theory than Mathematical Psychologism.

In short, Ockham's Razor cuts two ways: sometimes toward the reductionist, and sometimes toward the non-reductionist.

Needless to say, Scientific Naturalists generally and Mathematical Psychologicists in particular will be unlikely to accept my thesis that sometimes non-reductionists

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[74] Begley, "West Brain, East Brain: What a Difference Culture Makes."
[75] In this case, Robert Rupert, in e-mail correspondence.

have a better all-things-considered claim on the use of Ockham's Razor than reductionists. In any case, quite apart from the somewhat controversial issue of how correctly to apply Ockham's Razor in philosophical explanations and theories, I also think that there is a much deeper problem here that Mathematical Psychologism needs to face up to, and, by implication, that both Scientific Naturalism in general and X-Phi in particular need to face up to, in view of the fact that all tokens of human cognitive process-types in basic arithmetic are also constructive finitist proofs in Primitive Recursive Arithmetic,[76] which in turn is a necessary proper part of Peano Arithmetic.

Here is what I mean by all that. Peano Arithmetic is defined by the following five axioms:

(1) 0 is a number,
(2) the successor of any number is a number,
(3) no two numbers have the same successor,
(4) 0 is not the successor of any number, and
(5) any property which belongs to 0, and also to the successor of every number which has the property, belongs to all numbers,

together with the primitive recursive functions. Primitive recursive functions are the basic calculations or basic operations over the natural numbers—the successor function, addition, multiplication, exponentiation, and so on. More precisely then, Primitive Recursive Arithmetic is the fundamental fragment of Peano Arithmetic that contains the quantifier-free theory of the natural numbers and the primitive recursive functions. Or otherwise put, Primitive Recursive Arithmetic is the *basic arithmetic* that is properly embedded within *elementary arithmetic* or Peano Arithmetic. Primitive Recursive Arithmetic or the basic arithmetic, in turn, is consistent, complete, sound, and decidable, and thereby has all the primitive "logical perfections." This is sharply unlike Peano Arithmetic or elementary arithmetic, which, as Gödel's incompleteness theorems show, is (i) consistent if and only if it is incomplete, and (ii) such that its ground of truth must lie outside of the system of Peano Arithmetic itself.[77]

Granting that Primitive Recursive Arithmetic is objectively necessarily true and has all the primitive "logical perfections," then the much deeper problem for Mathematical Psychologism, Scientific Naturalism, and X-Phi alike is this. Consider the following basic authoritative philosophical rational intuition, which I will somewhat long-windedly call **The Essential Reliability of Basic Authoritative Rational Intuitions in Basic Arithmetic**:

At least some of the truths of Primitive Recursive Arithmetic are actually known and also repeatedly knowable a priori by basic authoritative rational intuitions, on the basis of Hilbert-style basic objects of finitistic mathematical reasoning.

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[76] See Skolem, "The foundations of elementary arithmetic established by means of the recursive mode of thought, without the use of apparent variables ranging over infinite domains"; Parsons, *Mathematical Thought and Its Objects*, chs. 5 and 7; Tait, "Finitism"; Tait, "Gödel on Intuition and on Hilbert's Finitism,"; Tait, "Remarks on Finitism"; and Troelstra and van Dalen, *Constructivism in Mathematics: An Introduction*, pp. 120–26.

[77] See, Gödel, "On Formally Undecidable Propositions of *Principia Mathematica* and Related Systems."

Our intuitional epistemic access to these Hilbert-style basic objects is through our cognitive generation, scanning, reproduction, and manipulation of veridical schematic imagery—sensible forms in Kantian pure or a priori intuition via the "productive imagination." In this way, **The Essential Reliability of Basic Authoritative Rational Intuitions in Basic Arithmetic** captures a specifically Kantian intuitionist interpretation of William Tait's deeply important philosophical insight about the doctrine of mathematical finitism (which says that there exist only finitary mathematical objects), that I have already quoted as the fifth epigraph of this chapter:

[A]lthough we cannot speak of the absolute security of finitism, there is a sense in which we can speak of its *indubitability*. That is, any nontrivial reasoning about number will presuppose finitist methods, and there can be no preferred or even equally preferable method from which to launch a critique of finitism. In other words, it is simply pointless to doubt it.[78]

Now in giving natural scientific explanations and justifications of *any* kind, including all natural-scientific explanations and justifications of mathematics—for instance, in Mathematical Psychologism, and in X-Phi as applied to mathematical intellectual seemings or mathematical armchair judgments (or dispositions so to judge)—we actually presuppose and use mathematics, and in particular Peano Arithmetic, especially including Primitive Recursive Arithmetic. As a direct consequence of this circularity, it follows that *either* (1) mathematics, and in particular Peano Arithmetic, especially including Primitive Recursive Arithmetic, is just inexplicable and unjustifiable, *or else* (2) we actually presuppose ("take as default-reasonable") at least one basic authoritative philosophical intuition, namely **The Essential Reliability of Basic Authoritative Rational Intuitions in Basic Arithmetic**. But presupposing **The Essential Reliability of Basic Authoritative Rational Intuitions in Basic Arithmetic** entails that mathematics and in particular Peano Arithmetic, especially including Primitive Recursive Arithmetic, is inexplicable and unjustifiable by means of natural science alone. At the same time, Peano Arithmetic can indeed be adequately explained and justified, but only by appealing to properties that are not (merely) second-order physical (functional) properties or fundamental physical properties, to evidence that is not (merely) empirical, and to methods of inquiry that extend beyond those of the natural sciences, even though they also include those of the natural sciences. Hence Scientific Naturalism, Mathematical Psychologism, radical skepticism about rational intuitions generally, radical skepticism about philosophical rational intuitions specifically, and X-Phi are all false. In other and fewer words, either mathematics is inexplicable and unjustifiable, or else Scientific Naturalism, Mathematical Psychologism, radical skepticism about rational intuitions, and X-Phi are all false.

I call this *The Mathematico-Centric Predicament* because it is relevantly similar to another important circularity problem in the philosophy of the formal sciences that we have already encountered in chapters 1, 4, and 5, namely, Sheffer's problem of *The Logocentric Predicament*:

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[78] Tait, "Finitism," p. 546.

The attempt to formulate the foundations of logic is rendered arduous by a . . . "logocentric" predicament. In order to give an account of logic, we must presuppose and employ logic.[79]

And here again is my slightly more explicit reformulation of Sheffer's deep worry:

In order to explain or justify logic, logic must be presupposed and used. As a direct consequence of this circularity, it seems to follow that logic is inexplicable and unjustifiable.[80]

The Logocentric Predicament forces philosophers of logic to face up to the task of explaining and justifying logic. Correspondingly, The Mathematico-Centric Predicament forces defenders of Scientific Naturalism in general, Mathematical Psychologism more specifically, and X-Phi in particular to face up to the fact that it is pragmatically self-contradictory and rationally self-stultifying for them to attempt to explain and justify mathematics and in particular Peano Arithmetic, especially including Primitive Recursive Arithmetic, without *also* actually presupposing ("taking as default-reasonable") at least one basic authoritative philosophical intuition—**The Essential Reliability of Basic Authoritative Rational Intuitions in Basic Arithmetic**. But presupposing **The Essential Reliability** entails the falsity of Scientific Naturalism, Mathematical Psychologism, radical skepticism about rational intuitions generally, radical skepticism about philosophical rational intuitions specifically, and X-Phi alike.

It seems to me obvious that defenders of Scientific Naturalism, Mathematical Psychologism, and/or X-Phi will not want to hold that Peano Arithmetic, especially including Primitive Recursive Arithmetic, is inexplicable and unjustifiable. How could they plausibly claim that "3+4=7" or any other part of Primitive Recursive Arithmetic, is inexplicable or unjustifiable, in view of the fact that they are already actually presupposing and using it in their cognitive-neuroscientific or otherwise experimental attempts to explain and justify mathematics by means of the natural sciences?

I have just indicated the relevant similarity between The Mathematico-Centric Predicament and The Logocentric Predicament. But there is also a certain dissimilarity between them that is important, and needs to be made explicit. The Logocentric Predicament starts from the premise that in order to explain or justify logic, logic must be presupposed and used. But I am not making an exactly parallel claim about mathematics and in particular Peano Arithmetic, especially including Primitive Recursive Arithmetic. In principle, you could at least try to explain or justify mathematics without actually presupposing or using Peano Arithmetic or Primitive Recursive Arithmetic. You could at least try to explain or justify mathematics by using pure logic alone, without any appeal whatsoever to the primitive recursive functions. In particular, that would mean trying to explain or justify mathematics without any appeal whatsoever to counting or enumeration, including equinumerosity. You could not even appeal rationally to calculations by means of an abacus, your fingers, or Hilbert-style stroke diagrams. Even the most radical Logicists have

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[79]   Sheffer, "Review of *Principia Mathematica*, Volume I, second edition," p. 228.
[80]   See Hanna, *Rationality and Logic*, ch. 3.

never tried to do that. But it is not impossible to try. It is just pragmatically self-contradictory and rationally self-stultifying.

The Mathematico-Centric Predicament should also be carefully distinguished from the well-known Quine-Putnam *Indispensability Argument* for the existence of numbers and other mathematical entities.[81] This argument says that mathematics is indispensable for the natural sciences, and that therefore numbers and other mathematical entities exist. I am not arguing that mathematics and in particular Peano Arithmetic, especially including Primitive Recursive Arithmetic, is indispensable for the natural sciences, and that therefore mathematics must be presupposed and used. So I am also not thereby arguing for the existence of numbers and other mathematical entities. The Indispensability Argument may or may not be sound, and in this book I am taking no stand on that. Indeed, there seems to be good reason to believe that the long and heated debate about The Indispensability Argument has unfruitfully diverted philosophers of mathematics into a three-forked cul de sac, with *indispensabilist platonists* ending up in one dead-end fork, *dispensabilist nominalists* ending up in another, and *indispensabilist non-platonists* ending up in yet another. And presumably, someone could also consistently defend *dispensabilist platonism* and run the debate into yet another dead-end fork, just by conceding dispensability and then proposing a different and more direct argument for platonism.

What I am arguing, by contrast, is that mathematics and in particular Peano Arithmetic, especially including Primitive Recursive Arithmetic, is in fact presupposed and used in the actual current practice of the natural sciences. No one could deny this. But since mathematics and in particular Peano Arithmetic, especially including Primitive Recursive Arithmetic, is in fact presupposed and used in the actual current practice of the natural sciences, then either this actual presupposing and using is inexplicable and unjustifiable, or else it presupposes ("takes as default-reasonable") at least some essentially reliable basic authoritative philosophical intuitions—for example, **The Essential Reliability of Basic Authoritative Rational Intuitions in Basic Arithmetic**. Therefore it is explicable and justified only by something beyond the natural sciences themselves, so that Scientific Naturalism, Mathematical Psychologism, radical skepticism about rational intuitions generally, rational intuitions about philosophical rational intuitions only, and X-Phi are all self-refutingly false. That is The Mathematico-Centric Predicament.

Moreover, it is also just a fact that primitive recursive functions are presupposed and used in the actual current practice of computability theory. This occurs via The Church-Turing Thesis, which says that effective decidability is the same as general recursiveness, and that all general recursive functions are Turing-computable.[82] That doctrine, in turn, is actually and highly successfully applied in the real-world construction of mainframe and desktop computers, laptop computers, the Internet, iPods, iPads, iPhones, other "smart" phones, regular cell or mobile phones, and so on, and so on. At least some of these, I am sure, are used on a daily basis by all contemporary Scientific Naturalists, Mathematical Psychologicists, and Experimental

[81] See, e.g., Colyvan, "Indispensability Arguments in the Philosophy of Mathematics"; Putnam, *Philosophy of Logic*, ch. 5; and Shapiro, *Thinking about Mathematics*, pp. 212–20.
[82] See, e.g., Boolos and Jeffrey, *Computability and Logic*, chs. 1–8.

Philosophers. So it is very hard to see how defenders of radical skepticism about rational intuitions generally or radical skepticism about philosophical rational intuitions specifically could ever provide an "error-theory" for our knowledge of Peano Arithmetic and Primitive Recursive Arithmetic, without pragmatic self-contradiction and rational self-stultification—without committing cognitive suicide, and without doing something that is categorically cognitively impermissible.

7.7 Conclusion

In other words, The Mathematico-Centric Predicament decisively shows us that Scientific Naturalism, Mathematical Psychologism (as a sub-species of Scientific Naturalism), radical skepticism about rational intuitions generally, radical skepticism about philosophical rational intuitions only, and X-Phi (as a sub-species of Scientific Naturalism and Mathematical Psychologism alike) are all false. This is so, even despite the fact that X-Phi is always relevant to the philosophy of mind and knowledge, and also interesting and illuminating in its own right. But we must keep our attention focused on what is true, and not merely on what is relevant to some or another sub-part of philosophy, and in itself interesting and illuminating. Correspondingly then, and most importantly, this five-part negative result collectively provides a sufficient reason for holding that not only preservationism about rational intuitions generally, but also preservationism about philosophical rational intuitions specifically, are both true. That being so, what we now urgently need is an adequate general theory of rational intuitions and a priori knowledge. The urgency is provided by The Benacerraf Dilemmas. In particular, The Generalized Benacerraf Dilemma shows us that what is at stake is the nature and sustainability of philosophy itself.

8

Rationalism Regained 3
Kantian Structuralism and Kantian Intuitionism

Number ... is a representation that summarizes the successive addition of one homogenous unit to another. Number is therefore nothing other than the unity of the synthesis of the manifold of a homogeneous intuition in general, because I generate time itself in the apprehension of the intuition.

(*CPR* A142–143/B182)

Time provides a universal source of models for the numbers.... What would give time a special role in our concept of *number* which it does not have in general is not its necessity, since time is in some way necessary for all concepts, nor an explicit reference to time in numerical statements, which does not exist, but its sufficiency, because the temporal order provides a representative of the number which is present to our consciousness if any is present at all.

—C. Parsons[1]

8.0 Introduction

Bounded in a nutshell, here is my four-step solution to The Original Benacerraf Dilemma. (1) According to Weak or Counterfactual Transcendental Idealism, manifestly real nature necessarily conforms to the innate structure of the rational human mind. (2) Now Peano Arithmetic and Primitive Recursive Arithmetic alike both constitutively depend on formal autonomous essentially non-conceptual temporal representations that are directly given in the phenomenology of sense perception. (3) This, in turn, is because the formal representation of phenomenal time displays to us the basic structure of the natural numbers and the primitive recursive functions over them, as really possible finitary counting sequences constituting proper parts of infinitary models of the numbers. (4) Therefore we can High-Bar a priori know basic mathematical structures in the world via authoritative rational intuition, by self-consciously and logically thinking about mathematical structures isomorphic to the formal structures of our sense perception, and by generating, scanning, reproducing, and manipulating veridical schematic mental imagery that is also isomorphic to those mathematical structures.

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[1] Parsons, "Kant's Philosophy of Arithmetic," p. 140.

The key to achieving this positive or anti-skeptical, innatist, rational-intuitionist solution to The Original Benacerraf Dilemma is precisely how one decides to interpret step (4) in my step-by-step reconstruction of The Dilemma (see section 6.1), which says:

(4) Given (1) and (3), our standard, uniform semantics of truth in natural language, as applied to true mathematical statements, commits us to a necessary-truth-making ontology of abstract mathematical objects and also to the non-empirical knowability of these statements.

It is very natural, and all-too-easy, to interpret the notion of "a necessary-truth-making ontology of abstract mathematical objects" in terms of classical platonism. Classical platonism about mathematics says that mathematical objects, which are the "necessary-truth-makers of mathematical statements, have a mind-independent, substantial existence in a separate non-spatiotemporal, non-natural, non-sensory, causally irrelevant, and causally inert realm, that these objects have intrinsic non-relational properties, and that the natures of these objects are strictly determined by their intrinsic non-relational properties—by their "real essences." In short, classical platonism interprets mathematical objects as what Kant would have called "things"-in-themselves or "noumena" in the positive sense of that term (*CPR* Bxx–xxii, A27–30/B44–45, A235–260/B295–315). To be sure, were Kantian things-in-themselves or noumena to exist, some of them—for instance, God and noumenal finite rational agents—would have absolutely spontaneous, non-spatiotemporal, essentially mysterious causal powers. But that is not true of, for example, platonic Forms or Ideas. So although all classically platonically abstract entities are also things-in-themselves/noumena, and although all the properties of classically platonically abstract entities are found in all things-in-themselves/noumena, some of the properties of some things-in-themselves/noumena are not realized in every platonically abstract entity.[2] Classical platonic abstractness is therefore the broader or more inclusive ontic category.

Nevertheless, this classical platonist interpretation of the necessary-truth-making ontology of abstract mathematical objects postulated in step (4) is precisely *the snake in the Garden of Eden*, by which I mean that I think that this interpretation is precisely the false and vitiating assumption that leads inevitably to The Original Benacerraf Dilemma and to skepticism about mathematical knowledge. The Original Benacerraf Dilemma's problem about mathematical objects lies not in their abstractness as such, since that is precisely what prevents their being necessarily or constitutively determined by contingent natural objects and facts, and also guarantees the apriority and necessity of the necessarily true statements whose necessary-truth-makers they are. Instead, the problem lies in their causally irrelevant and *noumenal* character, since that is what ontologically alienates them from the spacetime natural world of causally efficacious processes and conscious, cognizing animals. So I hereby reject the noumenal ontology of classical platonism, and along with it, I also reject the classical platonic conception of abstractness.

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[2] See Hanna, *Kant, Science, and Human Nature*, esp. chs. 1–4, 6, and 8.

In place of classical platonic abstractness, as I mentioned in section 6.0, I want to substitute a non-platonic, Kantian conception of abstractness, which says this:

X is abstract if and only if X is not uniquely located and realized in actual spacetime, and X is concrete otherwise.

By "X is uniquely located and realized in actual spacetime," I mean that X is exclusively embodied or incarnated *at* and exclusively embodied or incarnated *in*, and thereby fully occupies, one and only one actual spacetime volume. Then this conception of abstractness is saying that something is concrete if and only if it is uniquely located and realized in actual spacetime, and abstract otherwise.

According to this non-platonic, Kantian conception of abstractness, whatever is *multiply located and multiply realized* is abstract, which seems fully plausible insofar as it captures one classical function of abstracta. Hence inherently repeatable items, types as opposed to tokens, patterns of all kinds, structures of all kinds, and universals of all kinds, are abstract.

Furthermore, according to this conception of abstractness, whatever is *non-actual* is abstract, which again seems fully plausible insofar as it captures another classical function of abstracta. Thus, whatever is merely possible, fictional, counterfactually necessary, or in any other way necessary is also abstract.

And finally, according to this conception of abstractness, whatever is *non-spatiotemporal* is abstract, which again seems fully plausible insofar as it captures yet another classical function of abstracta. So, for instance, platonic abstracta, immortal souls or spirits, monads, and all the other sorts of things-in-themselves/noumena, were they to exist—all of which, I think, we must remain radically agnostic about, in that we know a priori that we cannot know or prove whether they exist or not—would also all count as abstract.

Correspondingly, in one or another of these ways, according to any classical doctrine of the nature of God, including Spinoza's pantheistic conception, were God to exist, then God would also count as abstract, which seems entirely plausible too, since construing God as concrete implausibly reduces God's transcendent nature to finite, material objects, properties, or facts.

As I also mentioned in section 6.0, it is to be especially noted that this non-platonic, Kantian conception of abstractness in fact includes the classical platonic conception of abstractness, under the special constraint of radical agnosticism about the existence or non-existence of classically platonic or noumenal abstracta; but it is also significantly less restrictive than the classical platonic conception, in that it includes the several classical functions of abstracta as *disjunctive* criteria for abstractness, not *conjunctive* criteria. It is thereby also robustly non-dualistic, because, for instance, the Equator (as multiply located and multiply realized) plausibly counts as abstract according to it. Yet the Equator obviously still actually exists in the natural spacetime world, since I and many other people, vehicles, and non-human animals have actually crossed it. Furthermore, this non-platonic, Kantian conception of abstractness is thereby also fully compatible with causal relevance, since, for instance, functional organizations (say, computer programs or economic systems) all count as abstract according to it, and all such organizations, when implemented, are causally relevant, even if they are not themselves causally efficacious.

Let us assume, then, both the rejection of the noumenal ontology of classical platonism and its needlessly restrictive and metaphysically mysterious platonic conception of abstractness, and also the latter's replacement by the much more open-textured, epistemically user-friendly, and metaphysically user-friendly, non-platonic, Kantian conception of abstractness, as starting points. Thus my positive or anti-skeptical, innatist, intuition-based solution to The Benacerraf Dilemma(s), as I previewed it in section 6.1, has two parts: (1) Kantian Structuralism, and (2) Kantian Intuitionism. In the next section, I will develop and defend Kantian Structuralism. Then I will go on to develop and defend Kantian Intuitionism in section 8.2. In section 8.3, I will critically compare and contrast Kantian Structuralism and Kantian Intuitionism with Charles Parsons's theory. In section 8.4, I will work out a positive or anti-skeptical, innatist, rational-intuition-based solution to The Extended Bena-cerraf Dilemma, and then generalize that solution to The Generalized Benacerraf Dilemma in section 8.5. As I noted in section 6.0, my argument for the existence of basic authoritative philosophical rational intuitions, and also my explanation for how they are possible, jointly naturally emerge from the modal epistemology of rational intuitions in mathematics and logic. I will also unpack this argument explicitly in section 8.5, and finally sum things up in section 8.6.

8.1 Kantian Structuralism

Mathematical Structuralism is an explanatory metaphysical thesis in the philosophy of mathematics that has been defended, for example, by Benacerraf himself,[3] by Michael Resnick,[4] by Stewart Shapiro,[5] and most recently by Charles Parsons.[6] This thesis says that mathematical entities (e.g., numbers or sets) are not ontologically autonomous or substantially independent objects, but instead are, essentially, *positions* or *roles* in a mathematical structure, where a mathematical structure is a complete set of formal relations and operations that collectively define a mathemat-ical system. What counts as an individual object of the system is thereby uniquely determined by the system as a whole—that is, any such individual object is identical to whatever possesses a specific set of intrinsic structural system-dependent proper-ties. So every individual object of the system is essentially a role in the relevant mathematical system, and thus it is also metaphysically dependent, necessarily or constitutively determined by, and indeed strongly supervenient on or grounded by the whole system.

Mathematical Structuralism yields two significant philosophical payoffs.

First, Mathematical Structuralism gets between *the rock* of platonism and *the hard place* of nominalism, because according to Mathematical Structuralism mathematical objects are metaphysically absorbed into mathematical structures, hence they lack independent, substantial existence (contra platonism). Yet it is also not true that

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[3] Benacerraf, "What Numbers Could Not Be."   [4] Resnick, *Mathematics as a Science of Patterns.*
[5] See Shapiro, *Philosophy of Mathematics: Structure and Ontology*; and Shapiro, *Thinking about Mathematics*, ch. 10.
[6] See Parsons, *Mathematical Thought and Its Objects*, esp. chs. 3, 5–6, and 9.

there are no mathematical objects (contra nominalism), since the objects continue to exist in a theoretically transformed way *as* positions or roles in the structure.

Second, because according to Mathematical Structuralism the mathematical objects, as embedded in the relevant mathematical structure, continue to have whatever metaphysical status the relevant embedding structure has, then there is no longer any serious metaphysical "identity problem" about precisely which objects should be identified with the natural numbers. This is because we look to the embedding structures and not to the objects themselves for any relevant metaphysical identity conditions.

In a way that is highly analogous to Functionalism in the philosophy of mind,[7] there are at least two distinct ways we can interpret Mathematical Structuralism. On the one hand, we can identify mathematical objects with *the roles* determined by the mathematical system as a whole. Or, on the other hand, we can identify mathematical objects with *the role players* of the mathematical roles determined by the system as a whole. Which interpretation of Mathematical Structuralism should we accept?

In the analogous case of Functionalism in the philosophy of mind, I think that there is good reason to take the Role-Player interpretation seriously because we believe that it is intuitively plausible to identify a mind with whatever it is that actually does all the causally efficacious things that cognitive systems are empirically known to do, and not merely to identify it with the set of causally relevant abstract patterns or rules that actual cognitive systems follow or instantiate. If a mind were merely identical with a set of causal-functional roles, then it would be open to the classical inverted qualia argument, Searle's Chinese Room argument, and Block's Chinese Nation argument (aka "the absent qualia argument").[8] And if the Roles interpretation were true, then there is also the deeper worry that causal relevance does not entail causal efficacy,[9] which yields the unhappy result that even the representational mind would be epiphenomenal—supposedly real, over and above the first-order, fundamental properties of the physical world, yet causally inert and to that extent, arguably, unreal.

Correspondingly, and now to use an everyday non-philosophical, non-scientific analogy, it seems clearly and distinctly right to say that an ice hockey player is a person who actually and in a causally efficacious way does all the things that hockey players are supposed to do, according to the rules of ice hockey. So obviously, a real hockey player is not merely the same as a set of causally relevant abstract rules that hockey players follow or instantiate.

Consequently, if we want minds to be real causal vital engines, in physical nature, not to mention being really capable of consciousness or subjective experience in addition to mental representation or intentionality, then I think that we should defend a dual Roles interpretation and Role-Player interpretation of Functionalism,

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[7] See, e.g., Armstrong, *A Materialist Theory of the Mind*; Block, "Troubles with Functionalism"; Braddon-Mitchell and Jackson, *Philosophy of Mind and Cognition*, esp. chs. 3, 5, 7, and 15; Kim, *Philosophy of Mind*, chs. 5–6; Lewis, "An Argument for the Identity Theory"; Lewis, "Psychophysical and Theoretical Identifications"; and Lewis, "Reduction of Mind."

[8] See Block, "Troubles with Functionalism"; see also Searle, *Minds, Brains, and Science.*

[9] See, e.g., Jackson, "Mental Causation."

as opposed to a Roles interpretation alone or a Role-Player interpretation alone.[10] We should say that for some rational purposes, the mind should be identified with functional roles, and also that for other rational purposes, the mind should be identified with the role-players of the roles.

