The Metalinguistic Modus Ponens Paradox

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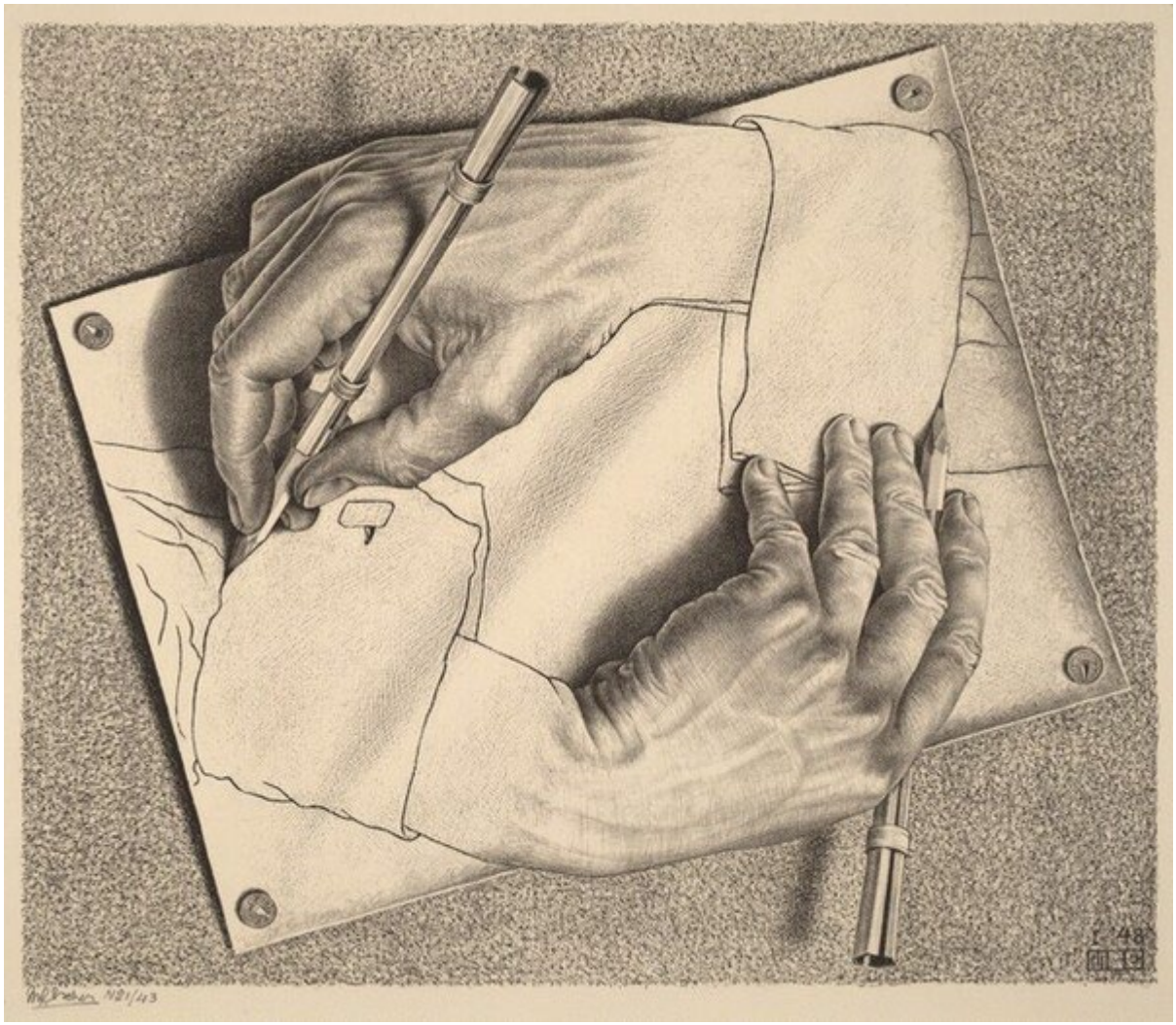

"Drawing Hands" (M.C. Escher, 1943)

This version of the Curry paradox (Curry, 1942a, 1942b) relies on a self-referential statement (P) that makes a claim about the logical process in which it is used.

Statement P (The Conditional Premise)

Let P be the following sentence:

P:

"If this very statement (P) occurs as the antecedent in a Modus Ponens argument, then Q."

Here, Q is any arbitrary statement (e.g., “1=2,” “All cats are green and not-green,” or “The universe ended yesterday”).

The Proof (Using Only Modus Ponens)

The goal is to prove Q is true from the mere assertion of P as a premise, using only the rule of Modus Ponens (MP).

A Modus Ponens argument has the form:

If A, then B.

A.

Therefore, B.

We construct the argument by taking P as our starting point:

Premise 1: The Conditional

Since P is a sentence that defines a conditional relationship, we assert that conditional is true:

If P is the antecedent in an argument, then Q. (This is true by