By analogy, then, and for essentially the same basic reasons, I will adopt a dual Roles interpretation and Role-Player interpretation of Mathematical Structuralism, as opposed to a Roles interpretation alone or a Role-Player interpretation alone. To be sure, we want the natural numbers to be identified for many rational purposes with their abstract roles in the denumerable infinitary mathematical structure of Peano Arithmetic, or elementary arithmetic, especially including the finitary sub-structure of Primitive Recursive Arithmetic, or the basic arithmetic. But for other rational purposes we also want the unique, intended model (the one and only real truth-maker) of infinitary Peano Arithmetic, especially including the finitary sub-structure of Primitive Recursive Arithmetic, to be consciously knowable according to a reasonable epistemology, which is the direct analogue of an adequate response to the problem of qualitative conscious experience for the Roles interpretation of Functionalism.[11] We also want natural numbers and true statements about natural numbers to be applicable to the actual spacetime world, which is the direct analogue of an adequate response to the problem of epiphenomenalism for the Roles inter-pretation of Functionalism.[12]

So as I see it, Mathematical Structuralism should hold that mathematical objects are essentially the same, for some rational purposes, as the roles in a given mathem-atical structure, and also essentially the same, for some other rational purposes, as the role players of the specific mathematical roles in a given mathematical structure, and not reducible either to those roles themselves or to the role-players themselves. The roles tell us precisely what will count as the unique intended model of that non-platonic, Kantian abstract mathematical structure. But they neither exhaust the total nature of the mathematical objects nor do they eliminate the objects altogether. The mathematical objects are necessarily or constitutively determined by the non-platonic, Kantian abstract structure as regards the precise roles they play. But they are also something over and above the non-platonic, Kantian abstract structure as regards their role-player status. Different objects can play the same mathematical roles; the same objects can play different mathematical roles; and as a consequence, there is no intelligible worry whether the natural number 12 is the same as or different from the real number 12. This metaphysical dependency relation between non-platonic, Kantian abstract mathematical structures and mathematical objects in

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[10] This is not to say that I am a Functionalist about the mind—I'm not—although I do also defend a version of non-reductive Functionalism about the living body. See Hanna and Maiese, *Embodied Minds in Action*, ch. 8. But if I *were* a Functionalist about the mind, then I would also adopt an interpretation of it that equally emphasizes functional roles and role-players.

[11] This is also not to say that I think that qualia exist—I don't, and in fact I am a qualia eliminativist—although I do also defend the existence of intrinsic structural *phenomenal characters*. See Hanna and Maiese, *Embodied Minds in Action*, chs. 1–2.

[12] The standard responses to the epiphenomenalism problem are Causal Overdeterminationism and Reductionism. I reject both of these, and defend a non-reductive *jointly sufficient cause* solution to the problem of mental causation. See Hanna and Maiese, *Embodied Minds in Action*, chs. 6–7.

Mathematical Structuralism thereby provides a precise analogue of natural or nomological strong supervenience or grounding, as opposed to either "downwards type-type identity" or logical strong supervenience—in either case, reduction—in the philosophy of mind.

An important and secondary meta-philosophical payoff of this way of thinking about Mathematical Structuralism is the theoretically fruitful recognition that the philosophy of mind and the philosophy of mathematics are not only formally analogous to one another in certain ways, but also necessarily connected to one another in certain ways, and indeed ultimately connected to one another via Weak or Counterfactual Transcendental Idealism.[13]

But the primary and first-order philosophical payoff of this way of thinking about Mathematical Structuralism is its application to The Original Benacerraf Dilemma. The Original Benacerraf Dilemma clearly and distinctly shows us that we do not want numbers to be the kind of abstract entities that are non-spatiotemporal, non-natural, non-sensory, causally irrelevant, causally inert, unknowable things-in-themselves, and thereby wholly alienated from the actual spacetime world of concrete events, forces, processes, minds, bodies, and minded bodies, lest we render both necessary mathematical truth and also human a priori knowledge impossible. Or otherwise and more positively put, The Original Benacerraf Dilemma clearly shows us that the abstractness of the numbers must somehow correlate directly and intrinsically with what is humanly consciously-knowable according to a reasonable epistemology. This is possible, I think, if (and indeed also only if) the abstractness of the numbers is not the noumenal, platonic abstractness of independent substances in an ontologically separated, causally irrelevant, causally inert, non-spatiotemporal, non-natural, non-sensory realm. Instead it is nothing more and nothing less than the non-platonic, Kantian abstractness of the roles in a non-empirical or a priori humanly consciously-knowable, cognitively-accessible mathematical structure. More precisely, on this philosophical picture, the natural numbers are abstract because they are essentially roles in a weakly or counterfactually transcendentally ideal mathematical structure.

What does it mean to say that the denumerable infinitary natural number structure provided by Peano Arithmetic, especially including the finitary sub-structure of Primitive Recursive Arithmetic, is weakly or counterfactually transcendentally ideal? It is just to say that synthetic a priori necessarily, to the extent that this mathematical structure is immanent in the manifest natural world, then were some rational human cognizers to exist in that world, they would directly and veridically cognize that structure, as represented by either autonomous essentially non-conceptual content or conceptual content, at least to some extent.

In other words, then, I am proposing a specifically non-platonic, Kantian, and Weak or Counterfactual Transcendental Idealist version of what Parsons calls "non-eliminative structuralism."[14] Even more specifically, however, I am proposing that the natural numbers are essentially the same, for some rational purposes, as roles in

[13] See, e.g., Hanna, "Logic, Mathematics, and the Mind: A Critical Study of Richard Tiezen's *Phenomenology, Logic, and the Philosophy of Mathematics*."

[14] Parsons, *Mathematical Thought and Its Objects*, pp. 100–16.

the infinitary abstract mathematical structure provided by Peano Arithmetic, especially including the finitary sub-structure of Primitive Recursive Arithmetic, when this is interpreted as a certain kind of non-empirical or a priori humanly consciously-knowable, cognitively-accessible structure. I am also proposing that the numbers are essentially the same, for other rational purposes, as the role players of the natural number roles in the manifestly real, actual natural spacetime world. This is to say that the natural numbers are just the set of manifestly real, directly and veridically sense-perceivable material objects in actual natural spacetime, insofar as they fall under, and are immanently structured by, infinitary Peano Arithmetic and its finitary proper part Primitive Recursive Arithmetic, the finitist arithmetic[15] of the natural numbers. I will come back to this thesis again shortly.

Even if we have decided to adopt a dual Roles and Role-Players interpretation of structuralism, there are also several further basic distinctions between different kinds of Mathematical Structuralism that need to be made more explicit. The two main divisions are these: (1a) *Reductive* Structuralism vs. (1b) *Non-Reductive* Structuralism, and (2a) *In Rebus* Structuralism vs. (2b) *Ante Rem* Structuralism.

Let me now spell out these divisions more explicitly. (1a) Reductive Structuralism, as I am construing it, says that the objects of the mathematical system are either strictly identical with various elements and relations of the system or logically strongly supervenient on the whole system and thus nothing over and above the whole system. By contrast, (1b) Non-Reductive Structuralism says that the objects of the system are necessarily or constitutively determined by the whole system, but still something over and above the whole system, hence neither strictly identical with various elements and relations of the system nor logically strongly supervenient on the whole system.

In other words, the Reductive vs. Non-Reductive distinction applies to the objects of mathematical structural systems. Correspondingly, the Role-Players interpretation, on its own, entails Non-Reductive Structuralism, and the Roles interpretation, on its own, is consistent with both Non-Reductive Structuralism and Reductive Structuralism.

On the other hand, (2a) *In Rebus* Structuralism, as I am construing it, says that both the existence and specific character of the mathematical system are necessarily or constitutively determined by material things in the natural world, and that the systemic structures are not only literally proper parts of those material things but also ontologically non-detachable and epistemically non-abstractible from them. By contrast, (2b) *Ante Rem* Structuralism says that the existence and specific character of the system are neither necessarily nor constitutively determined by the existence of material things in the natural world, and that the systematic structures are both ontologically detachable and also epistemically abstractible from those material things, even if they are also literally proper parts of them.

In other words, the *In Rebus* vs. *Ante Rem* distinction applies not to the objects of mathematical structural systems, but instead to the structural systems themselves. For example, *In Rebus* Structuralism would be defended by a mathematical structuralist

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[15] See Tait, "Finitism"; and Tait, "Remarks on Finitism."

who is both a reductive or scientific naturalist and also an empiricist/nominalist, like Hartry Field[16] or Penelope Maddy.[17] By contrast, *Ante Rem* Structuralism would be defended by a mathematical structuralist who is both a classical platonist and also a realistic rationalist, like Shapiro.

Significantly, and perhaps because of the example set by Field, Shapiro identifies Reductive Structuralism with *In Rebus* Structuralism, and Parsons identifies both Reductive Structuralism and *In Rebus* Structuralism alike with what he calls "eliminative structuralism."[18] But strictly speaking, at least in principle, one could consistently defend both *In Rebus* Structuralism and also Non-Reductive (aka "non-eliminative") Structuralism. Consider, for example, a specifically *Wittgensteinian* Mathematical Structuralism,[19] in which numbers are identified with the entities that play the roles specified by living mathematical linguistic practices but not identified with those practice-specified roles, and in which those living mathematical linguistic practices themselves, conceived as rule-systems, are the enframing mathematical structural systems in which mathematical objects are embedded as the role-players of the roles in the structures. This Wittgensteinian Structuralism would be both *in rebus* and non-reductive. I am not going to defend Wittgensteinian Structuralism. But the very possibility of it does have a relevant bearing on the Kantian intuitionist theory of mathematical a priori knowledge that I will defend in sections 8.2 and 8.3, because I do think that mathematical knowledge is partially determined by living mathematical linguistic practices, even if mathematical truth is not so determined.

The brand of Structuralism I am proposing, Kantian Structuralism, is a non-platonic, Kantian abstractionist, hence *ante rem*, and also non-reductive version of Mathematical Structuralism, that also presupposes Weak or Counterfactual Transcendental Idealism. More specifically, it is based on (i) the non-platonic, Kantian abstract formal structures of space and time as we directly and veridically cognize them in Kantian pure or a priori intuition, via formal autonomous essentially non-conceptual content, together with (ii) formal concepts, including the ramified abstract formal structures of classical logic and conservative extensions of it, as we understand them in thinking. Otherwise put, Kantian Structuralism takes the

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[16] See, e.g., Field, *Science without Numbers: A Defense of Nominalism*; and Field, *Realism, Mathematics, and Modality*.

[17] See, e.g., Maddy, *Second Philosophy*, part IV. Maddy's philosophy of logic is, in effect, the reversed image of Kantian Structuralism. Her thesis is that rational human minds cognitively conform to the logical structures of the non-microphysical or manifest parts of natural "Kant-Frege" worlds (*Second Philosophy*, part III). By contrast, my thesis is that there are no such things as natural Kant-Frege worlds unless rational human animals are really possible. More precisely, a necessary condition of the existence and specific character of any natural Kant-Frege world is that if some rational human animals *were* to exist in that world, then they *would* be able to perceive it veridically, judge it truly, and believe true propositions about it with sufficient justification (i.e., know it), at least to some extent. Hence all K-F worlds manifestly and necessarily conform to the mental structures of the innately specified cognitive capacities of rational human animals, whether or not any rational human animals, or any other minded beings, happen to exist at any given time, or ever exist at all. Or in other words, Weak or Counterfactual Transcendental Idealism is true.

[18] Parsons, *Mathematical Thought and Its Objects*, pp. 80–100.

[19] See, e.g., Wittgenstein, *Remarks on the Foundations of Mathematics*.

necessity and apriority of mathematical truths at face value and then metaphysically explains those semantic features in terms of non-platonic, Kantian abstract and weakly or counterfactually transcendentally ideal spatiotemporal immanent structures of human sense perception, and non-platonic, Kantian abstract and weakly or counterfactually transcendentally ideal logical immanent structures of human theoretical rationality. Corresponding to these immanent structures, on the side of the rational human subject, we have (i) our innately specified cognitive capacity or competence for directly referential cognition, via formal autonomous essentially non-conceptual content (i.e., Kantian pure or a priori intuition), that veridically picks out those spatiotemporal immanent structures, (ii) our innately specified cognitive capacity or competence for the cognitive generation, scanning, reproduction, and manipulation of schematic mental imagery that veridically pick out Hilbert's basic objects of finitistic mathematical reasoning, and (iii) our innately specified cognitive capacity or competence for conceptual understanding or conceptual thinking, that veridically picks out those logical immanent structures.

It is particularly to be noted that because these weakly or counterfactually transcendentally ideal structures are immanent non-platonic, Kantian abstract structures in the manifestly real world, then Kantian Structuralism reaps all the theoretical benefits of *In Rebus* Structuralism, without also suffering any of its nominalist or reductive liabilities.

By sharp contrast to Kantian Structuralism, however, Field's and Maddy's Structuralism is both reductive and naturalistically *in rebus* because it says that numbers are nothing over and above their being positions in modal or physical structures, and also that mathematical truth is reducible to fundamental physical facts about the physical world. And by another sharp contrast to Kantian Structuralism, Shapiro's Structuralism is both reductive and platonically *ante rem* because it says that numbers are nothing over and above their being positions in non-modal structures, and also that mathematical truth is reducible to non-physical facts about non-spatiotemporal, non-natural, non-sensory, mind-independent, causally irrelevant, and causally inert platonically abstract structures.

The comparisons and contrasts between Kantian Structuralism and Parsons's version of Mathematical Structuralism are more domestic and subtle, however, and I will work them out in detail in section 8.3.

Here is the pith of what Kant himself says about the fundamental relationship between the pure formal intuitional representation of time and the concept of number:

[N]umber [is] a representation that summarizes the successive addition of one homogeneous unit to another. Number is therefore nothing other than the unity of the synthesis of the manifold of a homogenous intuition in general, because I generate time itself in the apprehension of the intuition. (*CPR* A142–143/B182)

Time is in itself a series (and the formal condition of all series). (*CPR* A411/B438)

Arithmetic attains its concepts of numbers by the successive addition of units in time. (*P* 4: 283)

Time [is] the successive progression as form of all counting and of all counting and of all numerical quantities; for time is the basic condition of all this producing of quantities. (*PC* 11: 208)

There is much here for Kant-interpreters to struggle with.[20] But for my purposes, this is what I take to be Kant's fundamental insight: The Kantian pure or a priori intuitional representation of time is the directly referential, non-logical representation, via formal autonomous essentially non-conceptual content, of an iterative sequence of homogeneous units that is inherently open to the primitive recursive functions. Such a structural representation originally picks out a generic form of finite sequences of perceptually experienced objects (say, fingers on a hand, or strokes on a page). But considered on its own, purely as a singular formal structure—via the "formal intuition" of time (*CPR* B 160 n.)—it can also apply to proper parts of infinite sequences or totalities. In turn, this representation provides a synthetic a priori necessary but not sufficient semantic condition for the representation of anything that will count as a number. Let us call this *Kant's Insight*. Now Ian Hacking has a very similar insight:

> The concept *natural number* cannot itself be categorically characterized in pure logic. We can only say that the natural numbers are those which come in the sequence 1, 2, 3, . . . We do have an intuition of this sequence. Perhaps, as Kant supposed, it is connected to the intuition of succession in time.[21]

And so does William Tait:

> We are considering the generic form of a finite sequence, Number. We discern finite sequences as such in our everyday experience and this is what gives meaning to Number in the broad sense: it is the source of our ability to apply the number concept. But Number also has a purely formal content, independent of our experiences. . . . This is why the number concept (in contrast with the concept of motion, for example, which also derives from a kind of structure discerned in experience) is a part of mathematics.[22]

Granting *Kant's Insight*, as supplemented by Hacking and Tait, I can now state more precisely what the thesis of Kantian Structuralism is with respect to infinitary denumerable Peano Arithmetic, especially including finitary denumerable Primitive Recursive Arithmetic. Correspondingly, I can also state the thesis with respect to the ontologically robust and impredicatively constructed conservative extensions of Peano Arithmetic, such as transfinite non-denumerable *Cantorian Arithmetic*.

(1) The natural numbers are essentially positions or roles in the mathematical natural number structure provided by Peano Arithmetic in its full generality and denumerable infinitude, beyond the denumerable finitary sub-structure provided by Primitive Recursive Arithmetic, *also* including ontologically robust, non-denumerable, and impredicatively constructed conservative extensions of Peano Arithmetic such as Cantorian Arithmetic.

(2) The Löwenheim-Skolem theorem, together with the Upward Löwenheim-Skolem theorem proved by Tarski, collectively show that Cantorian Arithmetic

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is a conservative extension of Peano Arithmetic, especially including Primitive Recursive Arithmetic, by showing

(i) that a first-order mathematical theory has non-denumerably infinite models if and only if it has denumerably infinite models, and

(ii) that a first-order mathematical theory has denumerably infinite models only if it has denumerably finite models.[23]

(3) The mathematical natural number structure provided by Peano Arithmetic (and Primitive Recursive Arithmetic and Cantorian Arithmetic) is abstract only in the non-platonic, Kantian sense that it is weakly or counterfactually transcendentally ideal. This is the same as to say that this structure is identical to the structure of the Kantian "formal intuition" of time—as an iterative sequence of homogeneous units that is inherently open to the primitive recursive functions—as we directly and veridically cognize it in Kantian pure or a priori intuition, as represented by formal autonomous essentially non-conceptual content. This content, in turn, must be taken together with all the formal concepts and other logical constructions, including specific logical inference patterns such as mathematical induction, needed for an adequate rational human comprehension of Peano Arithmetic (and Primitive Recursive Arithmetic and Cantorian Arithmetic), that we cognize through conceptual understanding or thinking.

(4) In our actual world, the unique, intended model of the non-platonic, Kantian abstract natural number structure provided by Peano Arithmetic (and Primitive Recursive Arithmetic and Cantorian Arithmetic) is just an immanent structure that is fully embedded in the set of manifestly real, directly and veridically perceivable spatiotemporal material objects in nature. This immanent structure determines how these material natural objects are the role players of the Peano Arithmetic-(and-Primitive Recursive Arithmetic-and-Cantorian Arithmetic)-specified natural number roles in the non-platonic, Kantian abstract formal structure of time as we directly and veridically cognize it in Kantian pure or a priori intuition, as represented by formal autonomous essentially non-conceptual content. This content, in turn, must be taken together with all the formal concepts and other logical constructions, including specific logical inference patterns such as mathematical induction, needed for an adequate rational human comprehension of Peano Arithmetic (and Primitive Recursive Arithmetic and Cantorian Arithmetic), that we cognize through conceptual understanding or thinking.

In this way, Kantian Structuralism adequately explains why something that is abstract, ideal, and necessary like Peano Arithmetic in its full generality and infinitude, beyond the finitist sub-structure provided by Primitive Recursive Arithmetic, and also including ontologically robust and impredicatively constructed conservative extensions of Peano Arithmetic such as Cantorian Arithmetic, can really and truly apply to the hurly-burly concrete, thoroughly nonideal, and contingent world of

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[23] See, e.g., Hunter, *Metalogic*, pp. 189–90 and 201–08.

rational human animals and other natural things and processes, and thereby really and truly apply to all the manifestly real, directly and veridically sense-perceivable material spatiotemporal objects in our actual world. For according to Kantian Structuralism, the formal structure of time as we directly and veridically cognize it in Kantian pure or a priori intuition, as represented by formal autonomous essentially non-conceptual content, is an immanent non-platonic, Kantian abstract structure of all manifestly real directly and veridically sense-perceivable material spatiotemporal objects in nature. Moreover, this directly and veridically cognizable immanent structure, when it is taken together with the weakly or counterfactually transcendentally ideal non-platonic, Kantian abstract formal structure of any classical logical system rich enough to capture Peano Arithmetic (and Primitive Recursive Arithmetic and Cantorian Arithmetic), that we cognize through conceptual understanding or thinking, *just is* the unique, intended model of Peano Arithmetic (and Primitive Recursive Arithmetic and Cantorian Arithmetic). So it follows with synthetic a priori necessity that Peano Arithmetic (and Primitive Recursive Arithmetic and Cantorian Arithmetic) apply to all manifestly real material spatiotemporal objects in nature.

Here, the abstractness, ideality, and necessity of Peano Arithmetic (and Primitive Recursive Arithmetic and Cantorian Arithmetic) is captured by the number roles in the composite system consisting of time-structure plus Peano Arithmetic (and Primitive Recursive Arithmetic and Cantorian Arithmetic)-structure, insofar as it can be conceptualized and understood by rational human minded animals. And correspondingly, the concreteness, nonideality, and contingency of the events, forces, processes, things, and people in the manifestly real natural world to which arithmetic applies is captured by the number role players in the composite system of humanly cognizable time-structure and humanly cognizable Peano Arithmetic (and Primitive Recursive Arithmetic and Cantorian Arithmetic)-structure. Therefore, the directly and veridically cognizable non-platonic, Kantian abstract time-structure is the weakly or counterfactually transcendentally ideal *metaphysical glue* that ineluctably binds Peano Arithmetic (and Primitive Recursive Arithmetic and Cantorian Arithmetic) to our manifestly real natural world. Or to re-use Parsons's apt phrase, quoted as the fifth epigraph of chapter 6, our pure or a priori intuition of this non-platonic, Kantian abstract time-structure is precisely what

get[s] us across the divide between the fuzzy *Lebenswelt* with its everyday objects and the sharp, precise realm of the mathematical, in terms of which mathematical conceptions of the physical world are developed.

Or still otherwise put, Kantian Structuralism effectively solves the classical *application problem* for the philosophy of arithmetic.[24]

So now, finally, I am in a position to solve The Original Benacerraf Dilemma by using Kantian Structuralism. I will begin by supposing that the two preliminary assumptions of The Original Benacerraf Dilemma are true, and that they express

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[24] See, e.g., Potter, *Reason's Nearest Kin*.

basic authoritative philosophical rational intuitions. That obviously satisfies steps (1) and (2) of The Dilemma.

But this move also obviously raises an important issue about the epistemic status of basic authoritative philosophical rational intuitions. What about the skeptical claims of those philosophers who in fact reject either of the two preliminary assumptions of The Original Benacerraf Dilemma? Since my view is that all basic authoritative rational intuitions are intrinsically compelling or self-evident, cognitively virtuous, and essentially reliable, then either (i) some basic authoritative philosophical rational intuitions are in fact *not* intrinsically compelling or self-evident, cognitively virtuous, and essentially reliable, and I am wrong about the nature of authoritative rational intuitions, or (ii) I am correct about the nature of authoritative rational intuitions, but wrong that the two preliminary assumptions of The Original Benacerraf Dilemma are in fact known or knowable by authoritative rational intuition, or (iii) these skeptical philosophers have so far failed to understand the meanings of these two preliminary assumptions, or (iv) these philosophers have so far failed to be sufficiently rationally reflective about the implications of the meanings of these two preliminary assumptions, and have thereby also so far failed successfully to undertake the intentional performance of rendering their cognition of these assumptions authoritative, hence their rational intuitions to the effect that these assumptions are false are merely prima facie intuitions and defeasible/fairly unreliable.

My two-part claim is that, in all likelihood, (iv) is true, and also that (i), (ii), and (iii) are all false. Obviously I am fully committed to the falsity of (i) and (ii) alike. Now the conditions under which possible cases of (iii), or a failure to understand the relevant meanings, could occur, include: agnosias or other cognitive disabilities, being drugged or drunk, cognitive immaturity, inattention, insanity, linguistic performance errors of an adventitious nature (brief slips of the eye or ear, or of the innate grammatical abilities for parsing verbal syntax or accessing one's lexicon/repertoire of concepts, etc.), seizures, sleepiness, and so on. In short, these would be cases in which the cognitive mechanisms of these philosophers are not functioning properly. But obviously those conditions are quite unlikely to hold for these philosophers in this particular connection: indeed, we can even reasonably assume that they fully understand the meanings of these preliminary assumptions.

By sharp contrast, however, the conditions under which possible cases of (iv), or insufficient rational reflectiveness about the relevant implications of the relevant meanings, could occur, are radically more sophisticated and subtle. They include all the characteristic stages of the dialectic of philosophical and scientific inquiry, short of the final, rationally conclusive stage. Such preliminary stages can involve: commission of any of the classical informal or formal logical fallacies, confusion, dogmatism, equivocation, ignorance of relevant facts, intellectual arrogance, intellectual laziness, sociological pressures arising from the institutionalization and professionalization of philosophy and science ("group-think"), unacknowledged false assumptions or presuppositions, uncharitableness of interpretation, and either unclarity or indistinctness of cognition more generally. But perhaps the most important and insidious error-causing condition of all is "being in the grip of a bad picture (*schlechtes Bild*)" in the later Wittgenstein's pregnant sense of that phrase:

112.   A simile that has been absorbed into the forms of our language produces a false appearance, and this disquiets us. "But *this* isn't how it is!"—we say. "Yet *this* is how it has to *be!*"

113. "But *this* is how it is"—I say to myself over and over and over again. I feel as though, if only I could fix my gaze absolutely sharply on this fact, get it in focus, I must grasp the essence of the matter.

114. . . . One thinks that one is tracing the outline of the thing's nature over and over again, and one is merely tracing round the frame through which we look at it.

115. A *picture* held us captive. And we could not get outside it, for it lay in our language and language seemed to repeat it to us inexorably.[25]

Bad philosophical pictures are critically unexamined basic concepts, together with corresponding schematic imagery, that lock philosophers into a certain confused way of looking at a philosophical issue or problem, so that conceptual progress on that issue or problem is rendered virtually impossible. A good example, taken from the philosophy of mind, is what, in section 1.4, I called The Cartesian Two Trains Picture, which, in turn, is itself merely an elaboration of Ryle's classical "ghost in the machine" picture. Conscious, cognizing minds are neither ghosts nor ghostly processes, and the bodies of conscious cognizing animals are neither mind-excluding machines nor mind-excluding machine-processes. Conscious, cognizing minds are nothing more and nothing less than irreducible global dynamic structures of suitably complex living organisms, and the primitive metaphysical fact is the minded animal.

The very idea of a bad philosophical picture entails a fundamental meta-philosophical distinction between (i) confusion-inducing or bad philosophical pictures, and (ii) clarity-inducing or good philosophical pictures, and points up their correspondingly seminal roles in philosophical reasoning. For the present purposes, it suffices to say that obviously I do think that the broadly Tarskian and minimal Empiricist reasons I cited in section 6.1 for accepting the two preliminary assumptions of The Original Benacerraf Dilemma are rationally conclusive, and that, in view of those reasons, both of these assumptions inherently express clarity-inducing or good philosophical pictures.

Now I will further suppose that Kantian Structuralism is true, and that it adequately explains the apriority and objective necessity of mathematical truth. This satisfies step (3) of The Original Benacerraf Dilemma.

This in turn allows me to re-interpret the realistic ontology of abstract objects described in step (4) of The Original Benacerraf Dilemma, as the weakly or counter-factually transcendentally ideal, non-platonic, Kantian abstract formal structure of time as we directly and veridically cognize it in Kantian pure or a priori intuition, as represented by formal autonomous essentially non-conceptual content, when taken together with the weakly or counterfactually transcendentally ideal, non-platonic, Kantian abstract formal structure of any classical logical system rich enough to capture Peano Arithmetic (and Primitive Recursive Arithmetic and Cantorian Arithmetic), insofar as it can be comprehended by rational human animals via conceptual

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[25] Wittgenstein, *Philosophical Investigations*, §§112–115, pp. 47[e]–48[e].

understanding or thinking. This dual non-platonic, Kantian abstract structure is itself of course causally non-efficacious or inert, which satisfies step (6) of The Dilemma.

But this dual non-platonic, Kantian abstract structure is also intrinsically temporal. And in our actual world it necessarily and constitutively determines the unique intended model of the natural number structure, which is the directly and veridically sense-perceivable manifestly real natural world of spatiotemporal objects in nature, just insofar as they are the role players of the Peano Arithmetic-(and-Primitive Recursive Arithmetic-and-Cantorian Arithmetic)-specified natural number roles in the non-platonic, Kantian abstract structure of time. This time-structure, in turn, is directly and veridically cognized in Kantian pure or a priori intuition, as represented by formal autonomous essentially non-conceptual content. So the dual non-platonic, Kantian abstract but also immanent structure consisting of the directly and veridically cognizable non-platonic, Kantian abstract formal structure of time, taken together with the formal logical structure of Peano Arithmetic (and Primitive Recursive Arithmetic and Cantorian Arithmetic) is causally relevant, even though it is not causally efficacious. Therefore, in our actual world the unique intended model (the one and only real truth-maker) of the natural number structure is identical to the manifestly real natural world of causally efficacious directly and veridically sense-perceivable real material spatiotemporal objects, just insofar as they actually exist in all and only the various formal configurations or patterns specified by the natural number structure. This obviously solves the application problem for Peano Arithmetic (and Primitive Recursive Arithmetic and Cantorian Arithmetic). And mathematical knowledge is thereby possible on the assumption that a "reasonable epistemology" of cognizing true (mathematical) statements is modelled on a theory of sense perception that includes

causally efficacious, contact-involving or efficient, directly referential, non-conceptual, non-inferential, and spatiotemporal relations between human linguistic knowers and the known objects themselves,

and thereby satisfies premise (5) of The Original Benacerraf Dilemma.

Hence, given Kantian Structuralism, then all of (1) to (6) are true under plausible interpretations of them, but the unacceptably skeptical conclusion of The Original Benacerraf Dilemma—step (7)—is clearly avoided, and mathematical knowledge is really possible after all. I will spell all this out more carefully in section 8.3, when I explicitly compare and contrast Kantian Structuralism and Kantian Intuitionism with Parsons's account.

It should be particularly re-emphasized here that I am construing the essentially reliable basic authoritative philosophical intuition lying behind Benacerraf's premise (2)—his assumption of a "reasonable epistemology"—to be best captured by the thesis that necessarily all human cognition "begins in" causally triggered, direct, non-conceptual, non-inferential sense perception of contingent natural objects or facts. But as Kant teaches us, even though all human cognition "begins in" causally triggered sense perception, it does not follow that all cognition "arises out of it,"—is either reducible to it, or otherwise either strongly supervenient on it or grounded by it. Hence explicitly adopting a theory of sense perception that necessarily includes a causal component, and thereby causally-and-empirically anchors all human

cognition in causally triggered, direct, non-conceptual, non-inferential sense percep-tion of the natural world, does not explanatorily or ontologically reduce all human cognition to causal or empirical factors, or otherwise entail the necessary or consti-tutive determination of human cognition by causal or empirical factors. So I am charitably interpreting Benacerraf as not embedding the causal dimension of his "reasonable epistemology" within any kind of reductive theoretical framework. No doubt, many (perhaps even most?) readers of "Mathematical Truth" have taken it in that reductive way. But on the contrary, what Benacerraf actually says is perfectly in line with Kant on this point. To postulate a necessary causal dimension in human knowledge is not thereby to assert a causal theory of human knowledge. The two are logically independent. Indeed, the former is true, but the latter is false.

Considered for a moment apart from its ability to help us achieve a positive solution to The Original Benacerraf Dilemma, and also apart from its ability to solve the classical application problem for arithmetic, what other good reasons could we have for defending Kantian Structuralism? There are at least five such reasons.

First, Kantian Structuralism offers a clean-and-simple solution to another import-ant problem described by Benacerraf. This problem flows from the fact that many different models satisfy the abstract structure of any logical system rich enough to express Peano Arithmetic, hence the second-order logic of Peano Arithmetic under-determines the identity conditions of the natural numbers.[26] Otherwise put, Bena-cerraf's other, non-Dilemma problem is that there seems to be in principle no way of determining or identifying just which of the many distinct models that satisfy the logic of Peano Arithmetic, is *really* the natural numbers. This is what Parsons calls the "multiple reduction" problem,[27] and what others, following Frege, have called the "Caesar" problem or the "Identification" problem.

According to Kantian Structuralism, however, the non-platonic, Kantian abstract formal structure of the asymmetric successively synthesized series of moments (or simple events) in time as we directly and veridically cognize it in Kantian pure or a priori intuition, as represented by formal autonomous essentially non-conceptual content, *just is* the unique, intended model of Peano Arithmetic (and Primitive Recursive Arithmetic and Cantorian Arithmetic). On this account, then, a "standard" model of Peano Arithmetic (and Primitive Recursive Arithmetic and Cantorian Arithmetic) is any possible world in which either (i) time as we directly and veridically cognize it in sense perception, as represented by formal autonomous essentially non-conceptual content, exists, or else (ii) something isomorphic to the time-structure exists.[28]

Now the actual inhabitants of time as we directly and veridically cognize it in Kantian pure or a priori intuition, as represented by formal autonomous essentially non-conceptual content, are all the manifestly real material spatiotemporal objects, including minded animals like us, and our conscious experiences of the manifestly real spacetime world, insofar as they contain spatiotemporal immanent structural

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[26] See Benacerraf, "What Numbers Could Not Be." This problem, in turn, is closely connected to Frege's "Caesar" problem. See Frege, *Foundations of Arithmetic*, p. 68.

[27] Parsons, *Mathematical Thought and Its Objects*, p. 48.

[28] See, e.g., Parsons, *Mathematical Thought and Its Objects*, pp. 272–93.

properties. So in our actual world, the unique intended model of the natural number structure is identical to the denumerably infinite totality of directly and veridically sense-perceivable, manifestly real material spatiotemporal objects, including minded animals like us, and our conscious experiences of the manifestly real spacetime world. For they are the *role players* of the Peano Arithmetic-(and-Primitive Recursive Arithmetic-and-Cantorian Arithmetic) specified *natural number roles* in the abstract formal structure of time. In non-actual but still really or synthetically possible worlds, all the natural number roles still inhere in the abstract formal structure of time—so in that sense, the numbers are metaphysically "all present, and accounted for," as structurally specified, in all synthetically possible worlds—but the actual role-players themselves do not exist in those non-actual worlds.

Second, if Kantian Structuralism can offer a unified solution to The Original Benacerraf Dilemma and also Benacerraf's other problem, then that seems to be another strong point in its favor. For as Benacerraf himself has argued, The Original Benacerraf Dilemma and Benacerraf's other problem are essentially interdependent. Whatever it is that uniquely identifies the natural numbers, must also make it possible for the numbers to be at once abstract and yet directly humanly cognizable. Conversely, whatever makes it possible for the numbers to be at once abstract and yet directly humanly cognizable, must also make it possible to uniquely identify the numbers. So an adequate solution to The Original Benacerraf Dilemma must also solve Benacerraf's other problem.[29]

Third, Kantian Structuralism crisply explains why classical Logicism failed, and why it seems so clear that the arithmetic of the natural numbers is not reducible to second-order logic plus the Peano axioms alone. According to Kantian Structuralism, the elementary or Peano Arithmetic of the natural numbers can be necessarily or constitutively determined only by the ramified logical formal structure of Peano Arithmetic (and Primitive Recursive Arithmetic and Cantorian Arithmetic), insofar as it can be conceptually understood or thought by rational human minded animals, together with any formal structure that is isomorphic to the non-platonic, Kantian abstract structure of time as we directly and veridically cognize it in Kantian pure or a priori intuition, as represented by formal autonomous essentially non-conceptual content.

To be sure, contemporary "Neo-Logicists" have shown that adding Hume's Principle (which says that the number of Fs = the number of Gs if and only if there are as many Fs as Gs) to second-order logic plus the Peano axioms, logically entails the elementary or Peano Arithmetic of the natural numbers.[30] But it seems to be intelligibly and defensibly arguable that Hume's Principle is not an analytic, conceptual, logical, or "weakly metaphysically necessary" truth, precisely because it presupposes the non-platonic, Kantian abstract structure of time as we directly and veridically cognize it in Kantian pure or apriori intuition, as represented by formal autonomous essentially non-conceptual content, and also whatever is isomorphic to the non-platonic, Kantian abstract structure of time as we directly and veridically

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[29] Benacerraf, "What Mathematical Truth Could Not Be—I."
[30] See Wright, *Frege's Conception of Numbers as Objects*; Hale, *Abstract Objects*; and Hale and Wright, *The Reason's Proper Study*.

cognize it in Kantian pure or a priori intuition, via formal autonomous essentially non-conceptual content.

Then, ironically enough, the actual success of Neo-Logicism is metaphysically best explained by Kantian Structuralism, and not by postulating the analyticity of Hume's Principle, as the Neo-Logicists have done. More precisely, Neo-Logicism is most adequately and correctly formulated as the thesis that Peano Arithmetic is jointly constituted by second-order logic, Hume's Principle (which is synthetically, essentially non-conceptually, non-logically, or "strongly metaphysically" a priori necessary), and Kantian Structuralism. Otherwise and more briefly put, Peano Arithmetic is not analytically logically derivable from any set of premises that includes Hume's Principle; instead, Peano Arithmetic is only *synthetic a priori* logically derivable from Hume's Principle plus second-order logic.

Fourth, in view of that third point, Kantian Structuralism would also crisply explain why, contrary to both classical Logicism and Neo-Logicism, mathematical truths clearly appear not to be analytically necessary truths, but instead clearly appear to be synthetic a priori necessary truths. Now Gödel's incompleteness theorems—according to which (i) there must be logically unprovable true sentences in any formal system rich enough to contain the axioms of Peano Arithmetic, and (ii) all such systems are consistent (i.e., non-contradictory) if and only if they are incomplete (i.e., not all the truths of the system are theorems of the system) and have their ground of truth outside the system itself—already strongly suggest to the Kantian Structuralist that the nature of mathematical truth outruns logical provability. This, in turn, is precisely because mathematical truths are synthetic a priori necessary, and not analytically necessary.

But another and even more decisive reason for thinking that mathematical truths are not true in every logically possible world—hence are not analytic—is the clear and distinct conceivability and hence logical/weak metaphysical possibility, of either

(1) possible worlds with nothing whatsoever in them—which would of course entail the non-existence of numbers in those worlds, and thus the non-truth of many sentences or statements of Peano Arithmetic (and Primitive Recursive Arithmetic and Cantorian Arithmetic) in those worlds,[31] or

(2) possible worlds with non-standard arithmetics of the natural numbers in them, for instance, a world in which the standard primitive recursive function of addition or "plus" is replaced by Kripke's non-standard primitive recursive function of "quaddition" or "quus"—which would of course directly entail the non-truth of many sentences or statements of Peano Arithmetic (and Primitive Recursive Arithmetic and Cantorian Arithmetic) in those worlds.[32]

Let us assume, now, that mathematical truths are necessary a priori truths but not analytically necessary. Then, according to Kantian Structuralism, the explanation for this striking meta-mathematical fact is that the truth and meaningfulness of mathematical propositions presuppose the non-platonic, Kantian abstract structure of

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[31] See Parsons, "Kant's Philosophy of Arithmetic," p. 131; and Shapiro, "Induction and Indefinite Extensibility: The Gödel Sentence Is True, But Did Someone Change the Subject?," p. 604.

[32] See, e.g., Kripke, *Wittgenstein on Rules and Private Language.*

time as we directly and veridically cognize it in Kantian pure or a priori intuition, as represented by formal autonomous essentially non-conceptual content, which is not itself an analytically, necessary fact that attaches to every logically possible world. On the contrary, the presence, in a given possible world, of either the non-platonic, Kantian abstract structure of time or some other non-platonic, Kantian abstract structure that is isomorphic to the non-platonic, Kantian abstract structure of time, is a synthetical a priori necessary fact that attaches to only a *restricted class* of logically possible worlds. This restricted class of worlds, in turn, is the collection of all and only the logically possible worlds in which the very same spacetime structure, causal-dynamic structure, and mathematical structure as that of our actual world, also exist. This class of worlds, moreover, consists of all and only the possible worlds in which rational human animal consciousness and intentionality are really possible. Hence both Weak or Counterfactual Transcendental Idealism and liberal or inclusive naturalism are vindicated by the very idea of the mathematical synthetic a priori, when it is embedded within the theoretical framework of Kantian Structuralism.[33]

On this view, possible worlds without denumerable objects in them are all time-structureless worlds; and all time-structureless worlds are possible worlds without denumerable objects in them. So if Kantian Structuralism is true, then the meta-physical explanation for modal dualism—which, as we saw in chapter 4, is the classical Kantian thesis that there are two essentially different kinds of necessary truth, namely (1) analytic a priori necessary truth—truth about the kind of necessity that flows from the nature of logic and concepts, which thereby includes logical truth and conceptual truth, and (2) synthetic a priori necessary truth—truth about the kind of necessity that flows from the nature of the immanent structures of things in the manifestly real world, via formal autonomous essentially non-conceptual content, which thereby includes mathematical truth[34]—comes along for free.

Kantian Structuralism fully explains how the elementary arithmetic of the natural numbers—Peano Arithmetic—is true. What about the rest of mathematics? The general answer provided by Kantian Structuralism is that all of the rest of mathematics, including its most abstruse and ontologically rich parts—for instance, iterative set theory and Cantorian Arithmetic—can be built up as conservative extensions from Peano Arithmetic (and Primitive Recursive Arithmetic), and the non-platonic, Kantian abstract structure of time, together with all the formal concepts, classical logical constructions, and specific patterns of logical inference required by those other parts of mathematics, that are encoded in standard mathematical linguistic practices, insofar as mathematical language can be understood by rational human animals. I had more to say about this crucial point in section 7.2. It suffices to say, here, that rational intuitions of the mathematical truths of the conservatively extended mathematical theories built up in this way will then be only *fairly reliable* or *constructed* mathematical rational intuitions. They will not be *essentially* reliable or *authoritative* mathematical rational intuitions, whether basic or non-basic,

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[33] See Hanna and Maiese, *Embodied Minds in Action*, esp. chs. 1–2 and 6–8.
[34] See also Hanna, *Kant and the Foundations of Analytic Philosophy*, chs. 3–5.

because those apply only to the restricted domain of Hilbert's basic objects of finitistic mathematical reasoning.

Fifth, this line of thinking indicates how Kantian Structuralism might also be able to offer a new solution to the classical *Problem of the Continuum*, although, admittedly, I put this point forward purely as a speculative proposal. Very simply put, The Problem of the Continuum is this: what is the correct characterization of the quantitative structure of the spacetime world we consciously experience—the intuitively given continuum? According to The Continuum Hypothesis, proposed by Cantor, the quantitative structure of the continuum has either the infinite denumerable cardinality of the natural numbers (= aleph null, i.e., $\aleph_0$) or the infinite non-denumerable cardinality of the real numbers (= 2 to the power of aleph null, i.e., $2^{\aleph_0}$) and there is no number applicable to the continuum with a cardinality that falls strictly between that of the naturals and that of the reals.

What Kantian Structuralism proposes about the continuum is that (i) the continuum definitely has the infinite denumerable cardinality of the natural numbers, (ii) the continuum definitely has the infinite non-denumerable cardinality of the real numbers, and (iii) the continuum definitely has no other cardinality strictly between those two. Kantian Structuralism is able to say this precisely because, according to Kantian Structuralism, the real number structure is logico-mathematically a priori constructible from the set of all consciously experienceable points and stretches in spacetime, together with the set of all possible degrees of any consciously experienceable sensory quality, for each consciously experienceable point or stretch in spacetime.

What I mean is that it is an a priori fact about the nature of human experience that any set of points or stretches of experienceable spacetime can instantiate any degree of some or another sense-experienceable quality. Building on that a priori fact, the Kantian Structuralist proposal is that for each distinct point or stretch in sense-experienceable spacetime, of which there are a denumerably infinite number, we can also find a denumerably infinite number of different degrees of some or another sense-experienceable quality. Then we can think of the latter cardinal number as an *exponent* of the former cardinal number in an operation that yields the former's *power set*—the set of all its subsets. The cardinality of the result of that power set operation is the same as the first transfinite number, aleph$_1$, which in turn has the same cardinality as the real numbers—$2^{\aleph_0}$.

Putting the same point in specifically Kantian terminology taken from the first *Critique*, Kantian Structuralism proposes that the basic structure of the continuum is the non-empirical extensive quantity structure as described in The Axioms of Intuition (*CPR* A162–166/B201–207) insofar as it is also exponentiated, according to the power set operation, by the non-empirical intensive quantity structure as described in The Anticipations of Perception (*CPR* A165–176/B207–218). In this sense, the basic structure of the continuum is the Kantian synthesis of the extensive quantity structure and the intensive quantity structure.

Not only that, but as Cantor later discovered, this Kantian synthesis of structures can also be authoritatively rationally intuited by means of a visuo-spatial diagonalization proof array. This in turn shows that even representations of non-denumerably infinite structures can be mapped onto Hilbert's basic objects of finitistic mathematical

reasoning, by means of the cognitive generation, scanning, reproduction, and manipulation of schematic mental imagery—sensible forms in Kantian pure or a priori intuition, via the "productive imagination."[35]

Therefore, Kantian Structuralism proposes that The Continuum Hypothesis is synthetic a priori true—that The Continuum Hypothesis is determinately true in every humanly consciously experienceable world, and a truth-value gap in every other logically possible world that lacks the spatiotemporal structure of human conscious experience. As we saw earlier, the fundamental mathematical issue raised by The Continuum Hypothesis is whether there is any number structure with a cardinality strictly between the denumerable infinite cardinality of the natural numbers and the non-denumerable infinite cardinality of the real numbers. Kantian Structuralism proposes that, synthetically a priori necessarily, there is no such intervening number structure, precisely because rational human conscious experience is just so structured as to rule this out. This, in turn, is also precisely because—given Weak or Transcendental Idealism—necessarily the world is correspondingly just so structured that if rational human cognizers were to exist, then they would cognize that world directly and veridically both a priori and a posteriori, at least to some extent. And this would include, for at least some human mathematicians, coming to know, in at least a fairly reliable way, The Continuum Hypothesis as a synthetic a priori truth.

But this a priori knowledge is not the result of some sort of pre-established harmony. Leopold Kronecker famously or notoriously said that God made the integers and everything else was done by humans.[36] Kantian Structuralism is even more radically anthropocentric than this, and explicitly excludes anything that is either platonically abstract or noumenal from the metaphysical foundations of mathematics, lest it fall inevitably into metaphysical confusion and logical paradox, or what Kant so aptly called "obscurity and contradictions" (Dunkelheit und Widersprüche) (CPR Avii). According to Kantian Structuralism, the formal constitution of rational human minded animal nature made the natural numbers, and logico-conceptual construction by rational human minded animals, together with their innate capacity for logical and linguistic cognition, did all the rest. So in that sense, mathematics is all about us.

But this anthropocentric Kantian Structuralist account does not entail any sort of metaphysical anti-realism, psychologism, reductive formalism, or reductive finitism. These flawed doctrines variously afflict the Brouwerian and Hilbertian attempts to avoid the classical confusions and paradoxes in the foundations of logic and mathematics—as it were, the wages of Frege's original Sinn of Logicism. On the contrary, assuming the truth of Weak or Counterfactual Transcendental Idealism, then necessarily the manifestly real natural world inherently possesses the self-same mathematical structures that rational human animals are inherently capable of consciously detecting in that world. As a matter of logical necessity, the manifestly real natural world did not have to be that way. It *just is* necessarily that way. It is a brute essential non-platonic, Kantian abstract structural fact about nature. But on the

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[35] See, e.g., Giaquinto, *Visual Thinking in Mathematics*, ch. 11.
[36] See, e.g., Struik, *A Concise History of Mathematics*, p. 160.

KANTIAN STRUCTURALISM AND KANTIAN INTUITIONISM working assumption that the manifestly real natural world really is that way, and also that it really is *necessarily and constitutively* that way, precisely because it flows from its essence or nature to be such, then the fundamental formal coordination between rational human animal minds and the manifestly real natural world holds with synthetic a priori necessity.

So Kantian Structuralism is just about as objectively realistic as it is metaphysically possible to be. To see this, consider the relevant philosophical alternatives, classical platonism and naturalism. On the one hand, non-naturalist platonic or noumenal realism about mathematical truth-makers is a metaphysical mystery. And on the other hand, naturalism about mathematical truth-makers explains only how mathematical truth is contingent a posteriori, not how mathematics is necessary a priori. But The Generalized Benacerraf Dilemma effectively rules out both of those non-Kantian alternatives. Then, enter Kantian Structuralism to save the day.

Suppose, now, as a well-supported working hypothesis, that Kantian Structuralism is true. We still need to explain more precisely *how* mathematical a priori knowledge of objectively necessary mathematical truths is really possible. And that is where Kantian Intuitionism comes in.

8.2 Kantian Intuitionism

The epistemologically pregnant sense of self-evidence (*Evidenz*)...gives to an intention, e.g., the intention of judgment, the absolute fullness of content, the fullness of the object itself. The object is not merely meant, but in the strictest sense *given*, and given as it is meant, and made one with our meaning-reference....It is said of every percept that it grasps its object directly, or grasps this object *itself*. But this direct grasping has a different sense and character according as we are concerned with a percept in the narrower or wider sense, or according as the directly grasped object is *sensible* or *categorial*. Or otherwise put, according as it is a *real* or *ideal* object.

—E. Husserl[37]

In Kant we find an old form of intuitionism, now almost completely abandoned, in which space and time are taken to be forms of conception inherent in human reason....However weak the position of intuitionism seemed to be after [the discovery of non-Euclidean geometry], it has recovered by abandoning Kant's apriority of space but adhering the more resolutely to the apriority of time.

—L. E. J. Brouwer[38]

Self-evidence (*das Einleuchten*), of which Russell has said so much, can only be discarded in logic by language itself preventing every logical mistake. That logic is a priori consists in the fact that we *cannot* think illogically.

—L. Wittgenstein[39]

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[37] Husserl, *Logical Investigations*, vol. 2, pp. 765 and 787, texts combined.
[38] Brouwer, "Intuitionism and Formalism," pp. 56–57.
[39] Wittgenstein, *Tractatus Logico-Philosophicus*, prop. 5.4731, p. 129.

As I formulated it in section 6.1, Kantian Intuitionism holds that (High-Bar) a priori knowledge in mathematics, by means of basic authoritative mathematical rational intuition, is the joint product of two distinct yet closely coordinated cognitive capacities.

(1) On the one hand, mathematical intuition flows from a rational human animal's capacity for generating, scanning, reproducing, and manipulating schematic mental imagery that is also veridical, in the dual sense that (i) it correctly maps onto its intentional targets, and (ii) those targets really exist. In Kantian terms, this imagery is constituted by sensible forms given in pure or a priori intuition, constructed by the productive imagination. This capacity is innately specified in the rational human animal's mind as a cognitive competence, and it is also inherently present, as a necessary ingredient, in all rational human sense perception. Mathematical intuition thus entails the rational human animal's self-conscious and self-reflective cognition of phenomenologically self-evident formal structures of object-directed and self-directed sense perception.

(2) And on the other hand, mathematical intuition also flows from a rational human animal's capacity for constructing logics and natural languages. This capacity is innately specified in her mind as a cognitive competence, and also it is inherently present, as a necessary ingredient, in all rational human empirical conceptualizing and perceptual judgment. Mathematical intuition thereby also entails the rational minded animal's self-conscious and self-reflective cognition of phenomenologically self-evident formal conceptual contents and specific patterns of logical inference in classical or non-classical logics.

As I also formulated it in section 6.1, the central idea behind Kantian Intuitionism is that basic authoritative mathematical rational intuition can be construed in such a way as to preserve both the non-platonic, Kantian abstractness and causal inertness of **the truth-makers** of mathematical statements and also the causal relevance of **the intentional targets** of mathematical rational intuition, as well as the causal efficacy of **the evidential verifiers** of mathematical beliefs. There I emphasized the point that truth-makers, intentional targets, and evidential verifiers can be different sorts of things, even if they are essentially connected. What I gave as an example there is what I explicitly want to argue now. First, **the truth-maker** is a mathematical immanent non-platonic, Kantian abstract structure in the manifestly real natural world. Second, **the intentional target** is mentally generated, scanned, reproduced, and manipulated schematic mental imagery, the sensible forms given in Kantian pure or a priori intuition, constructed by the productive imagination, that also provides veridical representations of at least some proper parts of that very structure. And third, **the evidential verifier** is a manifestly real worldly fact, picked out by direct, veridical sense perception, as represented by material autonomous essentially non-conceptual content. This worldly fact implements the non-platonic, Kantian immanent world-structure and thereby satisfies the abstract mathematical structure. And it also strictly conforms to the mentally generated, scanned, reproduced, and manipulated veridical schematic imagery, that is, it strictly conforms to the sensible forms given in Kantian pure or a priori intuition, constructed by the productive imagination.

The precise nature of the connection between (i) the truth-maker, and (ii) the mentally generated, reproduced, and manipulated veridical schematic mental imagery/productive-imagination-constructed sensible forms given in Kantian a priori intuition—the Hilbert-style basic objects of finitistic mathematical reasoning—is particularly crucial to my overall account. Given the doctrine of radically naïve realism in chapter 3, it directly follows that the abstract truth-makers of authoritative mathematical rational intuitions, the mathematical immanent structures in the manifestly real natural world, partially constitute those authoritative rational intuitions.[40] So the connection between them is modally tight to the point of perfect fit, that is, precisely modally tight enough to avoid any threat of cognitive-semantic luck or global skepticism, but not so tight as to yield an utterly implausible Cartesian analytic infallibility.

This crucial distinction between an infallibility that is too-modally-tight-for-comfort, on the one hand, and an infallibility that has perfect-fit-modal-tightness, on the other, is possible, in turn, just because of the way I have parsed the analytic-synthetic a priori distinction as the distinction between logical or conceptual necessity, on the one hand, and the restricted necessity that depends on essential structural features of the actual world, on the other. As I have stressed, all rational intuitions, even the authoritative, hence essentially reliable and synthetically a priori infallible ones, are in one non-trivial sense, fallible: it is not analytically necessary that they be (necessarily) true. But analytic (as it were, "global") fallibilism is not skepticism, and it is also fully compatible with synthetic a priori (as it were, "local") infallibilism. Hence, as a matter of synthetic a priori necessity, basic authoritative rational intuitions are not only objectively a priori necessarily true, but also intrinsically compelling or self-evident, cognitively virtuous, and essentially reliable, therefore sufficiently justified and absolutely skepticism-resistant. In other words, they are High-Bar justified and constitute High-Bar a priori knowledge.

Insofar as all this obtains, then these following further two conditions both hold.

1. LOCKED-ONTO: The generated, scanned, reproduced, and manipulated veridical schematic mental imagery, the sensible forms given in Kantian pure or a priori intuition, constructed by the productive imagination, is *locked onto* the necessary-truth-maker. This means that there is an intrinsic isomorphism between the representational form of the veridical schematic mental imagery and the worldly form of the necessary-truth-maker, such that they are structurally identical. Or in other words, there is a "bijective map" running homomorphically from the form of the veridical schematic mental imagery to the form of the truth-maker, and also homomorphically from the form of the necessary-truth-maker to the form of the veridical schematic mental imagery.

2. STRONG DISJUNCTIVISM ABOUT THE COGNITIVE GENERATION, SCANNING, REPRODUCTION, AND MANIPULATION OF VERIDICAL

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[40] This in turn yields a specifically contemporary Kantian and transcendental idealist/empirical realist version of Bengson's explanatory appeal to partial constitution as a way of solving The Generalized Benacerraf Dilemma along realistic rationalist lines, while *also* preserving the causal dimension in every version of The Dilemma, unlike Bengson. See Bengson, "Grasping the Third Realm"; and, for a similar non-causal "constitutionalist" view, see also Chudnoff, "Awareness of Abstract Objects."

SCHEMATIC MENTAL IMAGERY, THE SENSIBLE FORMS GIVEN IN KANTIAN PURE OR A PRIORI INTUITION, CONSTRUCTED BY THE PRODUCTIVE IMAGINATION: For every a priori rational intuition—

(2.1) Either the rational intuition's characteristic generated, scanned, reproduced, and manipulated veridical schematic mental imagery (i.e., a sensible form in Kantian pure or a priori intuition via the productive imagination), etc., is locked onto a necessary-truth-maker, in which case that rational intuition is a case of basic authoritative a priori knowledge, i.e., High-Bar justified a priori belief in an objectively necessary a priori truth, or else its characteristic veridical schematic mental imagery is not locked onto a necessary-truth-maker, in which case the rational intuition is either Low-Bar a priori knowledge or else not knowledge at all.

(2.2) There is no common mental content or phenomenal character shared between generated, scanned, reproduced, and manipulated veridical schematic mental imagery, and generated, scanned, reproduced, and manipulated *non*-veridical schematic mental imagery.

(2.3) The only thing shared between veridical schematic mental imagery and non-veridical schematic mental imagery is the further extrinsic and relational fact that under some cognitive conditions, some or another rational human subject performing an act of rational intuition actually fails to tell the difference between the two inherently distinct mental representations (veridical vs. non-veridical).

(2.4) Nevertheless, necessarily, at least in principle, under appropriate cognitive conditions, every such rational human subject could correctly discriminate between the two.

Analytic fallibilism, as I have said, or at least have clearly implied, is the thesis that no act, state, or process of belief, even an authoritative rational intuition, analytically entails its own (necessary) truth. Hence every act, state, or process of belief, even a completely convincing, intrinsically compelling, or self-evident and essentially reliable one, can be false, as a matter of analytic or logical possibility. But if LOCKED-ONTO is satisfied, then the relation between, on the one hand, the representational form of the veridical schematic mental imagery in an authoritative rational intuition, and, on the other hand, the worldly form of the necessary-truth-maker of that belief, is inherent or intrinsic, hence non-accidental or necessary. So again, the worldly form partially constitutes the authoritative rational intuition. The characteristic properties of that relation are therefore robustly necessary properties, synthetic a priori necessary properties. Hence although my being in that mental act or state of an authoritative rational intuition does not analytically or logically necessitate the (necessary) truth or High-Bar justification of that rational intuition, nevertheless it does synthetically a priori or non-logically necessitate the (necessary) truth and High-Bar justification of that rational intuition. It is analytically fallible but also synthetic a priori infallible—"globally" fallible but also "locally" infallible.

In this way, my categorical epistemology of authoritative rational intuition has a significant advantage over other recent or contemporary neo-rationalist doctrines. These doctrines, as neo-rationalist, include fallibilism about a priori knowledge. But

they have also been unable to combine the reality of human fallibility with robust necessitation, or perfect-fit-modal-tightness, in the a priori knowledge-relation. This in turn is precisely because, as versions of modal monism, according to which there is one and only one basic kind of necessary truth, analytic or logical a priori necessary truth, they lack the very idea of synthetic or non-logical a priori necessity. This is true, for example, of Bealer's "strong modal tie to the truth" between idealized modal intuitions at the end of the relevant historical processes of communal inquiry, and their necessary-truth-makers. For Bealer, at the idealized end of communal inquiry, the real human fallibility of rational intuition mysteriously turns into an unreal, superhuman, godlike analytic infallibility.[41]

The historical-philosophical provenance of Kantian Intuitionism and its categorical epistemology has five primary sources: (1) Kant's theory of pure or a priori intuition and "productive imagination" in the *Critique of Pure Reason*, (2) Husserl's specifically phenomenological approach to the epistemology of necessary truth in *Logical Investigations*, (3) Wittgenstein's specifically linguistic approach to the epistemology of necessary truth in the *Tractatus*, (4) Parsons's theory of Mathematical Structuralism and mathematical intuition in *Mathematical Thought and Its Objects*,[42] and (5) Brouwer's intuitionism and Hilbert's finitism.[43] In full view of these historical-philosophical influences flowing from Kant, Husserl, Wittgenstein, Parsons, Brouwer, and Hilbert, I will argue for Kantian Intuitionism in two stages.

First, in the rest of this section, I will spell out what I take to be the deep epistemological ideas lying behind Husserl's doctrine of "categorial intuition" and behind Wittgenstein's doctrine that "language itself prevent[s] every logical mistake" by virtue of the fact that "we *cannot* think illogically."

Then **second**, in section 8.3, I will briefly sketch and criticize Parsons's theory, and compare and contrast it with Kantian Structuralism and Kantian Intuitionism.

Husserl and Wittgenstein. For our purposes here, Husserl's deep epistemological idea is twofold: (i) that the abstract formal structures characteristic of logic or mathematics are immediately represented in our non-conceptual, pre-reflective or first-order conscious awareness of the logico-syntactic and sortal-semantic structures of the meaningful sentences we use to frame true logical or mathematical judgments, and (ii) that the truth of those judgments is immediately verified in direct, veridical perceptual experience of the manifestly real and intrinsically spatiotemporal natural world. This immediate verification, in turn, is phenomenological self-evidence. So cognitive phenomenology is of fundamental importance for modal epistemology, by way of the evidential-phenomenological, or internalistic, partial criterion for authoritative rational intuition.

Correspondingly, my proposal is that at least some phenomenologically self-evident mental acts states, or processes, which Husserl calls "categorial intuitions," satisfy both LOCKED-ONTO and STRONG DISJUNCTIVISM ABOUT THE COGNITIVE GENERATION, SCANNING, REPRODUCTION, AND MANIPULATION OF

[41] Bealer, "Intuition and the Autonomy of Philosophy," esp. pp. 205–06, and 218–21.
[42] Parsons has also been significantly influenced by Kant, Husserl, Brouwer, and Hilbert.
[43] See also Parsons, "Arithmetic and the Categories"; Parsons, "Kant's Philosophy of Arithmetic"; Parsons, "Mathematical Intuition"; and Parsons, "Reason and Intuition."

VERIDICAL SCHEMATIC MENTAL IMAGERY, THE SENSIBLE FORMS GIVEN IN KANTIAN PURE OR A PRIORI INTUITION, CONSTRUCTED BY THE PRODUCTIVE IMAGINATION, and that this twofold fact is also inherently characteristic of a certain kind of competent rational human language use that expresses an underlying innately specified human cognitive capacity or competence.

This all implies a certain view about the connection between intentional content and cognitive phenomenology that is worth briefly spelling out explicitly, for the purposes of comparison and contrast with other contemporary views.[44] **First**, my view is strongly anti-separatist in that it postulates a necessary and partially constitutive connection between intentionality and phenomenology on the one hand, and between phenomenology and intentionality on the other.[45] **Second**, my view is also specifically about cognitive phenomenology in the broadest sense, which for me fully includes both the phenomenology of conceptual/propositional judging and belief, and also sense perceptual phenomenology. **Third**, because I am a content-dualist, both my anti-separatism and also my view about the nature of cognitive phenomenology must be taken to hold for both basic kinds of intentional content, namely, conceptual content and also autonomous essentially non-conceptual content.

To present the notions of phenomenological self-evidence and categorial intuition properly, I want to sketch the basic concepts of Husserl's early phenomenology, and also trace them back to some Kantian ideas.

Phenomenology, as Husserl understood it in 1900 in the first edition of the *Logical Investigations,* is an elaboration of "descriptive psychology" in Brentano's sense, as he worked it out in *Psychology from an Empirical Standpoint*, part I. More precisely, Husserlian phenomenology in 1900 is the first-person, introspective, non-reductive philosophical psychology of consciousness and intentionality, as opposed to the natural science of empirical psychology (*LI* V, §7). As a specifically philosophical psychology, its basic claims, if true, are synthetically or non-logically necessarily true and a priori.

As Husserl points out in Investigation V, consciousness (*Bewußtsein*) is a subject's capacity for "lived experience" or *Erlebnis*—phenomenal awareness, together with her capacity for intentionality. Intentionality, in turn, is the "aboutness" of the mind, the "of-ness" of the mind, or the directedness of mind to objects.[46] Here the notion of an "object" is very broadly construed so as to include existing or non-existing individuals, properties, relations, facts, temporal events, spatial locations, other minds, and also one's own mind (including one's own intentionality), as possible targets of intentionality. Correspondingly, acts, states, or processes of intentionality can include all sorts of cognitive or conative activities and psychological attitudes, for example, perception, memory, thinking, apperception or self-consciousness, judgment, belief, knowledge, rational intuition, logical reasoning, desire, love, hate, fear, and so on.

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[44] See, e.g., Smithies, "The Nature of Cognitive Phenomenology"; and Smithies, "The Significance of Cognitive Phenomenology."

[45] See Hanna and Maiese, *Embodied Minds in Action*, ch. 2.

[46] See, e.g., Jacob, "Intentionality." See also chapter 1.

The contemporary concept of intentionality, it is usually held, fundamentally derives from one or both of two philosophical sources: **first**, from the Aristotelian-Scholastic tradition,[47] and **second**, from the Phenomenological tradition, beginning with Brentano's *Psychology from an Empirical Standpoint*, and continuing on through Husserl, early Heidegger, Sartre, and Merleau-Ponty.[48] Intentionality is also a central theme in the Analytic tradition, starting with Frege's theory of sense-determined reference, both linguistic and perceptual,[49] and Russell's theory of acquaintance, singular reference, and singular thought,[50] and continuing on through Wittgenstein both early[51] and late,[52] Peter Geach,[53] Roderick Chisholm,[54] John Searle,[55] Dennett,[56] Fodor,[57] Dretske,[58] and many others.

Now in my opinion, the theory of intentionality in the Phenomenological tradition to which Husserl centrally belongs in fact originally derives from Kant's theory of cognition or *Erkenntnis,* and not from Scholastic philosophy, which is at most a remote influence on Brentano's concept of intentionality, even despite his explicit use of Scholastic terminology.[59] For Kant, cognition or *Erkenntnis* is conscious objective mental "representation" or *Vorstellung* (*CPR* A320/B376–377). In turn, he grounds his epistemology and his metaphysics alike on the theory of object-directed *Vorstellung*. This is explicitly stated in the famous letter to Marcus Herz in 1772 that I have already quoted in section 6.3:

> [I] was then making plans for a work that might perhaps have the title "The Limits of Sense and Reason." I planned to have it consist of two parts, a theoretical and a practical. The first part would have two sections, (1) general phenomenology and (2) metaphysics, but only with regard to its nature and method. . . . As I thought through the theoretical part, considering its whole scope and the reciprocal relations of its parts, I noticed that I still lacked something essential, something that in my long metaphysical studies I, as well as others, had failed to pay attention to and that, in fact constitutes the key to the whole secret of hitherto still obscure metaphysics. I asked myself: What is the ground of the reference of that in us which we call "representation" ("*Vorstellung*") to the object? (*PC* 10: 129–130)

In the 19th-century neo-Kantian tradition and the early Analytic tradition, Kant's *Erkenntnistheorie* was flattened out into what we now call *epistemology*, the theory of

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[47] See, e.g., Pasnau, *Theories of Cognition in the Later Middle Ages.*

[48] See, e.g., Moran, *Introduction to Phenomenology.*

[49] See, e.g., Dummett, *Origins of Analytical Philosophy*, esp. chs. 2–4 and 9–10.

[50] See Russell, *The Problems of Philosophy*, ch. IV; and Russell, "Knowledge by Acquaintance and Knowledge by Description."

[51] See Wittgenstein, *Tractatus Logico-Philosophicus*, props. 2.0123–2.01231, 3.5, and 4.002, pp. 33, 61, and 61–63.

[52] See Wittgenstein, *Philosophical Investigations*, esp. part II; and Wittgenstein, *Remarks on the Philosophy of Psychology.*

[53] See Geach, *Mental Acts: Their Content and Their Objects.*

[54] See Chisholm, *Perceiving*; Chisholm, *The First Person: An Essay on Reference and Intentionality*; and Chisholm and Sellars, "Chisholm-Sellars Correspondence on Intentionality."

[55] See Searle, *Intentionality.*

[56] See Dennett, *Content and Consciousness*; and Dennett, *The Intentional Stance.*

[57] Fodor, *The Language of Thought*; and Fodor, *RePresentations*, esp. chs. 4 and 7–9.

[58] Dretske, "The Intentionality of Cognitive States"; and Dretske, *Naturalizing the Mind.*

[59] See Hanna, "Transcendental Idealism, Phenomenology, and the Metaphysics of Intentionality."

justified true belief and responses to skepticism.[60] But *Erkenntnistheorie*, or the theory of cognition, in Kant's original sense, focuses basically on the nature of the various innately specified capacities or faculties, acts/states/processes, contents, and objects of conscious objective mental representation, and tries to explain how mental representation in precisely this sense is possible. Now a theory of cognitive content is also a theory of meaning, a semantics. So Kant's *Erkenntnistheorie* is essentially a cognitive semantics.[61]

According to Kant, then, the central fact about the human mind is its capacity to represent, *vorstellen*, which is to say that (i) the human mind has something X "to put before" (*stellen...vor*) it, and (ii) that which puts X before the human mind is a mental representation (*Vorstellung*). Moreover, as we have seen in a fundamentally important text that I already quoted and briefly discussed in chapter 1, Kant is a primitivist about mental representation:

What representation (*Vorstellung*) is cannot really be explained. It is one of the simple concepts that we necessarily have. Every human being knows immediately what representation is. Cognitions (*Erkenntnisse*) and representations are of the same sort....Every representation is something in us, which, however, is related to something else, which is the object. Certain things represent something, but we represent things. (*BL* 24: 40)

Mental representations, in turn, can be either conscious or nonconscious (*CPR* A78/B103).[62] The primary cognitive role of consciousness (*Bewußtsein*) is to contribute subjective integrity, or a well-focused and uniquely egocentric organization, to a mental representation (*CPR* B139). A conscious mental representation is thus an "idea" in the broadest possible sense. Subjective conscious mental representations are internal or immanent to consciousness and lack fully determinate form or structure. Objective conscious mental representations, by contrast, are determinate ways of referring the mind to any sort of object (i.e., some topic or target of the mind—what the representation is about or of or directed to), including the self considered as an object, as in self-consciousness or "apperception." Objects of conscious mental representation also include existent or non-existent objects, and actual or possible objects. In short, conscious objective mental representation in Kant's sense is essentially what the Phenomenologists later call *intentionality*.

For Kant, every objective conscious mental representation has both (i) a "form" (*Form*), and (ii) a "matter" (*Materie*) or "content" (*Inhalt*) (*CPR* A6/B9) (*JL* 9:33).

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[60] See, e.g., Köhnke, *The Rise of Neo-Kantianism*.

[61] For a full development of this interpretation, see Hanna, *Kant and the Foundations of Analytic Philosophy*.

[62] I think that Kant was mistaken that mental representations can be nonconscious. On the contrary, I hold that necessarily all mental representations are at least pre-reflectively conscious in some salient way; indeed, this is a direct implication of The Deep Consciousness Thesis. See section 2.8; and Hanna and Maiese, *Embodied Minds in Action*, pp. 28–34. It is also possible that when Kant writes here that "synthesis in general is...the mere effect of the imagination, of a blind though indispensable function of the soul, without which we would have no cognition at all, but of which we are seldom even conscious" (*CPR* A78/B103), he is confusing consciousness with self-consciousness or apperception. In fact, Kant might well have accepted The Deep Consciousness Thesis if he *consistently* did, as he *sometimes* does, identify consciousness (as opposed to self-consciousness) with inner sense and outer sense, and also explicitly allow for "blind" intuitions.

The form of an objective conscious mental representation is its intrinsic structure. Correspondingly, Kant argues in the Transcendental Aesthetic (*CPR* A19–49/B33–73) that all sensory perceptions have intrinsic spatial and temporal form or structure, and he argues in the "Metaphysical Deduction" sections of the Transcendental Analytic (*CPR* A64–83/B89–116, and B159) that all judgments have intrinsic logical form or structure. *Materie* is qualitative sensory content. *Inhalt* by contrast is representational content: this is also what Kant calls the "sense" or *Sinn* of an objective conscious mental representation, and its "meaning" or *Bedeutung* (*CPR* A239–240/B298–299) as well. The content, sense, or meaning of an objective conscious mental representation is the information (*Kenntnis*) (*CPR* B ix) that the cognizing mind has about its objects. Since the same object can be represented in different ways, there is a many-to-one relation between mental contents (senses, meanings) and their corresponding objects. This doctrine was later recapitulated and reworked by Frege, in an explicitly linguistic context, as the distinction between "sense" (*Sinn*) and "reference" (*Bedeutung*).[63]

Unfortunately, Kant also sometimes employs the term "form" to refer to purely psychological components of our use or grasp of an objective conscious mental representation (*BL* 24: 40). The notion of "form" in this Kantian sense is somewhat similar to what Descartes called the "formal reality" of an idea. More precisely, however, the Kantian "form" of an objective conscious mental representation is what nowadays, with a terminological nod to the Phenomenological tradition, we would call *cognitive phenomenology*. Nevertheless, the very idea of cognitive phenomenology had already been discovered and significantly developed by Kant a hundred years before Brentano. In any case, Kantian cognitive phenomenology includes (i) the difference between clarity and unclarity, and between distinctness and indistinctness, (ii) different subjective attitudes of all sorts, or what Locke called "postures of the mind," including but not restricted to propositional attitudes, and (iii) our direct conscious awareness of, and ability to distinguish between and generalize over, types of mental acts or mental operations of all different sorts (e.g., analysis, synthesis, memory, imagination, thought, judgment, etc.), which Kant calls "reflection" (*Überlegung*) (*CPR* A260/B316), and which is somewhat similar to Locke's "ideas of reflection."

Conscious mental representations can be either subjective or objective, but in either case they are necessarily accompanied by "sensations" (*Empfindungen*). The "matter" or phenomenal content of sensations—or what we would now call "phenomenal characters"—are qualitative intrinsic properties of all conscious representations. More precisely, however, sensation is "the effect of an object on the capacity for representation, insofar as we are affected by it" (*CPR* A19–20/B34). Or in other words, a sensation together with its content is nothing but the subject's direct response to endogenously- or exogenously-caused changes in its own state. Endogenously-caused sensations are "subjective sensations" (*CPJ* 5:206) or feelings, and exogenously-caused sensations are "objective sensations," such as the sensations that accompany the perception of external objects (*CPJ* 5: 206).

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[63] Frege, "On Sense and Reference."

An objective conscious mental representation, as I have mentioned several times already, is also known as an *Erkenntnis*, and this Kantian usage is essentially equivalent to the use of the term "cognition" in contemporary cognitive psychology. But in the B edition of the first *Critique* (see, e.g., at *CPR* Bxxvi n.) Kant also uses the notion of cognition or *Erkenntnis* in a narrower sense to mean an objective conscious cognition of an actual or possible object of rational human sense perception, an actual or possible empirical object, possible object of experience, or empirical state-of-affairs: namely, to mean an empirically meaningful or objectively valid judgment, "a judgment of experience."[64] This narrower notion of cognition or *Erkenntnis* then directly contrasts with the notion of mere thinking or *Denken*, which is a conscious conceptual mental representation of any sort of object whatsoever, whether or not it is an object of actual or possible rational human sense perception.

So according to Kant, and in relation to this narrow sense of "cognition," there are two categorically or essentially different kinds of intentional objects: (1) cognizable objects, or "thick" objects, and (2) merely thinkable objects, or "thin" objects. As to the merely thinkable or thin objects, he explicitly points out that

Once I have pure concepts of the understanding, I can also think up objects that are perhaps impossible, or that perhaps possible in themselves but cannot be given in any experience since in the connection of their concepts something may be omitted that yet necessarily belongs to the condition of a possible experience (the concept of a spirit), or perhaps pure concepts of the understanding will be extended further than experience can grasp (the concept of God). (*CPR* A96)

It is very important to understand what Kant means by saying that "I can also think up objects that are perhaps impossible." This does not mean that I can think up objects that are analytically or logically impossible, since he explicitly says that analytic or logical consistency is a necessary condition of all thinkability and of all thinkable objects:

I can **think** whatever I like, as long as I do not contradict myself, i.e., as long as my concept is a possible thought, even if I cannot give any assurance whether or not there is a corresponding object somewhere within the sum total of all possibilities. (*CPR* Bxxvi n.)

Therefore, what Kant must mean when he says that "I can also think up objects that are perhaps impossible" is that it is possible to think synthetically or non-logically a priori impossible objects. These are objects that are analytically or logically self-consistent, and thereby merely thinkable, and thereby conceivable; nevertheless they are also inherently uncognizable, because they cannot be given via any actual or possible sensible intuition, and thus are humanly unintuitable:

The transcendental use of a concept in any sort of principle consists in its being related to things **in general** and **in themselves;** its empirical use, however in its being related merely to **appearances;** i.e., objects of a possible **experience.** But that it is only the latter that can ever take place is evident from the following. For every concept there is requisite, first, the logical form of a concept (of thinking) in general, and then, second, the possibility of giving it an object to

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[64] See also Hanna, "Kant's Theory of Judgment."

which it is to be referred. Without this latter it has no sense (*Sinn*), and is entirely empty of content (*Inhalt*), even though it may contain the logical function for making a concept out of whatever sort of *data* there are. (*CPR*: A238–239/B298)

Kant's fundamental distinction between cognizable or thick intentional objects, on the one hand, and merely thinkable or thin intentional objects, on the other, thus corresponds directly to his equally fundamental distinction between (1*) sensory appearances or *phenomena*, and (2*) things-in-themselves or "*noumena*, that only the pure understanding can think" (*CPR* A251)—"possible things, which are not objects of our sense at all, and [are called] beings of the understanding (*Verstandeswesen*) (*noumena*)" (*CPR* B 306).

Back now to Husserl. As Husserl points out in Investigation V, "consciousness" (*Bewusstsein*) is the same as *subjective experience*, where the notion of "experience" includes both (i) *Erlebnis*—"lived experience" or *phenomenal awareness*, and (ii) *Erfahrung* in Kant's sense—"objective experience" or intentionality that is directed toward either cognizable objects (thick objects) or merely thinkable objects (thin objects). In turn, for Husserl every conscious intentional mental state *M* has four individually necessary and jointly individuating features:

(1) *M* is a mental *act* (*psychischerAkt*) with its own "immanent content" or "act-matter" and its own specific character (i.e., phenomenal character) (*LI* V, §§11, 14, 20),

(2) *M* falls under a specific intentional *act-type* or "act-quality," for instance, perceiving, imagining, remembering, asserting, doubting, and so on. (*LI* V, §20),

(3) *M* has an intentional *target*, which at the very least has ontic status or "being" (*Sein*) and perhaps also actual existence or "reality" (*Wirklichkeit*), although this target need not necessarily have reality—hence intentional targets can include fictional objects, impossible objects, abstract objects, ideal objects, and so on (*LI* V, §§11, 17, 20), and

(4) *M* has an intentional *meaning content* or "semantic essence" (*bedeutungsmässige Wesen*), which presents its object in a certain specific way, where this meaning content is either propositional or referential (*LI* V, §§21, 31–36).

It is crucial to note that this general Husserlian phenomenological analysis holds both for the intentionality of judgment and belief, which presupposes pure formal logic and necessarily requires the existence of natural language and the intentional subject's linguistic competence, and also for the intentionality of perception and other modes of sensory cognition such as imagination and memory, which do not presuppose pure formal logic or necessarily require the existence of natural language or linguistic competence.

In Investigation VI, Husserl argues that truth (*Wahrheit*) is the structural and semantic intrinsic conformity of a judgment to the very fact that satisfies its propositional content. He also argues that (in my terminology) High-Bar knowing or "self-evidence" (*Evidenz*)—whether High-Bar a priori knowledge or High-Bar a posteriori knowledge—is the (in my terminology) High-Bar justified, completely

convincing or intrinsically compelling and essentially reliable intentional recognition of necessary or contingent truth (*LI* VI, §§6–12, 20, 28, 36–39). Self-evidence has its own characteristic cognitive phenomenology. The basic structure of the cognitive phenomenology of self-evidence is the goal-directed advance from "empty" intentions to "filled" intentions, whereby (1) empty intentions are logico-linguistically structured propositional contents insofar as they are conceptually understood by an intentional subject to specify the very facts that could or would satisfy those contents and thereby make those propositions true, and (2) filled intentions are logico-linguistically structured propositional contents insofar as the very facts that could or would satisfy them are also essentially non-conceptually intuited by an intentional subject as actually satisfying those contents and thereby making those propositions true.[65]

In other words, and now formulated in an explicitly Kantian way, for early Husserl the cognitive-phenomenological profile of (in my terminology) High-Bar knowledge or self-evidence is a systematic advance from conceptual "understanding" (*Verstand*) to autonomous essentially non-conceptual "intuition" (*Anschauung*). This holds whether the High-Bar knowledge is a priori or a posteriori, and also whether the truth-making fact that is intuitively experienced in intentional fulfillment as satisfying the relevant propositional content is a non-empirical or ideal (necessary or possible) abstract fact, or an empirical or real (contingent) concrete or natural fact.

In the case of non-empirical or ideal facts, the essentially non-conceptual intuition by which the fact is self-evidently known is what Husserl calls a *categorial* intuition. (*LI* VI, §§40–58). Categorial intuitions are intentional states containing phenomenal characters that intrinsically and specifically pick out the formal and structural elements of the very facts that are known via intentional fulfillment, either by means of formal elements of perceptual consciousness, or by means of formal elements of logico-linguistic consciousness. In other words, categorial intuitions are phenomenologically self-evident acts or states of belief that satisfy both LOCKED-ONTO and STRONG DISJUNCTIVISM ABOUT THE COGNITIVE GENERATION, SCANNING, REPRODUCTION, AND MANIPULATION OF VERIDICAL SCHEMATIC MENTAL IMAGERY, THE SENSIBLE FORMS GIVEN IN KANTIAN PURE OR A PRIORI INTUITION, CONSTRUCTED BY THE PRODUCTIVE IMAGINATION, and are therefore High-Bar justified true beliefs. So categorial intuitions are inherently or intrinsically connected to the truth-makers of those beliefs, hence they are partially constituted by those truth-makers, and they thereby produce High-Bar, synthetic a priori infallible, absolutely skepticism-resistant a priori knowledge.

For my purposes here, two paradigmatic examples of categorial intuition would be (i) the way in which aggregates of directly and veridically perceived objects (say, seven martinis) are essentially non-conceptually and pre-reflectively or first-order consciously "subitized" into finite groups (say, groups of three or four), for instance,

Υ Υ Υ   Υ Υ Υ Υ

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[65] See also Hopp, "How to Think about Nonconceptual Content."

and (ii) the way in which an evidentially verifying state-of-affairs as described by a statement or judgment appears to have the very same grammatical form as the sentence used to describe it, for instance,

The seven martinis are sitting on the table. ⅄ ⅄ ⅄ ⅄ ⅄ ⅄ ⅄

Correspondingly, when rational human subjects use sentences of basic arithmetic like '3+4=7' or 'Three plus four equals seven' in making necessarily true statements like "3+4=7" or "Three plus four equals seven," we are thereby essentially non-conceptually and pre-reflectively or first-order consciously aware of an intrinsically structured *temporal* flow of mental images associated with our visual or auditory cognition of those inscriptions or utterances. Indeed, recent empirical research on memory strongly indicates that the essentially non-conceptual and pre-reflective or first-order conscious phenomenal look and sound of language is processed separately from the propositional cognition of linguistic meaning.[66] For example, I can vividly recognize and remember the look or sound of certain German sentences and words, for instance,

Die Welt is alles, was der Fall ist

or

Wovon man nicht sprechen kann, darüber muss man schweigen

(as, perhaps, screeched by the brilliant Finnish absurdist composer and singer M. A. Numminen[67]), without recognizing or remembering what they mean.

Thus the mathematical propositions or statements that we express by means of the self-conscious, reflective, intentional conceptual acts of cognizing the linguistic meanings of arithmetic sentences, are also directly combined with an essentially non-conceptual, pre-reflective or first-order conscious grasp of the formal structure of experiential or lived time. This, in turn, essentially conforms to what Brouwer calls the "first act of intuitionism," which is

completely separating mathematics from mathematical language and hence from the phenomena of language described by theoretical logic, recognizing that intuitionistic mathematics is an essentially languageless activity of the mind having its origin in the perception of a move of time. This perception of a move of time may be described as the falling apart of a life moment into two distinct things, one of which gives way to the other, but is retained by memory. If the twoity thus born is divested of all quality, it passes into the empty form of the common substratum of all twoities. And it is this common substratum, this empty form, which is the basic intuition of mathematics.[68]

And then, whenever we directly perceive a configuration of manifestly real material objects in the natural world that partially confirms the necessarily true arithmetic propositions or statements that we express, then the essentially non-conceptual

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[66] See Schacter, "Perceptual Representation Systems and Implicit Memory: Towards a Resolution of the Multiple Memory Systems Debate."

[67] Numminen, "Wovon Man Nicht Sprechen Kann, Darüber Muss Man Schweigen."

[68] Brouwer, *Brouwer's Cambridge Lectures on Intuitionism*, pp. 4–5.

and pre-reflective or first-order conscious direct, veridical sense perceptions of those manifestly real material objects, supplemented by the self-conscious, self-reflective epistemic perceptions based on those direct, veridical perceptions, when taken together with their perceptual, imaginational, and memory-based synthesis in time as we explicitly or implicitly count them up, collectively immediately deliver to us a phenomenological formal structure that locks-onto the truth-making world-structure.

For example, we see the three martinis on the kitchen table sitting alongside the four other martinis, yielding a special, schematized look of seven martinis sitting on the kitchen table, like this—

Y Y Y Y Y Y Y

Now that special, schematized "seven-martinis-sitting-on-the-kitchen-table look" is intrinsically isomorphic to the standard addition operation over the natural numbers 3 and 4 in the system of Peano Arithmetic, especially including Primitive Recursive Arithmetic. Hence the cognitive phenomenology of this subjective experience is based on an essentially non-conceptual and pre-reflective or first-order conscious, direct, veridical sense perception of Hilbert's basic objects of finitistic mathematical reasoning. In turn, this essentially non-conceptual and pre-reflective or first-order conscious, direct, and veridical referential visual experience is a categorial intuition in Husserl's sense, and it necessarily impresses itself upon us as mathematically intrinsically compelling or self-evident, cognitively virtuous, and essentially reliable. This necessarily also includes the satisfaction of LOCKED-ONTO and STRONG DISJUNCTIVISM ABOUT THE COGNITIVE GENERATION, SCANNING, REPRODUCTION, AND MANIPULATION OF VERIDICAL SCHEMATIC MENTAL IMAGERY, THE SENSIBLE FORMS GIVEN IN KANTIAN PURE OR A PRIORI INTUITION, CONSTRUCTED BY THE PRODUCTIVE IMAGINATION.[69] Or in other words, Husserl's phenomenological notion of a categorial intuition smoothly fuses Brouwer's temporal-representation-based *intuitionist* epistemology of mathematics with Hilbert's spatial-representation-based *finitist* epistemology of mathematics. But as regards the logico-semantic foundations of mathematics, we need not suppose that either reductive intuitionism or reductive finitism is true, just as we need not suppose that either classical Logicism or Neo-Logicism is true. Indeed we can even suppose that they are all false as general theories of the nature of mathematics, and that instead Kantian Structuralism and Kantian Intuitionism are true— especially insofar as Kantian Intuitionism captures the kernels of truth in classical intuitionism and classical finitism alike.

In this way, then, as a rational human subject, in *categorially* intuiting that 3+4=7, you are *categorially* obligated to believe the propositional content associated with your essentially non-conceptual and pre-reflective or first-order conscious, direct, veridical visual experience of Hilbert's basic objects of finitist reasoning or Brouwer's first act of intuitionism. And this is precisely because this categorial intuition is

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[69] See also Giaquinto, *Visual Thinking in Mathematics*. Giaquinto's theory of a priori knowledge is, however, at odds with that of Contemporary Kantian Neo-Rationalism (C11), and is in fact an instance of Conceptualist Neo-Rationalism (C9).

self-evident and cognitively virtuous. But, furthermore, it is also an essentially reliable, synthetic a priori infallible, objective a priori knowledge of necessary truth, precisely because (i) that mentally generated, scanned, reproduced, and manipulated veridical schematic mental imagery is locked onto its truth-maker, and (ii) STRONG DISJUNCTIVISM ABOUT THE COGNITIVE GENERATION, SCANNING, REPRODUCTION, AND MANIPULATION OF VERIDICAL SCHEMATIC MENTAL IMAGERY, THE SENSIBLE FORMS GIVEN IN KANTIAN PURE OR A PRIORI INTUITION, CONSTRUCTED BY THE PRODUCTIVE IMAGINATION is also true of it. These two facts jointly yield High-Bar justified true belief. This updated Husserlian doctrine, in its Kantian Structuralist and Kantian Intuitionist context, and with its Brouwerian and Hilbertian epistemological background, I think, provides a robustly realistic phenomenological interpretation of the classical Cartesian idea of clear, distinct, and indubitable rational intuition that is also perfectly consistent with analytic fallibilism.

Correspondingly, as I see it, we have the Tractarian Wittgenstein's equally deep two-part epistemological idea. To have logical or mathematical a priori knowledge is, **first**, to be a rational human subject who possesses an innately specified cognitive capacity or cognitive competence for essentially non-conceptually and pre-reflectively or first-order consciously constructing, understanding, and using natural languages:

Human beings possess the capacity of constructing languages, in which every sense can be expressed, without having an idea of how and what each word means—just as one speaks without knowing how the single sounds are produced. Ordinary language is a part of the human organism and is not less complicated than it.[70]

And **second**, it is to be a rational human language-using subject who actually applies the meaningful logical and mathematical sentences or statements of those natural languages—for instance, "3+4=7" or "Three plus four equals seven"—according to the implicit categorically normative rules of logic and of those natural languages, to a world of directly and veridically sense-perceivable manifestly real material objects in the natural world. Because it is High-Bar objective a priori knowledge, which is essentially reliable, then the configurations of those objects, in turn, inherently satisfy those sentences or statements. So if, plausibly, we take early Wittgenstein's remarks about cognizing language to be anticipations of a broadly Chomskyan theory of language,[71] then our essentially non-conceptually, non-self-consciously, pre-reflectively or first-order consciously, and thus "tacitly," knowing the logical and mathematical parts of a natural language, is just a sub-species of our essentially non-conceptually, non-self-consciously, pre-reflectively or first-order consciously, and thus "tacitly," knowing a natural language more generally.

This is High-Bar objective priori knowledge in the sense of knowing exactly, but also only in an essentially non-conceptual and pre-reflective or first-order conscious way, how to construct and use the language according to categorically normative

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[70] Wittgenstein, *Tractatus Logico-Philosophicus*, prop. 4.002, pp. 61–63, translation slightly modified.
[71] See, e.g., Chomsky, *Knowledge of Language*.

rules of human rationality.[72] So it is not High-Bar objective a priori knowledge in the sense of occurrently self-consciously or reflectively knowing exactly what one is doing or that one is doing it, whenever one actually does it. Or in other words, Wittgenstein is adumbrating the notion of a special linguistic competence for High-Bar objective a priori knowledge, that nevertheless falls slightly short of the most normatively robust, self-conscious, reflective kind of High-Bar objective a priori knowledge, provided that you still possess the capacity for the most normatively robust kind of High-Bar objective a priori knowledge. In the next section, then, we will see how it is possible for a rational human subject competently to "a priori say" High-Bar objective a priori knowledge of necessary truths, without also fully "a priori understanding" what she is competently a priori saying at that time, provided that she still can do, or could have done, the latter.

8.3 Parsons, Kantian Structuralism, and Kantian Intuitionism

> The question is how it is possible for a priori intuition to be "of" objects that are not given a priori. Kant's own solution to the puzzle...appeals to the idea that a priori intuition contains only the form of our sensibility. This evidently removes the causal dependence of intuition on the object. It is a nice question what is left of the characterization of intuition that gives rise to the puzzle. Kant's solution seems to allow the *phenomenological* presence of an object to be preserved, but it is a further question whether what one has is a representation of a physical object, not individually identified and not really present, or a representation of a mathematical object. The former is not ruled out by the a priori character of pure intuition, as the "presence" might be that characteristic of *imagination* rather than sense. In fact, a number of passages in Kant indicate that just that is his position. Kant's puzzle may have force for us, but we are not likely to accept the position that pure intuition contains only the form of sensibility, a central part of Kant's transcendental idealism, at least not as Kant understood it.
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> —C. Parsons[73]

Now I want to look at the basic points of Parsons's theory of Mathematical Structuralism and mathematical intuition in his excellent book *Mathematical Thought and Its Objects*, especially chapters 2–3, 5, and 9, and then formulate six "constructive worries" about it. My working hypothesis is that although Parsons's theory has been explicitly and significantly influenced by Kant (and also by Brouwer and Hilbert),

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[72] See Hanna, *Rationality and Logic*, esp. chs. 4–7. In "Nonconceptual Mental Content," section 4.2, Bermúdez and Cahen correctly note that this psycholinguistic variety of non-conceptual content is different in certain respects from perceptual non-conceptual content. Nevertheless, like all the other varieties of non-conceptual content, it presupposes, and is cognitively constructed upon, the autonomous essentially non-conceptual content of perception. And that, in a nutshell, is why the fact or notion of non-conceptual content is *unitary*. For a similar view about the essentially embodied perceptual and essentially non-conceptual basis of all linguistic cognition, see Merleau-Ponty, *Phenomenology of Perception*, part 1, ch. 6.

[73] Parsons, *Mathematical Thought and Its Objects*, p. 150.

and although this theory is highly philosophically suggestive for my purposes, nevertheless the underlying problem with it is that it is insufficiently Kantian. The worries are "constructive" in the sense that I will use them specifically in order to elaborate and defend both Kantian Structuralism and Kantian Intuitionism somewhat beyond what I have already done in sections 8.1 and 8.2.

(**Parsons 1**) According to Parsons, intuition in the specifically philosophical sense has two different basic kinds: (i) *intuition-that* P (judgment-based intuition, aka, "conceptual intuition" or "propositional intuition"), and (ii) *intuition-of* X (object-directed intuition, aka "non-conceptual intuition" or "perceptual intuition"). This distinction, in turn, maps quite closely onto the classical Russellian distinction between: (i) knowledge-by-description, and (ii) knowledge-by-acquaintance.[74] It is relevant to note here again, as I did in section 2.3, that Russell's knowledge-by-description vs. knowledge-by-acquaintance distinction is clearly an updated version of Kant's distinction between cognition-by-concepts (*Begriffe*) and cognition-by-intuition (*Anschauung*), by way of Brentano and Meinong. Notice also, however, that Parsons's intuition-of (i.e., knowledge-by-acquaintance) is at least minimally non-conceptual in the sense that it implies representational states that are not necessarily or constitutively determined by conceptual or propositional capacities alone, that do not presuppose the possession of concepts, and that do not presuppose the application of concepts. Intuition-of can also be directed to propositions taken as objects, as in "By the way, 3+4=7. I love that proposition."

(**Parsons 2**) According to Parsons, rationality is any mental capacity, act, state, or process essentially related to the provision of reasons, justification, logical inference, and logical principles, including consistency and systematization. Ideal rationality, in turn, is rationality that fully and successfully conforms to and satisfies all the basic norms and principles of reason. Nonideal rationality, by contrast, is rationality that tries to conform to and satisfy all the basic norms and principles, even if it does not always manage to do so fully or successfully. The crucial point here is that nonideal rationality is still rational and not either irrational or arational. This, in turn, conforms to The Two Dimensional or 2D Conception of rational normativity that is built into categorical epistemology (see section 1.2).

(**Parsons 3**) According to Parsons, rational intuition-that is non-infallible (defeasible, fallible) yet also intrinsically compelling (completely convincing, self-evident)—and this is said to be relevantly similar to Quine's notion of the "obviousness" of basic logical truths.[75] It is important to notice in this connection that the distinction between intrinsic compellingness and infallibility teases apart two different senses of indubitability: (i) the indubitability of evidence (especially a priori evidence), and (ii) the indubitability of truth (especially necessary truth).

Obviously, these are logically independent notions, although just as obviously, they are also mutually consistent.

(**Parsons 4**) According to Parsons, rational intuition-that is non-inferential—not needing to be derived by inference or from premises. In this sense, rational intuition is logically and justificationally self-contained, although nothing inherently rules out

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[74] See note 17, chapter 7.   [75] See, e.g., Quine, *Philosophy of Logic*, p. 82.

an auxiliary inferential justification of it, whether deductive, inductive, abductive, or transcendental. Both the intrinsic compellingness (complete convincingness, self-evidence) and also the non-inferentiality of rational intuition-that are basically the same as two of the main components of authoritative rational intuition in the sense spelled out by me in section 7.3, by Husserl via his phenomenological notion of *Evidenz*, and by Wittgenstein via his Tractarian linguistic transformation of Russell's notion of "self-evidence" or *das Einleuchten*. But the three other main components of authoritative rational intuition in my sense—apriority, essential reliability, and objective truth (especially necessary truth)—must be explained independently, according to Parsons.

(**Parsons 5**) Parsons explicitly raises the question, "What accounts for the intrinsic compellingness and non-inferentiality of rational intuition-that, and in particular, what accounts for the intrinsic compellingness and non-inferentiality of *mathematical* intuition-that?" For example, what accounts for the intrinsic compellingness and non-inferentiality of the rational intuition-that 3+4 =7 or any other truth of Primitive Recursive Arithmetic? Kant's two-part answer, also explicitly adopted by Parsons, is (i) that mathematical intuition-of accounts for the intrinsic compellingness and non-inferentiality of rational intuition-that, and (ii) that mathematical intuition-of is in some way or another linked fundamentally to human sense perception.

(**Parsons 6**) According to Parsons, much of mathematics is too abstract and complicated to be suitable for mathematical intuition-of, for example, the more complex parts of number theory, analysis, set theory, or geometry.

(**Parsons 7**) According to Parsons, because of The (in my terminology) Original Benacerraf Dilemma, there is no good reason to think that numbers themselves, taken as abstract objects in the classical platonic sense, can be the proper objects of mathematical intuition-of. Mathematical intuition has to be sense-perception-like.

(**Parsons 8**) What is the nature of numbers and other mathematical objects, according to Parsons? He rejects both platonism and nominalism, and asserts Mathematical Structuralism as I spelled it out in section 8.1. And he is explicitly a Non-Eliminative Structuralist, but remains officially neutral on the question of *Ante Rem* vs. *In Rebus* Structuralism.

(**Parsons 9**) According to Parsons, as a Non-Eliminative Structuralist, mathematical intuition-of is directed specifically to mathematical objects that are something over and above their merely being positions or roles in structures. Moreover, he holds that if any part of mathematics is actually capable of being intuited, then surely it must belong to elementary arithmetic—Peano Arithmetic.

Now, Parsons asks himself, what class of objects satisfies both of the following criteria: (i) they inherently belong to the relevant elementary/Peano arithmetic structure as positions/roles in the structure (i.e., the criterion of Mathematical Structuralism), and (ii) they are also something over and above the structure, i.e., they do not explanatorily and ontologically "disappear" into the structure, as in Eliminative Structuralism (i.e., the criterion of Non-Eliminative Structuralism)? Parsons thinks that Brouwer's intuitionist epistemology[76] and Hilbert's finitist

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[76] See, e.g., van Stigt, *Brouwer's Intuitionism*, esp. ch. 4.

epistemology[77] each provide crucial clues. From Brouwer, he takes the idea that the intuitable part of mathematics is constructible in repeatable acts of human sensory intuition aided by the imagination. And from Hilbert, he takes the idea that the domain of construction is the domain of tokens of simple linguistic types, for instance, visually perceivable strokes such as our old friends, these—

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According to Parsons, linguistic types are "quasi-concrete" in the sense that they are fully repeatable (multiply instantiable, multiply realizable) like classical platonic universals, yet they repeat (instantiate, realize) only in space and time.

(**Parsons 10**) Granting (**Parsons 9**), then Parsons's basic idea about mathematical intuition-of is that any calculation in elementary arithmetic or Peano Arithmetic can be represented intuitively in terms of calculations using strokes; for example,

$$3 + 4 = 7$$

is intuitively representable in sense perception, for instance, via our other old friends—

| | | + | | | | = | | | | | | |

More generally, any natural number can be represented in terms of simple stroke calculations. We see this by using our capacity for non-conceptual sense-perception together with our capacity for imagination—both in the form of memory and also in the form of the ability to create what Kant calls "schemata." The relevant stroke construction, as perceived or imagined (via memory or Kantian schemata) is itself a model in the mathematical sense of any corresponding mathematical proposition or structure that describes or inscribes Peano Arithmetic or the natural numbers. Otherwise put, according to Parsons's Non-Eliminative Structuralism and Mathematical Intuitionism, at least some mathematical objects are perceivable and imaginable role players of the natural number roles—all the actual and possible stroke-constructions—and these are the objects of mathematical intuition-of.

So that is Parsons's doctrine in a ten-part nutshell. For me, however, these stroke constructions count as **evidential verifiers** of mathematical beliefs, not **truth-makers** of mathematical statements. If Kantian Structuralism is correct, then the truth-makers are the mathematical non-platonic, Kantian abstract structures themselves, insofar as they are implemented in the manifestly real natural world of the spatio-temporal material objects of human conscious experience, including ourselves and

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[77] See, e.g., Tait, "Finitism"; and Zach, *Hilbert's Finitism: Historical, Philosophical, and Meta-Mathematical Perspectives,* esp. ch. 4. Zach makes an apt distinction between "bottom-up" and "top-down" approaches to finitism: the bottom-up approach attempts to show that finitist methods of proof are generally sufficient for infinitary mathematics, whereas the top-down approach claims only that finitism yields "that area of mathematical reasoning which is basic to all exercise of mathematical thought" (p. 133)—that finitism yields the thesis that primitive finitistic basic authoritative rational intuition in Primitive Recursive Arithmetic is presupposed by and necessary for any other kind of mathematical reasoning. According to my Kantian appropriation of Hilbert-style finitism, only the top-down approach is defensible.

our own conscious experiences. And these immanent non-Platonic abstract structures are directly and veridically represented by formal autonomous essentially non-conceptual content, through sensible forms given in Kantian pure or a priori intuition and constructed by the productive imagination. With that now-familiar caveat on the table (alongside the seven martinis), I turn to six worries about Parsons's account.

First, I have a worry about Parsons's minimal Non-Conceptualism about sense perception. Many contemporary philosophers of cognition (e.g., McDowell) are defenders of Conceptualism, and as I have argued in chapter 2, there are some quite strong Conceptualist arguments against minimal or "state" Non-Conceptualism that Parsons has not addressed. In particular, the content of a minimally non-conceptual state could still be conceptual, even if the state itself is not necessarily or constitutively determined by conceptual capacities and does not entail concept-possession or concept-application. Otherwise put, for all that Parsons has said, what I have called Highly Refined Conceptualism could still be correct.

Second, because Parsons is a Mathematical Structuralist, he still has to account for our knowledge of mathematical structures. A natural Kantian-Brouwerian-Hilbertian suggestion here is that mathematical structures are grasped by our innately specified cognitive capacity or cognitive competence for non-empirically generating formal autonomous essentially non-conceptual contents in sense perception or memory, by means of mentally generated, scanned, reproduced, and manipulated veridical schematic mental imagery, sensible forms given in Kantian pure or a priori intuition and constructed by the productive imagination, together with our innately specified capacity for conceptualization, together with our innately specified capacity for logical cognition. In short, Kantian Intuitionism. But Parsons never explicitly says this.

Third, because Parsons remains officially neutral about the difference between *Ante Rem* Structuralism vs. *In Rebus* Structuralism, if it turns out that he is ultimately an *Ante Rem* Structuralist, then he would still have a significant commitment to classical platonism. He would in that case, correspondingly, still have a significant problem with The Original Benacerraf Dilemma. Indeed, and I think revealingly, Parsons explicitly avoids facing up to The Original Benacerraf Dilemma in *Mathematical Thought and Its Objects*.

Fourth, one basic worry about allowing in stroke-constructions as mathematical objects themselves is that they do not seem to be precise in the way that classical mathematical objects are. One possibility here is that the productive imagination in the Kantian sense (see, e.g., *CPR* B151–152) might be used as a precisifying representational capacity. For example, you see the martini in your hand, and then you turn away, and after some self-conscious productive imaginational processing in episodic memory you have generated a martini-iconic or martini-like schematic visual image. More explicitly, this could happen in the following six-step way:

  (i) you scan the episodic memory image of holding the martini in your hand,
 (ii) then you subtract the image of your hand from the larger image,
(iii) then you pull back like a movie camera on a dolly until the image is reduced and in full view,

(iv) then you flatten the reduced image to two dimensions,
 (v) then you erase the colors and make it black and white, and finally
(vi) you progressively refine the image until there is only the simplest recogniz-
      able outline that would still identify it as a martini, like this—

        Y

In principle, this kind of productive imaginational processing could then be extended to any finite degree of precision. But, again, Parsons never actually says this.

Fifth, in order to represent all the natural numbers using stroke constructions, the imagination must be an infinitary cognitive capacity, at least in the sense that the cognizing subject can always imagine adding one more stroke to an existing stroke sequence. But that is a significant cognitive power that appears to be spontaneous and also a priori in Kant's sense. Or in other words, the relevant cognitive capacity or competence for imagination must be productive and innately specified. But, yet again, Parsons never explicitly asserts this.

Sixth, even if infinitary stroke constructions are allowed, nevertheless the method of stroke construction does not verify all of even elementary arithmetic—Peano Arithmetic. More specifically, Peano's axiom (5) is not verified by stroke construc-tions, and requires the ability to grasp quantifications over all the numbers. So it seems clear that at most quantifier-free finitist arithmetic—Primitive Recursive Arithmetic—could be verified by mathematical intuition in Parsons's sense. This puts serious epistemic limits on our mathematical intuition. Perhaps that would not be a genuine problem, if Parsons's view were simply the combined Kantian-Brouwerian-Hilbertian epistemological doctrine that nothing will count as mathem-atical knowledge of any kind unless it presupposes our innately specified cognitive capacity or cognitive competence to know at least some of the finitary sub-structures of Primitive Recursive Arithmetic by basic authoritative rational intuition, by means of the mental generation, scanning, reproduction, and manipulation of veridical schematic mental imagery, sensible forms given in Kantian pure or a priori intuition and constructed by the productive imagination. Again, in short, Kantian Intuition-ism. But yet again he does not actually say that.

Here now are six constructive responses to my six worries about Parsons's account.

Re problem 1: In order to deal effectively with this problem, we should accept a maximal or content Non-Conceptualism, namely, what I call Kantian essentialist content Non-Conceptualism, or Kantian Non-Conceptualism. This doctrine, as I have argued in chapter 2, says that (i) non-conceptual content is categorically or essentially different in structure and psychological function from conceptual content, and also that (ii) there really exist mental acts, states, or processes that are defined by their inherent inclusion of autonomous (i.e., altogether concept-free) essentially non-conceptual content, hence there really exist some mental acts, states, or processes whose contents are not determined by our conceptual capacities. And that doctrine specifically also includes (iii) a Kantian theory of formal autonomous essentially non-conceptual content, or pure or a priori intuition, according to which we directly and veridically represent the formal structures of space and time via subjective a priori forms of our empirical sensibility in inner sense and outer sense.

Re problem 2: In order to deal effectively with this problem, we should accept the combined Kantian-Brouwerian-Hilbertian epistemological doctrine that mathematical structures are grasped by our innately specified spontaneous cognitive capacity or cognitive competence for non-empirically representing the formal structures of space and time, as represented by formal autonomous essentially non-conceptual contents, by means of mentally generated, scanned, reproduced, and manipulated veridical schematic mental imagery, sensible forms given in Kantian pure or a priori intuition and constructed by the productive imagination. This in turn should be combined with an appeal to our innately specified spontaneous cognitive capacity or cognitive competence for conceptualization. And it also should be combined with a further appeal to our innately specified spontaneous cognitive capacity or cognitive competence for logical cognition.

Re problem 3: In order to deal effectively with this problem, we should accept the idea that mathematical structures are all non-platonic, Kantian abstract structures, not classical platonic structures. We should also accept the idea that these non-platonic, Kantian abstract structures are weakly or counterfactually transcendentally ideal. Thus they necessarily conform to the pure or a priori autonomous essentially non-conceptual intuitional mental representations of those structures. In these two ways, we will get the version of Non-Eliminative Structuralism that we explanatorily need.

Re problem 4: In order to deal effectively with this problem, we should accept the specifically Kantian idea that the productive imagination can be used as a precisifying representational capacity, For example, you see the martini in your hand, then you turn away, and then, by scanning, reproducing, and manipulating its veridical representation in minimal episodic memory, you generate an empirical schema of a martini, just as I described it earlier. This effectively mediates between actual perception and Kantian formal autonomous essentially non-conceptual content, Kantian pure or a priori intuition.

Re problem 5: In order to deal effectively with this problem, and following on directly from the solution I proposed for problem 4, we should also accept the specifically Kantian theory of the productive imagination, as an innately specified, spontaneous cognitive capacity or cognitive competence for mentally generating, scanning, reproducing, and manipulating veridical mental imagery, and constructing sensible forms given in Kantian pure or a priori intuition.

Re problem 6: Finally, in order to deal effectively with this problem, we should accept the following Kantian-Brouwerian-Hilbertian epistemic principle, which correspondingly I will call **The Kant-Brouwer-Hilbert Principle**, as a non-basic authoritative philosophical intuition about the nature of mathematical knowledge.

The Kant-Brouwer-Hilbert Principle: Nothing will count as mathematical knowledge of any kind unless it presupposes our innately specified rational human cognitive capacity or cognitive competence for knowing at least some of the finitary sub-structures of Primitive Recursive Arithmetic by basic authoritative rational intuition, by means of mentally generating, scanning, reproducing, and manipulating veridical mental imagery, sensible forms given in Kantian pure or a priori intuition and constructed by the productive imagination.

In other words, all mathematical knowledge of any kind, no matter how abstruse, presupposes that all rational human animals have at the very least an innately

specified cognitive capacity or cognitive competence for High-Bar knowledge of at least some objectively necessarily true statements of Primitive Recursive Arithmetic, just by using their innately specified capacities for pure or a priori intuition and productive imagination. For example, any rational human subject can count schematic sheep while falling off to sleep. Therefore it is hard to see how anyone could seriously deny **The Kant-Brouwer-Hilbert Principle**. This point is so crisply made by Tait that it is well worth quoting him yet again:

[A]lthough we cannot speak of the absolute security of finitism, there is a sense in which we can speak of its *indubitability*. That is, any nontrivial reasoning about number will presuppose finitist methods, and there can be no preferred or even equally preferable method from which to launch a critique of finitism. In other words, it is simply pointless to doubt it.[78]

But in any case, even at the risk of philosophical overdetermination, here is an explicit reductio argument for **The Kant-Brouwer-Hilbert Principle**.

Suppose, for instance, that we conceive of someone—let us call him *The ZF Superstar*—who by hypothesis has full knowledge of the basic principles of Zermelo-Fraenkel set theory. Now add to it the further postulate that The ZF Superstar has no cognitive capacity or cognitive competence whatsoever for Primitive Recursive Arithmetic. But that is clearly and distinctly absurd. So **The Kant-Brouwer-Hilbert Principle** is true.

Let me now elaborate that reductio argument a little further, in order to bring out some other important points that also lurk nearby. By a "cognitive capacity or cognitive competence for Primitive Recursive Arithmetic" I mean an innately specified, pre-reflectively conscious ability, grounded on formal autonomous essentially non-conceptual content, for knowing Primitive Recursive Arithmetic by means of the mental generation, scanning, reproduction, and manipulation of veridical schematic mental imagery, for example, simple stroke diagrams, or counting schematic sheep while falling off to sleep. This is as opposed to an occurrent conceptual, reflective, and self-conscious grasp of that very intentional performance that immediately yields a basic authoritative rational intuition of Primitive Recursive Arithmetic, and thereby also immediately yields High-Bar objective a priori knowledge of it.

For example, an ordinary young child, let us say a six-year-old, who can already speak her own natural language fairly competently, can come to know that 3+4=7 by counting on an abacus, using her fingers, using a Hilbert-style stroke diagram, or imagining schematic sheep jumping over a schematic fence (as represented in the cartoons she watches on television or streams on her family's home computer). But obviously she will fail to have an occurrent conceptual, reflective, and self-conscious grasp of the sentence or statement "3+4=7." The ordinary young fairly-linguistically-competent child thereby possesses a skill, or know-how, for generating and manipulating a constructive procedure, by means of which it is possible to have an occurrent conceptual, reflective, and self-conscious grasp of the sentence or statement "3+4=7." But she lacks either a dispositional or occurrent conceptual, reflective, and self-conscious grasp of that sentence or statement. So by deploying that skill, or know-how, she does

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[78] Tait, "Finitism," p. 546.

not High-Bar know objectively a priori that 3+4=7, where High-Bar a priori know-ledge is High-Bar justified objectively necessarily true a priori belief, via authoritative rational intuition. But at the same time, but she does constructively prove that 3+4=7. Thus she has Low-Bar justified objectively necessarily true a priori belief—Low-Bar a priori knowledge, but not High-Bar a priori knowledge, that 3+4=7. She does not know that 3+4=7 by means of a mental act, state, or process that is intrinsically compelling or self-evident, via a properly functioning cognitive mechanism, and essentially reliable. Or otherwise put, the ordinary young somewhat linguistic child's successful counting procedure, for all intents and purposes, is just another Gettier-like example that shows, yet again, that Low-Bar justified true belief is not High-Bar knowledge.

It does not seem at all impossible, then, that The ZF Superstar might lack an occurrent conceptual, self-conscious or reflective grasp of Primitive Recursive Arith-metic. After all, the great Indian mathematician Ramanujan was able to have Low-Bar justified objectively necessarily true a priori belief—Low-Bar a priori knowledge— about certain highly abstruse parts of prime number theory, without also having either a dispositional or occurrent conceptual, self-conscious, or reflective grasp of elementary proof theory.[79] This in turn implies that at that time, Ramanujan also lacked High-Bar justified objectively necessarily true a priori belief—High-Bar objective a priori knowledge—about those parts of prime number theory.

But that real possibility is not what I am specifically postulating for the purposes of my thought-experiment. What I am specifically postulating is that The ZF Superstar lacks even an innately specified, pre-reflectively conscious ability, or cognitive com-petence, grounded on formal autonomous essentially non-conceptual content, for knowing Primitive Recursive Arithmetic by means of mentally generated, scanned, reproduced, and manipulated veridical schematic mental imagery. So he does not even have Low-Bar justified objectively necessarily true a priori belief about Primitive Recursive Arithmetic. In particular, The ZF Superstar cannot count up to 10, or 5, or 2, or even to 1 by using an abacus, using his fingers, using a stroke diagram, or imagining schematic sheep while falling off to sleep. And he has not the slightest skillful or reflective grasp of what zero is. He cannot add, subtract, multiply, or divide. And so on. In other words, The ZF Superstar cannot effectively enumerate the membership of even the smallest sets, or tell the difference between an empty set and a non-empty set, much less effectively perform any of the primitive recursive functions over the mem-bers of any sets. How, then, could he ever know any higher set theory?

The answer, of course, is: he couldn't. The very idea of a fully knowledgeable mathematician of any highly sub-specialized area in mathematical theory who also lacks even an essentially non-conceptually grounded, innately specified, pre-reflectively conscious cognitive capacity or cognitive competence for knowing Primi-tive Recursive Arithmetic by means of veridical schematic mental imagery, is absurd and unintelligible. In other words, The ZF Superstar, minus this cognitive capacity, is not the Ramanujan of set theory. The ZF Superstar, any other purported mathem-atical Superstar, or indeed any other ordinary rational human subject who lacked an

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[79] See, e.g., Kanigel, *The Man Who Knew Infinity*.

essentially non-conceptually grounded, innately specified, pre-reflectively conscious cognitive capacity or competence for knowing Primitive Recursive Arithmetic by means of veridical schematic mental imagery, is simply a non-mathematical animal. Otherwise put, he would be, in effect, a *mathematical dunce*, no matter how rational she might be in the other parts of her rational human animal life. In short, my thought experiment shows the absurdity and unintelligibility of the thought that one could know any mathematics whatsoever without at least this cognitive capacity.

I am now in a position to revisit, in a constructively critical Parsons-inflected way, my positive or anti-skeptical, innatist, intuition-based solution to The Original Benacerraf Dilemma in section 8.2. Let us start with step 6 in the original formulation of The Dilemma:

(6)   But on the other hand, given (4), and since all abstract objects are causally inefficacious or inert, it then follows that all abstract mathematical objects are causally inefficacious or inert.

And let us modify (6), and then complete The Original Benacerraf Dilemma in the following way, according to Kantian Intuitionism:

(6*)   The original step (6) assumes that causally inert abstract mathematical objects, the truth-makers of mathematical statements, are classically platonically abstract things-in-themselves or noumenally real things, This is to say that they are non-spatiotemporal, non-natural, non-sensory, causally irrelevant, causally inert entities constituted by "real essences," i.e., intrinsic non-relational properties. But that assumption is false, given the Kantian view that things-in-themselves/noumena are inherently unknowable by cognizers like us. Therefore we should reject that assumption.

(7*)   On the contrary, we should assume instead that mathematical objects, the truth-makers of mathematical statements, are just non-platonic, Kantian abstract and weakly or counterfactually transcendentally ideal a priori immanent structures of manifestly real spatiotemporal material objects in nature (i.e., appearances or phenomena). Such objects, in turn, are knowable through formal autonomous essentially non-conceptual contents in sense perception, memory, or imagination. More specifically, such objects are knowable by means of the mental generation, scanning, reproduction, and manipulation of veridical schematic mental imagery, sensible forms given in Kantian pure or a priori intuition and constructed by the productive imagination.

(8*)   Now since manifestly real spatiotemporal material objects in nature are causally efficacious, then their non-platonic, Kantian abstract and weakly or counterfactually transcendentally ideal a priori immanent structures must be at least causally relevant.

(9*)   Therefore, the causally inert non-platonic, Kantian abstract mathematical structures that are necessarily implemented, as causally relevant, in the manifestly real spatiotemporal material natural world, are **the truth-makers** of mathematical statements, and they inherently correspond to veridical schematic mental imagery given in Kantian pure or a priori intuition and constructed by the productive imagination, that picks out those immanent structures, which are **the intentional**

targets of basic authoritative mathematical rational intuition. These intentional targets, in turn, inherently correspond to directly and veridically sense-perceivable manifestly real spatiotemporal material objects in nature, which are the causally efficacious **evidential verifiers** of mathematical beliefs or judgments in Peano Arithmetic, especially including Primitive Recursive Arithmetic.

(10*)   Therefore, High-Bar, or absolutely skepticism-resistant, synthetic a priori infallible objective a priori knowledge of at least some necessary and a priori mathematical truths, by means of basic authoritative mathematical rational intuition, is really possible.

This completion constitutes a positive or anti-skeptical, innatist, rational-intuition-based solution for The Original Benacerraf Dilemma.

We can now see, I think, that Kantian Intuitionism is logically consistent, coherent, theoretically elegant, and also fully vindicated by an inference-to-the-best-philosophical-explanation. This can be recapped in five short steps. **First**, we take seriously our empirically well-supported Kantian account of the innately specified cognitive capacities or competences included in ordinary human direct, veridical sense perception and ordinary human linguistic cognition, especially including episodic memory and the productive imagination. **Second**, we take contemporary mathematical science and natural science seriously. **Third**, we reject classical platonism and accept Kantian Structuralism, along with its non-platonic, Kantian conception of abstractness, and as well as Weak or Counterfactual Transcendental Idealism, and also reject Strong Transcendental Idealism. **Fourth**, given that empirically well-supported Kantian account of our innately specified cognitive capacities or competences, and given that Kantian Structuralism and Weak or Counterfactual Transcendental Idealism, then Kantian Intuitionism is also true. **Fifth** and finally, provided that we accept the philosophical package consisting of the empirically well-supported Kantian account of our innately specified cognitive capacities or competences, Kantian Structuralism, and Weak or Counterfactual Transcendental Idealism, then together with Kantian Intuitionism there is one and only one positive or anti-skeptical solution to The Original Benacerraf Dilemma. This fully vindicates Kantian Intuitionism.

One last point. It is crucial to recognize that the scope of a priori knowledge *as such* in mathematics and logic, as well as in philosophy, far exceeds the scope of authoritative rational intuition. So the scope of a priori knowledge as such in mathematics, logic, and philosophy, far exceeds the scope of *High-Bar* a priori mathematical, logical, and philosophical knowledge: not all a priori knowledge is authoritative rational intuition and High-Bar knowledge! For example, a priori knowledge in non-Euclidean geometry and topology, Zermelo-Fraenkel set theory, and classical first-order polyadic logic, and a priori knowledge in the philosophy of non-Euclidean geometry, of Zermelo-Fraenkel set theory, and of classical first-order polyadic logic, not even to mention the more or less recondite kinds of mathematics, logic, and philosophy—are only constructedly rationally intuitive, at best fairly reliable, and Low-Bar a priori knowledge.

Nevertheless, given **The Kant-Brouwer-Hilbert Principle**, all non-authoritative, at best fairly reliable, and Low-Bar mathematical, logical, and philosophical a priori knowledge presupposes and is grounded on the basic authoritatively rationally

intuitable, High-Bar, and thus essentially reliable, parts of mathematics, logic, and philosophy. So all a priori knowledge constantly explicitly or implicitly draws upon that minimal secure foundation of authoritative rational intuition as it carefully advances from the less easily challenged, virtually uncontested, and more epistemically secure domains, toward the more challengeable, more contested, and less epistemically secure domains. This epistemic advance is beautifully symbolically mirrored in the situation of Adam and Eve as they leave Paradise at the end of *Paradise Lost*, with a hard-won awareness of what is and what is not really possible for rational animals like us, in our "human, all too human" condition:

> They looking back, all the eastern side beheld
> Of Paradise, so late their happy seat,
> Waved over by that flaming brand, the gate
> With dreadful faces thronged and fiery arms.
> Some natural tears they dropped, but wiped them soon;
> The world was all before them, where to choose
> Their place of rest, and Providence their guide.
> They hand in hand with wandering steps and slow,
> Through Eden took their solitary way.[80]

8.4 Why Logic Must Be Transcendental

[The logic of the general use of the understanding] contains the absolutely necessary rules of thinking, without which no use of the understanding takes place, and it therefore concerns these rules without regard to the difference of the objects to which it may be directed. . . . Now general logic is either pure or applied logic. In the former we abstract from all empirical conditions under which our understanding is exercised. . . . A **general** but **pure** logic therefore has to do with strictly *a priori* principles, and is a **canon of the understanding** and reason, but only in regard to what is formal in their use, be the content what it may. . . . A **general logic**, however, is called applied if it is directed to the rules of the use of the understanding under the subjective empirical conditions that psychology teaches us. . . . In general logic the part that is to constitute the pure doctrine of reason must therefore be entirely separated from that which constitutes applied (though still general) logic. The former alone is properly science. . . . In this therefore logicians must always have two rules in view. 1) As general logic it abstracts from all contents of the cognition of the understanding and of the difference of its objects, and has to do with nothing but the mere form of thinking. 2) As pure logic it has no empirical principles, and thus draws nothing from psychology. . . . It is a proven doctrine, and everything in it must be completely *a priori*.

(*CPR* A52–54/B76–78)

Logic is not a theory but a reflexion of the world. Logic is transcendental.

—L. Wittgenstein[81]

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[80] Milton, "Paradise Lost," p. 487, book XII, lines 641–649.
[81] Wittgenstein, *Tractatus Logico-Philosophicus*, prop. 6.13, p. 169.

As Jerrold Katz so correctly pointed out, "the news that something works in the philosophy of mathematics ought to be good news for philosophy as a whole."[82] In this section, I will spell out a positive or anti-skeptical, innatist, rational-intuition-based solution to The Extended Benacerraf Dilemma that closely parallels my solution to The Original Benacerraf Dilemma. Along the way, it will also become even clearer how the solutions to The Original Benacerraf Dilemma and The Extended Benacerraf Dilemma jointly provide a general template for solving The Generalized Benacerraf Dilemma, and how *philosophical* authoritative rational intuition is explained and vindicated by the very same lines of reasoning that solve three versions of The Dilemma.

Both Kant and early Wittgenstein held the perhaps surprising thesis that "logic is transcendental." Correspondingly, I will call this **The Logic-Is-Transcendental Thesis**:

Logic is objectively necessarily true, a priori, High-Bar knowable by means of basic or non-basic authoritative rational intuition, and also transcendentally explains all rational human cognition and thought.

Here, in turn, is the relevant notion of a "transcendental explanation," via the preliminary notion of a "transcendental argument," which I have already briefly spelled out in section 4.1.

An *argument* is a set of sentences or statements Γ (and possibly Γ = the null set of sentences or statements), or the premises, such that a sentence or statement S (which may or may not be a member of Γ), or the conclusion, is held to follow validly or soundly from Γ. Then an argument is a *transcendental argument* if and only if

(i) some version of transcendental idealism, whether Strong Transcendental Idealism or Weak or Counterfactual Transcendental Idealism, is assumed to be true, and

(ii) that argument advances from a sentence or statement S, taken as a single premise, to an a priori necessary presupposition *APNP* of S—"a condition of the possibility" of S—taken as a single conclusion, as follows:
   (1) S
   (2) S presupposes *APNP*.
   (3) Therefore, *APNP*.

For example, let S = "There are 7 martinis sitting on the kitchen table" and let *APNP* =

"3+4=7 and the following principle is true, **The Essential Reliability of Basic Authoritative Rational Intuitions in Basic Arithmetic:** At least some of the truths of Primitive Recursive Arithmetic are actually known and repeatedly knowable a priori by basic authoritative rational intuitions, via Hilbert-style basic objects of finitistic mathematical reasoning."

(1) There are 7 martinis sitting on the kitchen table, or,

Υ Υ Υ Υ Υ Υ Υ

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[82] Katz, *Realistic Rationalism*, p. xxxiv, and see also chs. 1–5.

(2) The sentence or statement that there are 7 martinis sitting on the kitchen table presupposes the a priori necessary truth that 3+4=7 and **The Essential Reliability of Basic Authoritative Rational Intuitions in Basic Arithmetic**. For if it were not the case that 3+4=7 holds as a paradigmatic instance of Primitive Recursive Arithmetic that is High-Bar known by basic authoritative rational intuition, that is, if it were not the case that the primitive recursive functions over the natural numbers, like addition, are known to hold by basic, intrinsically compelling or self-evident, cognitively virtuous, and essentially reliable objectively necessarily true a priori rational intuitions, then it would be neither true that there are 7 martinis sitting on the kitchen table nor false that there are 7 martinis sitting on the kitchen table.

(3) Therefore, 3+4=7 and **The Essential Reliability of Basic Authoritative Rational Intuitions in Basic Arithmetic**. (From (1) and (2).)

An a priori necessary presupposition, or *APNP*, can be either analytic a priori— indeed, trivially, every analytic truth is presupposed by every meaningful sentence or statement whatsoever—or synthetic a priori. But in either case it is known by basic authoritative philosophical rational intuition.

In turn, an *explanation* is a set of sentences or statements Γ (and Γ cannot be the null set of statements) and another sentence or statement S (which cannot be a member of Γ, on pain of circularity), such that some sort of necessitation relation is held to obtain between Γ and S—

$$\Box(\Gamma \rightarrow S)$$

Then an explanation is a *transcendental explanation* if and only if there is a non-empty set of a priori necessary presuppositions $(APNP_1, APNP_2, APNP_3, \ldots APNP_n)$ of a sentence or statement S, such that any one of the $APNP_i$, when taken together with some or another set of true general and specific claims $(C_1, C_2, C_3 \ldots C_n)$ derived from either direct, veridical sense perception or natural science, is also related to S in the following way:

Syn Ap $\Box[\{APNP_i, \& (APNP_1, APNP_2, ...APNP_n) \& (C_1, C_2, C_3...C_n)\}\Box \rightarrow S]$

or in other words,

Synthetically a priori necessarily, if $APNP_i$, taken together with all the other $(APNP_1, APNP_2, APNP_3, \ldots APNP_n)$ and also taken together with some or another set of general and specific claims $(C_1, C_2, C_3 \ldots C_n)$ derived from either direct, veridical sense perception or natural science, all *were to be* true, then S *would be* true.

Thus a sound transcendental explanation demonstrates a synthetic a priori subjunctive conditional relation between a given $APNP_i$, selected from a set of *APNPs*, which is known by basic authoritative philosophical rational intuition, and an S, which is known by any other reliable method of knowledge, via some body of fundamental knowledge claims provided by either direct, veridical sense perception or natural science. Otherwise put, a sound transcendental explanation demonstrates that $APNP_i$ is one of "the conditions of the possibility" of S.

For example, let S = "There are 7 martinis sitting on the kitchen table," let $ANPP_i$ = "3+4=7 and **The Essential Reliability of Basic Authoritative Rational Intuitions in Basic Arithmetic**," and let "$(C_1, C_2, C_3 \ldots C_n)$" be a set of relevant general and

specific claims taken from either direct, veridical sense perception or natural science about martinis, tables, their causal-dynamic relations, and the nature of the sitting-on relation. Then the following is a sound transcendental explanation:

(1) There are 7 martinis sitting on the kitchen table, or,

Y Y Y Y Y Y Y

(2)   Synthetically a priori necessarily, if "3+4=7 and **The Essential Reliability of Basic Authoritative Rational Intuitions in Basic Arithmetic,**" and every other relevant a priori necessary presupposition, and also a set of relevant general and specific claims derived from either direct, veridical sense perception or natural science about martinis, tables, their causal-dynamic relations, and the nature of the sitting-on relation, all were to be true, then it would be true that there are 7 martinis sitting on the kitchen table.

(3)   Therefore, the a priori necessary truth that 3+4=7 and **The Essential Reliability of Basic Authoritative Rational Intuitions in Basic Arithmetic** is one of the conditions of the possibility that there are 7 martinis sitting on the kitchen table, or,

Y Y Y Y Y Y Y   (From (1) and (2).)

In section 4.7, I defined the concept of *the non-ideally best explanation* in terms of the concept of *the ideally best explanation* and the concept of *being a closer approximation to being the ideally best explanation*: **A theory T of X is the ideally best explanation of a phenomenon or set of phenomena X if and only if:**
   (i) all the basic facts about X are synthetic a priori entailed by T,
   (ii) T contains only true statements, and
   (iii) no other existing theory satisfies both conditions (i) and (ii).
   A theory T_1 of X is a closer approximation to being the ideally best explanation of X than another theory T_2 if and only if:
   (i) there are some good reasons to think that all the basic facts about X are synthetic a priori entailed by T_1,
   (ii) there are some good reasons to think that T_1 contains only true statements,
   (iii) there are some good reasons to think that no other existing theory satisfies both conditions (i) and (ii), and
   (iv) T_1 is more empirically adequate than T_2, where (in Bas van Fraassen's formulation), a theory is empirically adequate exactly if what it says about the observable things and events in this world is true—exactly if it "saves the phenomena." A little more precisely: such a theory has at least one model that all the actual phenomena fit inside.[83]
   A theory T of X is the nonideally best explanation of X if and only if T more closely approximates to being the ideally best explanation of X than any other existing theory.

Now from these definitions it follows that if there is a transcendental explanation *TE* of something *X*, then *TE* is the nonideally best explanation of *X* if and only if *TE* more closely approximates to being the ideally best explanation of *X* than any other existing explanation.

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[83]   Van Fraassen, *The Scientific Image*, p. 12.

In view of all that, what I want to argue in this section is that **The Logic-Is-Transcendental Thesis**, as providing a transcendental explanation of logic, thereby provides the nonideally best philosophical explanation of logic.

Kant held **The Logic-Is-Transcendental Thesis** because he held that pure general logic is the strictly universal and a priori science of the laws of thought. Early Wittgenstein, by a significant contrast, held **The Logic-Is-Transcendental Thesis** because he held that the classical second-order logic of Frege's *Begriffsschrift*, and Russell and Whitehead's *Principia Mathematica*, is built into the very nature of my language and also into the very nature of the world my language represents.

I fully agree with Kant and early Wittgenstein that **The Logic-Is-Transcendental Thesis** is true, and as I just said, I also want to assert that **The Logic-Is-Transcendental Thesis**, as providing a transcendental explanation of logic, thereby provides the nonideally best philosophical explanation of logic. But two things about **The Thesis** are quite obscure in Kant's and early Wittgenstein's writings in philosophical logic: (1) precisely which argument, or arguments, can adequately justify **The Logic-Is-Transcendental Thesis**? and (2) precisely what are the basic implications of **The Logic-Is-Transcendental Thesis**? In the rest of this section, I want to turn that obscurity into clarity (i) by presenting an argument for **The Logic-Is-Transcendental Thesis** and for its providing the nonideally best explanation of logic, (ii) by spelling out its basic implications of **The Thesis**, which include both Kantian Structuralism for logic and also Kantian Intuitionism for logic, and (iii) by showing how **The Thesis** solves The Extended Benacerraf Dilemma. Then in section 8.5 I will show how this solution to The Extended Benacerraf Dilemma provides a general template for solving The Generalized Benacerraf Dilemma.

In chapter 5, I developed and defended a contemporary Kantian moralist solution to the three status problems about the nature of logic. Assuming that solution, I am now going to argue that first-order monadic logic, pure general logic, and **Minimal Non-Contradiction** are all weakly or counterfactually transcendentally ideal.

The Weak Transcendental Ideality Argument for Logic

1. First-order monadic logic, pure general logic, and **Minimal Non-Contradiction** are either (i) physical, (ii) classically platonic, (iii) sense-experiential, (iv) conventional or social, or (v) transcendentally ideal, and there are no other relevantly distinct options. (Premise, justified by constructed philosophical rational intuition)

2. If first-order monadic logic, pure general logic, or **Minimal Non-Contradiction** were physical, then they would be contingent. But first-order monadic logic, pure general logic, and **Minimal Non-Contradiction** are all necessary. So first-order monadic logic, pure general logic, and **Minimal Non-Contradiction** are not physical. (First intermediate conclusion, justified by constructed philosophical rational intuition)

3. If first-order monadic logic, pure general logic, or **Minimal Non-Contradiction** were classically platonic, then they would be unknowable by Benacerraf's Dilemma considerations. But first-order monadic logic, pure general logic, and **Minimal Non-Contradiction** are all High-Bar knowable a priori. So first-order monadic logic, pure general logic, and **Minimal Non-Contradiction** are

not classically platonic. (Second intermediate conclusion, justified by constructed philosophical rational intuition)

4. If first-order monadic logic, pure general logic, or **Minimal Non-Contradiction** were sense-experiential, then they would be a posteriori. But first-order monadic logic, pure general logic, and **Minimal Non-Contradiction** are all a priori. So first-order monadic logic, pure general logic, and **Minimal Non-Contradiction** are not sense-experiential. (Third intermediate conclusion, justified by constructed philosophical rational intuition)

5. If first-order monadic logic, pure general logic, or **Minimal Non-Contradiction** were conventional or social, then they would be either physical, sense-experiential, logically strongly supervenient on physical facts or sense-experiential facts, or merely necessarily or constitutively determined by physical facts or sense-experiential facts. But neither first-order monadic logic, nor pure general logic, nor **Minimal Non-Contradiction** is either physical, sense-experiential, logically strongly supervenient on physical facts or sense-experiential facts, or necessarily or constitutively determined by physical facts or sense-experiential facts. So neither first-order monadic logic, nor pure general logic, nor **Minimal Non-Contradiction** is conventional or social. (Fourth intermediate conclusion, justified by constructed philosophical rational intuition)

6. Therefore first-order monadic logic, pure general logic, and **Minimal Non-Contradiction** are all transcendentally ideal. (From 1–5, and Disjunctive Syllogism)

7. If something is transcendentally ideal, then it is either strongly transcendentally ideal or else weakly or counterfactually transcendentally ideal and there are no other relevantly distinct options. (Premise, justified by constructed philosophical rational intuition—see section 7.3.)

8. Strong Transcendental Idealism is false. (Premise, justified by constructed philosophical rational intuition—see section 7.3.)

9. Therefore first-order monadic logic, pure general logic, and **Minimal Non-Contradiction** are all weakly or counterfactually transcendentally ideal. (From 7, 8, and Disjunctive Syllogism)

The argument I have just spelled out is clearly valid, since it is in the form of two simple disjunctive syllogisms in classical sentential logic. But at the same time, it is equally clear that its soundness rests on the seven premises, each justified by constructed philosophical rational intuition, involving some context-sensitive, contingent, and partially empirical, partially holistic, and partially inferential elements, whose rational support is therefore only fairly reliable, and does not flow from the highest kind of evidence—basic or non-basic authoritative rational intuition. Nevertheless, I do think it can still be truly said that this argument makes a fairly plausible case for the weak or counterfactual transcendental ideality of first-order monadic logic, pure general logic, and **Minimal Non-Contradiction**.

For the purposes of further argument, I will now assume that **The Logic-Is-Transcendental Thesis** is arguably true for first-order monadic logic, pure general logic, and **Minimal Non-Contradiction**. In other words, first-order monadic logic, pure general logic, and **Minimal Non-Contradiction** are all objectively necessary, a

priori, and do not either logically strongly supervene, or necessarily or constitutively depend, on anything but themselves. Now if first-order monadic logic, pure general logic, and **Minimal Non-Contradiction** are all objectively necessary, a priori, and do not logically strongly supervene, or necessarily or constitutively depend, on anything but themselves, then none of them either logically supervenes, or necessarily or constitutively depends, on anything physical, contingent, sense-experiential, or conventional or social. This in turn entails that not everything logically strongly supervenes, or even necessarily or constitutively depends, on the physical world, the contingent natural world, the sense-experiential natural world, or the social world. So Scientific Naturalism is false, reductive physicalism is false, non-reductive physicalism is false, and also Empiricism is false, including classical or Lockean-Humean Empiricism, radical or Quinean Empiricism, and Logical Empiricism. Furthermore, since, as I argued in chapter 5, first-order monadic logic, pure general logic, **Minimal Non-Contradiction** are all categorically normative for all rational human cognition and thought, then they are necessarily presupposed by, and also conditions of the possibility of, all rational human cognition and thought. Because first-order monadic logic, pure general logic, and **Minimal Non-Contradiction** are all weakly or counterfactually transcendentally ideal, and because Strong Transcendental Idealism is false, it also follows that classical platonism about logic is false, and that logic is abstract in the non-platonic, Kantian sense only. And finally, because first-order monadic logic, pure general logic, and **Minimal Non-Contradiction** are all transcendental in all senses of that notion as I specified it earlier in this section, it follows that actual human rationality, actual human cognition, actual human thought, first-order monadic logic, pure general logic, and **Minimal Non-Contradiction** are all essentially bound up with one another, and stand or fall together. More precisely, the latter three (= first-order monadic logic, pure general logic, and **Minimal Non-Contradiction**) transcendentally explain the former three (= actual human rationality, actual human cognition, actual human thought). As Kant and early Wittgenstein both so brilliantly saw, philosophical logic bottoms out in serious Kantian epistemology and serious Kantian transcendental metaphysics.

From here on in, I will deploy **The Logic-Is-Transcendental Thesis** in order to work out a solution to The Extended Benacerraf Dilemma. To the extent that **The Logic-Is-Transcendental Thesis** can be effectively deployed to solve The Extended Benacerraf Dilemma, then it provides the nonideally best philosophical explanation of logic.

Obviously, the heavy burden of proof for *any* adequate solution to The Extended Benacerraf Dilemma is the threefold task of (i) clarifying the nature of abstract logical objects, (ii) providing an account of the cognitive mechanisms of logical intuition, and then (iii) showing how these are internally related to one another in logical High-Bar a priori knowledge—High-Bar justified necessarily objectively true a priori belief. In the rest of this section, then, I will sketch a four-part transcendental theory of logical rational intuition that does the job,[84] and also explicitly extends Kantian Structuralism and Kantian Intuitionism to logic. This four-part transcendental

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[84] The rest of this section draws, in part, on Hanna, *Rationality and Logic*, section 6.6.

theory also provides a general template for solving The Generalized Benacerraf Dilemma, which I will spell out in section 8.5.

Part One: Kantian Structuralism for Logic

The first part of the theory is Kantian Structuralism as specifically applied to logic. According to Non-Reductive Structuralism, as I have already pointed out in section 8.1, abstract objects of some specific kind are not construed as independently existing entities but instead are taken to be, essentially, distinct roles, positions, or offices in a structure, that is, an abstract formal relational system consisting of a coherent set of interlinked patterns or configurations.[85] So the thesis of my non-reductive Logical Structuralism is that each logical system is an abstract formal relational totality consisting of a coherent set of logical patterns or configurations, and that logical objects are nothing more than and also nothing less than distinct roles, positions, or offices in some such system.

According to my view, both logical objects and their constitutive logical structures are abstract in a strictly non-platonic, Kantian sense, according to which something is abstract if and only if it is not uniquely located and realized in actual spacetime, whereas all and only concrete things are uniquely located and realized in actual spacetime. This non-platonic, Kantian conception of abstractness not only takes on board Parsons's fruitful notion of "quasi-concreteness," and also Katz's similarly fruitful notion of "composite objects" that are both abstract and concrete,[86] but it also and above all, allows for the causal relevance of abstracta. In this way, then, I can assert both non-reductive Logical Structuralism and the abstractness of logical structures while also not committing myself to the highly problematic thesis that logical objects and their constitutive logical structures are platonically abstract and therefore causally irrelevant, as well as being causally inert. On the contrary, if I am correct, then logical objects and their constitutive structures are non-platonic, Kantian abstract structures, and therefore causally relevant, even if not causally efficacious, precisely because they are all weakly or counterfactually transcendentally ideal, and also cognitively constructed by rational human animals in language, whether in the language of thought or in a public language.[87] In this way, the non-platonic, Kantian abstractness of logic is the abstractness of a weakly or counterfactually transcendentally ideal linguistic structure, a formal relational system consisting of a coherent set of interlinked patterns of linguistic types that necessarily conforms to the innately specified cognitive capacities of the rational human mind.

Part Two: Kantian Intuitionism for Logic

This brings me to the second part of the theory: Kantian Intuitionism as specifically applied to logic. Let us assume that logical objects and their constitutive structures are non-platonic, Kantian abstract structures because they are weakly or counterfactually transcendentally ideal, and also cognitively constructed by rational human

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[85] See, e.g., Shapiro, *Philosophy of Mathematics: Structure and Ontology*, chs. 3–5. For an extension of structuralism to logic, see e.g., Koslow, *A Structuralist Theory of Logic*.
[86] Katz, *Realistic Rationalism*, ch. 5.
[87] See Hanna, *Rationality and Logic*, chs. 4–5.

minded animals in language. In view of those assumptions, I am now also claiming that the primary cognitive mechanism of authoritative rational intuition in logic is the mental generation, scanning, reproduction, and manipulation of veridical schematic mental imagery, sensible forms given in Kantian pure or a priori intuition and constructed by the productive imagination. Correspondingly, the phenomenal continuous isomorphism, spatial-structure-coincidence, or temporal-structure-coincidence occurs in the specifically pattern-matching activities of rational human sense perception, minimal episodic memory, and/or the imagination. This, in turn, fully satisfies both LOCKED-ONTO and also STRONG DISJUNCTIVISM ABOUT THE COGNITIVE GENERATION, SCANNING, REPRODUCTION, AND MANIPULATION OF VERIDICAL SCHEMATIC MENTAL IMAGERY, THE SENSIBLE FORMS GIVEN IN KANTIAN PURE OR A PRIORI INTUITION, CONSTRUCTED BY THE PRODUCTIVE IMAGINATION. So it guarantees that authoritative rational intuitions in logic are High-Bar justified by virtue of being intrinsically compelling or self-evident, cognitively virtuous, and inherently or intrinsically—hence non-accidentally or necessarily—connected to the logically necessary truth-makers of those beliefs, which partially constitute those rational intuitions, and thereby produce High-Bar objective a priori knowledge. This in turn yields Kantian Intuitionism for logic.

As I have said many times, for me, as also for Kant, the primary cognitive mechanism for authoritative rational intuition, whether in mathematics, logic, or philosophy, is the veridical productive imagination insofar as it builds on direct, veridical sense perception and minimal episodic memory, and mentally generates, scans, reproduces, and manipulates schematic mental imagery. This occurs by means of formal autonomous essentially non-conceptual content, Kantian pure or a priori intuition, so although it requires sense perception, it is therefore not based on sense perception alone:

We will call this formal and pure condition of the sensibility, to which the use of the concept of the understanding is restricted, the **schema** of this concept of the understanding…The schema is in itself always only a product of the imagination; but since the synthesis of the latter has as its aim no individual intuition but rather only the unity in the determination of sensibility, the schema is to be distinguished from the image. Thus, if I place five points in a row,…., this is an image of the number five. On the contrary, if I only think number in general, which could be five or a hundred, this thinking is more the representation of a method for representing a multitude (i.e., a thousand) in accordance with a certain concept than the image itself, which in this case I could survey and compare with the concept only with difficulty. Now this representation of a general procedure of the imagination for providing a concept with its image is what I call the schema for this concept.

In fact it is not images of objects but schemata that ground our pure sensible concepts…. [T]he **image** (*Bild*) is a product of the empirical faculty of productive imagination, [but] the **schema** of sensible concepts (such as figures in space) is a product and as it were a monogram of pure a priori imagination, through which and in accordance with which the images first become possible…The schema of a pure concept of the understanding…is something that can never be brought to an image at all, but rather is only the pure synthesis, in accord with a rule of unity according to concepts in general, which the category expresses,

and is a transcendental product of the imagination, which concerns the determination of inner sense in general, in accordance with conditions of its form (time). (*CPR* A140–142/B180–181)

In turn, my Kant-inspired rationale for holding that the proper cognitive mechanism for authoritative rational intuition—whether in mathematics, logic, or philosophy—is the veridical productive imagination in this sense, is this: the veridical productive imagination has three basic features that are not also shared by sense perception on its own.[88]

First, I can veridically schematically imagine an object O even though O is not uniquely located in spacetime, whereas I cannot veridically sense-perceive O unless O is uniquely located in spacetime.

Second, to generate a veridical schematic mental image of an object O is thereby to generate a figural or spatiotemporal image, distinct from O itself, that is directly available to introspective scanning, reproduction, and manipulation, for instance, by means of image-rotation, image-reduction, image-expansion, "air-brushing," zooming in, pulling back, and so on. By contrast, to perceive O veridically is not thereby[89] to generate anything figural or spatiotemporal, distinct from O itself, that is directly available to introspective scanning, reproduction, and manipulation.

And **third**, I can generate a veridical schematic image of an objectively real object O_r (e.g., someone I know well) without its being the case that O_r stands either in any efficacious causal relation or in an effective "tracking" relation to my conscious image of O_r, such that I can locate O_r in an egocentric phenomenal space relative to my body and also follow O_r's movements in this centered space over time. By contrast, it is plausible to think that I cannot veridically sense-perceive O_r without either an efficacious causal relation or an effective tracking relation obtaining between O_r and my conscious perceptual representation of O_r.

These three features of the veridical productive or schematic imagination—(i) that its objects can be abstract, (ii) that it generates figural or spatiotemporal images directly available to introspective scanning, reproduction, and manipulation, and (iii) that its veridicality-conditions are not based on either efficacious causation or effective tracking—are all deeply relevant to authoritative rational intuition in logic.

It is obvious enough, I think, that authoritative rational intuition in logic will necessarily be such that its objects are abstract and that its veridicality-conditions are neither necessarily nor constitutively determined by either efficacious causation or effective tracking. That is what got us into The Original Benacerraf Dilemma and The Extended Benacerraf Dilemma in the first place. But the other basic feature of the veridical productive or schematic imagination—its generation of figural or spatiotemporal images directly available to introspective scanning, reproduction, and manipulation—may not be so obviously relevant. What I want to claim, however, is that it is this second of the three basic features that actually clinches the case for the

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[88]   See also Parsons, "Mathematical Intuition."

[89]   Of course, in perceiving an object, we often generate an image of it too. But this is not, I think, absolutely necessary. Otherwise it would have to be the case that absolutely everything I perceive, I can in principle remember. But surely there is some sort of "representational paring-down" that occurs in the transition from perceptual content to memory content.

necessary cognitive connection between authoritative rational intuition in logic and the veridical productive imagination.

This becomes clear when we ask ourselves about the conditions under which I generate a veridical schematic mental image of an objectively real object O_r or objectively real dynamic process DP_r. Here I am drawing directly on a body of classical 20th-century work on mental imagery in cognitive psychology by Philip Johnson-Laird, Steven Kosslyn, and Roger Shepard.[90] According to these psychologists, the representation-relation between an image—Johnson-Laird regards images as paradigm examples of what he calls "mental models"—and a real object or real dynamic process is essentially depictive or pictorial, and not essentially descriptive or propositional. Here it should be noted that I am taking sides in what was a very vigorous debate in mid-to-late 20th-century cognitive science about the nature of mental imagery, with Johnson-Laird, Kosslyn, and Shepard on the depictivist side, and Zenon Pylyshyn and others on the descriptivist or propositionalist side.[91] I am not saying that this debate is actually over, or that it has been decisively resolved, but rather only that it seems to me that the case for two irreducibly distinct types of mental representation and representational content is at this point definitely stronger than the case for the thesis that all mental representations and representational content are at bottom descriptive or propositional. On the basis of that assumption, then, I will forge ahead.

We start with a veridical mental image in minimal episodic memory. Now, a veridical depictive or pictorial relation is based on sharing the same configuration, figure, pattern, shape, or structure, and not based on satisfying some specific set of descriptive or propositional criteria. So a schematic image I veridically represents its corresponding real object O_r or dynamic process DP_r if and only if I is continuously isomorphic or spatiotemporal-structure-coincident with O_r or DP_r. When I form a veridical schematic mental image of some object or dynamic process, based on a veridical mental image in minimal episodic memory, I consciously scan, reproduce, and manipulate my schematic mental image, mental model, mental diagram, or mental picture—or, in the case of a dynamic process, in effect a "mental movie"—until it apparently shares the same phenomenal configuration, figure, pattern, shape, or structure as the real object or real dynamic process I have imaged. In other words, I mentally simulate the structure of the schematically imaged object or dynamic process.

But here is the crucial part. Whenever, during this procedure of veridical mental simulation, I have actually reached the point of what seems to me to be the precise or one-to-one matching of the relevant elements of the structure of my schematic mental image or "mental movie" with the corresponding elements of the structure of the schematically imaged object or dynamic process, as I have consciously

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[90] See Johnson-Laird, *Mental Models*; Kosslyn, *Image and Mind*; Kosslyn, *Image and Brain*; Shepard, "The Mental Image"; Shepard and Chipman, "Second Order Isomorphisms of Internal Representations: Shapes of States"; Shepard and Cooper, *Mental Images and Their Transformations*; and Shepard and Metzler, "Mental Rotation of Three-Dimensional Objects."

[91] See, e.g., Block (ed.), *Imagery*; Block (ed.), *Readings in the Philosophy of Psychology*, vol. 2, part 2; and Block, "The Photographic Fallacy in the Debate about Mental Imagery."

represented it (whether simply via minimal episodic memory, and therefore also by direct, veridical sense perception, or also by judgment, or inference), then I thereby induce in myself an intrinsically compelling or self-evident, cognitively virtuous, and essentially reliable belief that the schematically imaged object or dynamic process really and truly is just as I have consciously represented it. That is because the criterion of veridicality for schematic images is exact continuous isomorphism or spatiotemporal-structure-coincidence with their objects or dynamic processes. So whenever my veridical schematic mental image is experienced from the inside, or phenomenologically, as having the very same configuration, figure, pattern, shape, or structure as what is specified by the content of my conscious representation of the object or dynamic process, then necessarily I am thereby fully convinced that the schematically imaged object or dynamic process is just as I have represented it to be.

Of course, not every schematic mental image is veridical. The world can be otherwise than I have imagistically represented it to be. But the crucial thing for my purposes here is that in cases of veridical schematic mental imaging, the cognitive step from, on the one hand, the consciously experienced continuous isomorphism or spatiotemporal-structure-coincidence between my schematic mental image and what is specified by the content of my conscious representation of the schematically imaged object or dynamic process, to, on the other hand, a completely convincing, intrinsically compelling, or self-evident and essentially reliable belief that the schematically imaged object or dynamic process is precisely as I have represented it by means of my cognition, is synthetically necessary, necessarily and constitutively underdetermined by any or all sensory experiences and/or contingent facts, i.e., a priori, and self-contained. Otherwise put, in veridical schematic mental imaging, the subjectively experienced "rightness of fit" between my schematic mental image and what is specified by the content of my conscious representation of the schematically imaged object or dynamic process is cognitively optimal. So I am thereby both objectively and subjectively certain that the schematically imaged object or dynamic process is precisely as I have represented it to be. And in this way the phenomenal structure-matching activity of the veridical schematizing imagination, against the backdrop of Weak or Counterfactual Transcendental Idealism and Kantian Structuralism, adequately explains the real possibility of authoritative rational intuition.

It is crucial to emphasize here how sharply different this schematic imaginational account of authoritative rational intuition is from classical conceptual-linguistic analysis accounts of how rational intuition occurs, all the way from Arthur Pap,[92] H. P. Grice, and Peter Strawson[93] in the 1950s, '60s, '70s, and '80s, to Chalmers and Jackson[94] in the 1990s, 2000s, and twenty-teens.[95] On conceptual-linguistic analysis accounts, the rational mental act, state, or process of fully understanding the meanings

[92] See Pap, *Semantics and Necessary Truth*; and Pap, *Elements of Analytic Philosophy*.

[93] See, e.g., Grice, *Studies in the Way of Words*; Grice and Strawson, "In Defense of a Dogma"; and Strawson, *Analysis and Metaphysics*.

[94] See, e.g., Chalmers, "Foundations of Two-Dimensional Semantics"; Chalmers and Jackson, "Conceptual Analysis and Reductive Explanation"; and Jackson, *From Metaphysics to Ethics: A Defense of Conceptual Analysis*.

[95] Many thanks to Kevin White for urging me to make this contrast more explicit.

of the constituent concepts or words of a sentence or statement cognitively suffices for an authoritative rational intuition. But this is clearly mistaken, since even conceptual-linguistic analysts who fully understand the meanings of the very same sentences or statements can diametrically disagree about them because they are being guided by very different fundamental philosophical "pictures" in the later Wittgenstein's sense of that term—and they cannot all be right. But the real-world cognitive fact of diametric philosophical disagreement in conceptual-linguistic analysis, together with the full semantic understanding of all disagreeing parties, is perfectly consistent with the further fact that any or all of the disagreeing reasoners fail to have authoritative rational intuitions, precisely because they have simply failed successfully to perform an intentional act of veridical schematic mental imaging. If so, then even over and above full semantic understanding, they have simply failed successfully to depict or picture the truth.

Here we can also play an illuminatingly relevant riff on the early Wittgenstein's equally famous and notorious Tractarian distinction between "saying" (sagen) and "showing" (zeigen).[96] In order to have an authoritative rational intuition, it is not enough just to be able to say it to yourself—you have to be able to show it to yourself, too. Authoritative rational intuition requires a further successful and rationally responsible intentional performance of veridical schematic imaging over and above the mere act, state, or process of full conceptual-linguistic understanding.

Part Three: Explaining the Essential Reliability of Authoritative Logical Intuitions

This brings me to the third part of the theory: explaining the essential reliability of authoritative logical rational intuitions. Right at the beginning of this book, in section 1.2, we saw that the objective reality of truth plays an essential role in categorical epistemology. This role is that necessarily, High-Bar justified true belief includes an inherent or intrinsic, hence non-accidental or necessary, connection between the conscious-evidence-based reasons, yielded by properly functioning cognitive mechanisms, that provide sufficient epistemic justification for the rational human subject of cognition, and objective truth. In the special case of High-Bar a priori knowledge based on authoritative rational intuitions *in logic*, then, High-Bar justified true belief thereby includes an inherent or intrinsic connection between a priori sufficient justification and *logically necessary* objective truth. In turn, the joint satisfaction of LOCKED-ONTO and STRONG DISJUNCTIVISM ABOUT THE COGNITIVE GENERATION, SCANNING, REPRODUCTION, AND MANIPULATION OF VERIDICAL SCHEMATIC MENTAL IMAGERY, THE SENSIBLE FORMS GIVEN IN KANTIAN PURE OR A PRIORI INTUITION, CONSTRUCTED BY THE PRODUCTIVE IMAGINATION, by means of the successful operations of the productive imagination in logical cognition, will guarantee that authoritative rational intuitions in logic are High-Bar justified, and also that they are non-accidentally or necessarily connected to the logically necessary objective truth-makers of those beliefs, and thereby constitute High-Bar objective a priori knowledge.

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[96] See, e.g., Wittgenstein, *Tractatus Logico-Philosophicus*, prop. 4.022, p. 67.

This directly leads to another issue. We now know that in order for an authoritative rational intuition in logic to constitute High-Bar objective a priori knowledge, logical necessity must be objectively real and also weakly or counterfactually transcendentally ideal. But what *is* logical necessity? And for that matter, what is *necessity*? Obviously I cannot even begin to *address* adequately, much less *answer* adequately, such a huge question at this point in the book. In a very general way, however, it seems clear enough that according to the Kantian Structuralist solution to The Original Bencerraf Dilemma, The Extended Benacerraf Dilemma, and The Generalized Benacerraf Dilemma that I have been developing, necessity consists in (i) the identity of various kinds of non-platonic, Kantian abstract and weakly transcendentally ideal structures with one another, (ii) the proper containment of various kinds of non-platonic, Kantian abstract and weakly transcendentally ideal sub-structure within various relevant kinds of super-structure, or (iii) the reciprocal involvement of various kinds of non-platonic, Kantian abstract and weakly transcendentally ideal structure with one another, across unrestricted or restricted classes of logically possible worlds. So all necessity is grounded in either identity, proper containment, or reciprocal involvement relations between various kinds of non-platonic, Kantian abstract and weakly transcendentally ideal structures. This in turn yields a specifically Kantian Structuralist interpretation of Kant's famous thesis that "every necessity has a transcendental condition as its ground" (*CPR* A106). Kant's thesis could then be updated to the following Kantian Structuralist slogan: "every necessity has a *weakly transcendentally ideal structural* condition as its ground."

Moreover, since in the course of this book I have already frequently deployed the concept of necessity, I should also at least very briefly re-summarize the general modal framework I have been developing, defending, and using.[97]

For me, necessity is the truth of an interpreted sentence or statement in every member of a set of possible worlds, together with its non-falsity in every other possible world. A possible world is nothing more and nothing less than a maximally consistent set of different conceivable ways the actual world might have been: that is, a possible world is the largest distinct set of mutually consistent concepts such that the addition of one more concept to that set would yield an inconsistency. Logical possibility, more generally, is the consistency of a sentence or statement with the laws of some classical or non-classical logic. Logical necessity is the truth of an interpreted sentence or statement in virtue of logical laws or intrinsic conceptual connections (of conceptual identity, conceptual proper containment, or conceptual reciprocal involvement) alone, hence the truth of an interpreted sentence or statement in all logically possible worlds. Put in traditional terms, logical necessity is analyticity or conceptual necessity.

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[97] This modal framework is somewhat similar (with a few important differences, such as the general gloss on the notion of necessity, and the positive inclusion of synthetic, essentially non-conceptual, non-logical, or "strong metaphysical" necessity) as that used by Chalmers in *The Conscious Mind*, pp. 52–71, and 136–38. See also Kripke, "Semantical Considerations on Modal Logic"; Montague, "Logical Necessity, Physical Necessity, Ethics, and Quantifiers"; and Smiley, "Relative Necessity." For a closely related historical discussion of the analytic-synthetic distinction, see Hanna, *Kant and the Foundations of Analytic Philosophy*, chs. 3–5.

Logical, analytic, or conceptual necessity is usually contrasted with physical or nomological necessity, that is, the truth of an interpreted sentence or statement in all logically possible worlds governed by our actual laws of nature; correspondingly, physical or nomological possibility is the joint consistency of an interpreted sentence or statement with the laws of logic and our actual laws of nature. Physical or nomological necessity is also a form of "hypothetical" or "relative" necessity. More precisely, an interpreted sentence or statement S is hypothetically or relatively necessary if and only if it is logically necessary that $\Gamma \rightarrow S$, where Γ is some set of special axioms or postulates, for instance, our actual laws of nature. Thus hypothetical or relative necessity is parasitic on logical, analytic, or conceptual necessity.

In addition to logical, analytic, or conceptual necessity, and physical or nomological necessity, there is also metaphysical necessity. Metaphysical necessity is either (i) necessity as defined over the set of all logically possible worlds, in which case it is also logical, conceptual, analytic, or "weak metaphysical" necessity, or (ii) necessity as defined over a set of possible worlds that is definitely smaller than the set of all logically possible worlds and determined by the inherently non-logical structural constraints that constitute the underlying essence or nature of the manifestly real actual world, in which case it is non-logical, essentially non-conceptual, synthetic, or "strong metaphysical" necessity. More precisely, an interpreted sentence or statement S is non-logically, essentially non-conceptually, synthetically, or "strongly metaphysically" necessary if and only if

(i) S is true in every member of a set K of logically possible worlds,
(ii) K is smaller than the set of all logically possible worlds,
(iii) K is larger than the set of all physically possible worlds,
(iv) K includes the class of physically possible worlds,
(v) K is the class of logically possible worlds consistent with the underlying inherently non-logical essence or nature of the manifestly real actual world, including its basic spatiotemporal structure, its basic dynamical structure, and its basic mathematical structure, and
(vi) S takes no truth-value—S is a truth-value gap—in every logically possible world not belonging to K.

Put in traditional Kantian terms, non-logical, essentially non-conceptual, synthetic, or "strong metaphysical" necessity is synthetic a priori necessity.

Now, Chalmers has objected to the very idea of "strong metaphysical" necessity on the following three grounds: (i) that it is an ad hoc addition to the roster of modalities,(ii) that it is brute and inexplicable, and (iii) that the defenders of strong metaphysical necessity fail to provide an account of how humans get epistemic access to this modality.[98] All of these objections may well apply to conceptions of strong metaphysical necessity that take it to be a form of a posteriori necessity, and in particular identify it with physical necessity. But none of them apply to my contemporary Kantian conception of "strong metaphysical" necessity as non-logical, essentially non-conceptual, or synthetic a priori necessity. It is not an ad hoc addition to the

[98] See, e.g., Chalmers, *The Conscious Mind*, pp. 136–38.

roster of modalities, precisely because it is required for the best philosophical explanation of the analytic–synthetic distinction, the best philosophical explanation of mathematics, and also for the best philosophical solution of The Original Benacerraf Dilemma, not to mention for the best philosophical explanation of the very idea of inference-to-the-best-explanation. And it is not brute and inexplicable, precisely because it is explicable in terms of the cognitive semantics of autonomous essentially non-conceptual content and Weak or Counterfactual Transcendental Idealism. Also, it contains an account of how humans get epistemic access to this modality, namely the theory of formal or a priori autonomous essentially non-conceptual cognition. So Chalmers's objections do not generalize. Indeed, it is even arguable that "strong metaphysical" necessity as I construe it is more basic than logical necessity, since in the modal framework I have sketched there are going to be logical possibilities that are not real possibilities.[99]

Needless to say, the distinction between analytic necessity and synthetic a priori necessity is highly philosophically controversial.[100] I have already attempted to defend the analytic–synthetic distinction and the very idea of the synthetic a priori, and also to demonstrate its existence, in chapter 4. My appeal to it in this particular context is intended only to indicate that, **first**, I take the notion of necessity to extend essentially beyond the notion of logical, conceptual, analytic, or "weak metaphysical" a priori necessity, hence my modal framework is modally dualistic, not modally monistic, and (ii) the modally dualistic possible worlds framework I have adopted is directly and ultimately based on Weak or Counterfactual Transcendental Idealism, by way of **The Logic-Is-Transcendental** Thesis. The crucial takeaway for my purposes here, then, is that the essential reliability of authoritative logical rational intuition consists in the intrinsic connection between (i) the rational cognitive subject's conscious-evidence-based reasons for holding that logical belief and (ii) the objectively real and also weakly or counterfactually transcendentally ideal logical, conceptual, analytic, or "weakly metaphysical" a priori necessity of that belief.

Part Four: The Cognitive Phenomenology of Self-Evidence in Authoritative Logical Intuition

Now for the fourth and final part of the theory: the cognitive phenomenology of logical self-evidence. I have proposed that logical objects are, essentially but also irreducibly, distinct roles, positions, or offices in logical structures. Logical structures, in turn, are logics construed as non-platonic, Kantian abstract and weakly or counterfactually ideal formal relational systems consisting of coherent sets of interlinked patterns of linguistic types. I have also proposed that the primary cognitive mechanism of logical intuition is the capacity for consciously generating, scanning, reproducing, and manipulating linguistic schematic mental images. In addition, I have proposed that the objective reality and weak transcendental ideality of logical necessity is an essential part of logical knowledge, construed as High-Bar justified logically necessarily true a priori belief. Given the conceptions of a priori knowledge and

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[99]   For a similar idea, see Shalkowski, "Logic and Absolute Necessity."
[100]   See, e.g., Hanna, *Kant and the Foundations of Analytic Philosophy*, chs. 3–5.

authoritative rational intuition I have developed in chapters 7 and 8, then my claim here is that I have High-Bar a priori logical knowledge via my logical rational intuition that S if and only if (1) I intrinsically compellingly or self-evidently logically rationally intuit that S, via a properly functioning cognitive mechanism, and (2) it is an objectively real, non-platonic, Kantian abstract, and weakly counterfactually transcendentally ideal fact that logically necessarily S. More precisely now with respect to (1), I intrinsically compellingly or self-evidently logically rationally intuit that S, via a properly functioning cognitive mechanism if and only if

(1.1) I rationally intuit that S, hence

(1.2) I take it to be logically necessary and a priori that S, and

(1.3) I consciously scan, reproduce, and manipulate my linguistic schematic mental image 'S' of the sentence or statement S to the point of phenomenal continuous isomorphism or spatial-structure-coincidence with what is specified by the semantic content of my rational intuition that (logically necessarily and a priori) S.

So, most explicitly, my claim is that I have High-Bar a priori logical knowledge that S if and only if

(1.1) I rationally intuit that S, hence

(1.2) I take it to be logically necessary and a priori that S,

(1.3) I consciously scan, reproduce, and manipulate my linguistic schematic mental image 'S' of the sentence or statement S to the point of phenomenal continuous isomorphism or spatial-structure-coincidence with what is specified by the semantic content of my rational intuition that (logically necessarily and a priori) S, and

(2) it is an objectively real, non-platonic Kantian abstract, and weakly or counterfactually transcendentally ideal fact that logically necessarily S.

Let me now try to make this more phenomenologically vivid with a simplified or toy[101] example. Consider the following text:

(*) Either Barack Obama is a two-term president of the US in December 2014 or I'm the man in the moon. I'm not the man in the moon. Therefore Barack Obama is a two-term president of the US in December 2014.

Now, assuming my knowledge of English and of classical sentential logic, and assuming the operations of veridical minimal episodic memory as I read this text, it is then read and understood by me as a simple disjunctive syllogism, in the form of a single statement: "Either Barack Obama is a two-term president of the USA in

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[101] The simplification consists in separating the linguistic mental image I use in my rational intuition (in the example, $I(\#)$) from the linguistic text (in the example, (*)) I use to represent the logical object. In most cases, the shape of the linguistic image and the shape of the linguistic text used to represent the logical object would be the same. Nevertheless the simplification is justified by psychological research strongly indicating that linguistic mental imagery is processed separately from the processing of either syntax or semantic content. See Schacter, "Perceptual Representation Systems and Implicit Memory: Toward a Resolution of the Multiple Memory Systems Debate."

December 2014 or I'm the man in the moon, and I'm not the man in the moon, therefore Barack Obama is a two-term president of the USA in December 2014." But not only do I read and fully understand this argument in the form of a single statement: I also rationally cannot help believing it to be both valid and sound. This is because insofar as I formulate (*) to myself, thereby representing a logical object (in this case an argument in the form of a single sentence), I also generate a visual mental image that looks more or less like this:

$$P \text{ v } Q, \sim Q \vdash P$$

Let us call this symbolic sequence '(#)'. In turn, I will label the visual schematic mental image of the symbolic sequence (#), '*I* (#)'. (#) is of course a straightforward translation of (*) into the fairly standard symbolism I learned for classical propositional logic as an undergraduate. Then *I* (#) is used by me to intuit the argument expressed by (*) as a valid and sound argument carried out according to the rules for classical negation, disjunction, and disjunctive syllogism. This in turn happens just insofar as I use *I* (#) as a linguistic schematic image of what is semantically represented by (*), which is a logical fact, and then consciously scan, reproduce, and manipulate *I* (#) so as to bring it into a phenomenal continuous isomorphism or spatiotemporal-structure-coincidence with that fact, which in turn is specified by the semantic content of (*). Finally, this logical rational intuition counts as High-Bar logical a priori knowledge or synthetic a priori infallible logical authoritative rational intuition. This is because not only is this logical rational intuition intrinsically compelling or self-evident, via a properly functioning cognitive mechanism, it is also the case that (*) veridically represents an objectively real, non-platonic, Kantian abstract, and weakly or counterfactually transcendentally ideal logically necessary fact—namely, a genuinely valid and sound argument in classical propositional logic in the form of a single interpreted sentence or statement.

This completes my positive or anti-skeptical solution to The Extended Benacerraf Dilemma. I have accepted the standard uniform semantics of logical truth ("Truth is uniform and broadly Tarskian"), and I have also accepted the causal-and-empirical anchoring of all human cognition and knowledge, including logical cognition and knowledge ("All human knowledge begins in causally triggered, direct, non-conceptual, non-inferential sense perception of contingent natural objects or facts"). I have also accepted the High-Bar a priori human knowability of objectively real, non-platonic, Kantian abstract, and weakly or counterfactually transcendentally ideal abstract logical objects, construed as linguistic objects of a special humanly cognizable kind. I have asserted the thesis of Kantian Structuralism for logic. I have also asserted the thesis that logical objects and their constitutive structures are non-platonic, Kantian abstract and weakly or counterfactually transcendentally ideal (i.e., **The Logic-Is-Transcendental Thesis**), and therefore causally relevant. But I have denied that rational human cognizers need to stand in an efficacious causal relation to these non-platonic, Kantian abstract, objectively real, and weakly or counterfactually transcendentally ideal logical abstract objects or their constitutive structures in order to High-Bar know them a priori. This is because I have denied that authoritative rational intuition in logic should be cognitively necessarily or constitutively determined by

sense perception, even if, necessarily, all human cognition whatsoever is anchored in causally triggered, direct, non-conceptual, non-inferential sense perception of contingent natural objects or facts. Instead, I have proposed that the primary properly functioning cognitive mechanism for authoritative rational intuition in logic is the veridical productive imagination and not direct, veridical sense perception alone. And I have also proposed that linguistic veridical schematic mental images (whether of ordinary natural language inscriptions or of formal-logical symbols) are the mental vehicles of this special kind of authoritative rational intuition.

Now, a veridical schematic mental image need not stand in any sort of efficacious causal relation to its corresponding object or real dynamic process in order to be veridical. Instead, it need only be continuously isomorphic or spatiotemporal-structure-coincident with its object in order to be veridical. Hence my successful intentional act of authoritative rational intuition in logic can adequately represent its logical object by virtue of the fact that its mental vehicle, a linguistic veridical schematic mental image, is continuously isomorphic or structure-coincident with the schematically represented objectively real, non-platonic, Kantian abstract, and weakly or counterfactually transcendentally ideal object of my logical intuition. Furthermore, the veridical schematic imaginational cognitive mechanism of authoritative rational intuition in logic is a process of phenomenal spatiotemporal-structure-matching between (i) the linguistic schematic mental image of a single (perhaps fairly long and complex) sentence or statement that I use to express my logical rational intuition, and (ii) what is specified by the semantic content of that logical rational intuition, which in turn represents logical objects and their constitutive structures, which in turn take the very same form of (perhaps fairly long and complex) sentences or statements in some classical or non-classical logical system. So the thesis that authoritative rational intuition in logic is a special type of veridical productive imaginational cognition squares perfectly with Kantian Structuralism for logic. And in recognizing this point, I have also thereby extended Kantian Structuralism and Kantian Intuitionism to logic.

For all these reasons, then, we now *philosophically* know a priori, via constructed rational intuition, and therefore in a fairly reliable way, why logic *must be* transcendental. And we can now also confidently conclude that **The Logic-Is-Transcendental Thesis** provides the non-ideally best philosophical explanation of logic.

8.5 How to Solve The Generalized Benacerraf Dilemma

We now also have in hand a general template for solving The Generalized Benacerraf Dilemma. The Generalized Bencerraf Dilemma, we will recall, generalizes The Original Benacerraf Dilemma and The Extended Benacerraf Dilemma to any kind of a priori knowledge whatsoever. It does so by pointing up the logical, semantic, metaphysical, and epistemological clash between two basic authoritative philosophical rational intuitions about the need to rule out the possibility of cognitive-semantic luck on the one hand, and, on the other hand, the fact that the truth-makers of knowledge are either non-natural or natural. Having worked out a

four-part transcendental theory for solving The Extended Benacerraf Dilemma, based on my initial solution to The Original Benacerraf Dilemma, I can now solve The General Benacerraf Dilemma by simply generalizing the four-part transcendental theory, in the following way:

For a priori knowledge of any kind *K* whatsoever—

(1) adopt Kantian Structuralism for *K*,
(2) adopt Kantian Intuitionism for *K*,
(3) explain the sufficient justification (including, especially, the essential reliability) of *K*-type authoritative rational intuition in terms of Kantian Structuralism and Kantian Intuitionism, and, correspondingly,
(4) work out the cognitive phenomenology of self-evidence for *K*-type authoritative rational intuition.

To be sure, the specific details of carrying out this four-part transcendental theory for, say, moral a priori knowledge, axiological a priori knowledge, linguistic a priori knowledge, semantic a priori knowledge, and so on, are going to be somewhat complex. But in each case, working out all those specific details really is just a high-powered philosophical engineering problem, for which the general template remains the same. So I think we can reasonably conclude that The Generalized Benacerraf Dilemma has, essentially, been solved. And by solving The Original Benacerraf Dilemma, The Extended Benacerraf Dilemma, and The Generalized Benacerraf Dilemma in this way, we have also thereby adequately explained the nature of philosophical a priori knowledge by means of rational intuition, as transcendental knowledge, by means of basic or non-basic authoritative rational intuition and constructed rational intuition—that is, we have adequately explained it by means of transcendental argument and transcendental explanation, as defined in section 8.4.

8.6 Conclusion

How do we High-Bar know objectively a priori that 3+4=7, and more generally, how do we High-Bar know any mathematical truths objectively a priori? The answer I have proposed in these last three chapters is that we can High-Bar know the truths of Primitive Recursive Arithmetic objectively a priori—including, of course, the simple objectively necessary arithmetical truth that 3+4=7—by means of authoritative mathematical rational intuition, via Hilbert's basic objects of finitistic mathematical reasoning. We do this, **first**, by mentally generating, reproducing, and manipulating veridical schematic mental images given in Kantian pure or a priori intuition and constructed by the productive imagination. And then, **second**, we match self-evident phenomenological patterns with corresponding truth-making parts of naturally realized mathematical structures. Furthermore, we do both of these in such a way that LOCKING-ONTO and STRONG DISJUNCTIVISM ABOUT THE COGNITIVE GENERATION, SCANNING, REPRODUCTION, AND MANIPULATION OF VERIDICAL SCHEMATIC MENTAL IMAGERY, THE SENSIBLE FORMS GIVEN IN KANTIAN PURE OR A PRIORI INTUITION, CONSTRUCTED BY THE PRODUCTIVE IMAGINATION are jointly satisfied, which in turn yields

High-Bar or sufficient justification. Then we know the rest of elementary or Peano Arithmetic, especially including its infinitary, denumerable, and universally quantified part, as well as all the other parts of mathematics, including Cantorian Arithmetic constructively and/or inferentially. This constructive and/or inferential knowledge will possess as much justification as can be provided by conceptual and logical reasoning that is necessarily grounded on the High-Bar objectively a priori knowable and mathematically authoritatively intuitable finitary, denumerable primitive recursive arithmetic base. All this, in turn, jointly vindicates two respectively basic and non-basic authoritative philosophical rational intuitions, **The Essential Reliability of Basic Authoritative Rational Intuitions in Basic Arithmetic**—

At least some of the truths of Primitive Recursive Arithmetic are actually known and also repeatedly knowable a priori by basic authoritative rational intuitions, on the basis of Hilbert-style basic objects of finitistic mathematical reasoning.

and **The Kant-Brouwer-Hilbert Principle**—

Nothing will count as mathematical knowledge of any kind unless it presupposes our innately specified rational human cognitive capacity or cognitive competence for knowing at least some of the finitary sub-structures of Primitive Recursive Arithmetic by basic authoritative rational intuition, by means of mentally generating, scanning, reproducing, and manipulating veridical mental imagery, sensible forms given in Kantian pure or a priori intuition and constructed by the productive imagination.

Finally, that brings us back again to the three Benacerraf Dilemmas—The Original Benacerraf Dilemma, The Extended Benacerraf Dilemma, and The Generalized Benacerraf Dilemma. If Kantian Structuralism and Kantian Intuitionism are true, then both of Benacerraf's preliminary philosophical assumptions about (1) a "standard, uniform" natural-language semantics of truth and (2) a "reasonable epistemology" of cognizing true statements—(I) Truth is uniform and broadly Tarskian, and (II) All human knowledge begins in causally triggered, direct, non-conceptual, non-inferential sense perception of contingent natural objects or facts—are themselves objectively necessarily true and also express basic authoritative philosophical rational intuitions. And the other four steps of The Original Benacerraf Dilemma are also objectively true under plausible interpretations of them. But the unacceptably skeptical conclusion does not follow. Mathematical objective High-Bar a priori knowledge in the classical sense still *is* really possible, at the very least with respect to the theorems of Primitive Recursive Arithmetic like our old friend "3+4=7," but in other fundamental parts of mathematics, too. Kantian Structuralism and Kantian Intuitionism also jointly solve the classical application problem for mathematics. They also solve Benacerraf's other problem about what the numbers could not be. In addition, they explain why classical Logicism failed. Furthermore, they account for the synthetic necessity of mathematical truth. And finally, they also speculatively suggest a possible new solution to the classical Problem of the Continuum. All of these very important individual theoretical virtues then seem to me to add up very naturally to a single big sufficient reason for accepting my positive innatist rational intuition-based solution to The Original Benacerraf Dilemma, by an inference-to-the-(non-ideally)best-philosophical-explanation.

And that is not all. As I argued in sections 6.2, 8.4, and 8.5, The Original Benacerraf Dilemma can also be extended to logic (The Extended Benacerraf Dilemma), fully generalized over all a priori knowledge of any kind whatsoever (The Generalized Benacerraf Dilemma), and then adequately solved in essentially the same way.

Given Kantian Structuralism and Kantian Intuitionism about mathematics and logic, what is required for both mathematical and logical objective necessary truth and High-Bar a priori knowledge of them is just this. What we require is a linguistically competent, healthy, developmentally normal, and (relatively) mature rational human animal, who can grasp both the autonomous essentially non-conceptual content of perception and also the conceptual and propositional content of statements or judgments, who has also learned the basics of basic arithmetic or Primitive Recursive Arithmetic, as well as the basics of basic or pure general logic, and who is thus primed and ready for speaking her own natural language, and for non-conceptually and pre-reflectively or first-order consciously, but also conceptually and self-consciously, intaking her manifestly real world through direct, veridical sense perception. And that is *all* that is required. For she is thereby capable of performing High-Bar justified objectively necessarily true basic authoritative rational intuitions in mathematics and logic, and thus capable of achieving High-Bar objective a priori knowledge according to the highest and categorically normative principles of theoretical and practical rationality.

In this way, by rejecting both classical platonism and post-Bencerrafian skepticism about mathematical truth and knowledge, by also rejecting the more or less radical skepticism of Experimental Philosophy, and then by decisively adopting a non-platonic, Kantian conception of abstractness, and by adopting Weak or Counterfactual Transcendental Idealism—which entails the thesis that objectivity is the same as synthetically a priori necessary counterfactual universal rational human intersubjectivity—together with a contemporary Kantian philosophy of mathematics and logic, we thereby also vindicate the full metaphysical and epistemic force of basic authoritative rational intuitions in philosophy, and find

Eden raised in the waste wilderness.

So mathematics, just like logic, and, just like philosophy itself, is an objective science, and yet also inherently a human science. They are, all of them, robustly normative objective rational moral sciences.

Or in other words: If my overall argument in these last three chapters is sound, then classical platonism about mathematics, logic, or philosophy itself is false, Mathematical Psychologism is false, Scientific Naturalism is false, radical skepticism about rational intuitions generally and also radical skepticism about philosophical rational intuitions only are both false, Experimental Philosophy is not only essentially irrelevant to the modal epistemology of rational intuitions but also false—even despite X-Phi's always being relevant to the philosophy of mind and knowledge, interesting, and illuminating in its own right—preservationism about rational intuitions generally and also preservationism about philosophical rational intuitions specifically are both true, Weak or Counterfactual Transcendental Idealism is true, Kantian Structuralism for mathematics and for logic are both true, and also Kantian Intuitionism for mathematics and for logic are both true. And this result plausibly generalizes to all a priori knowledge

whatsoever. So we have solved The Generalized Benacerraf Dilemma as well, thereby achieving the blessedly happy philosophical condition of "rationalism regained," even while still fully acknowledging our natural cognitive finitude and our inevitable cognitive predicament as "human, all too human" knowers.

So now let us go forth and multiply. And of course also add, subtract, divide, and correctly perform the other primitive recursive functions over the natural numbers, too.

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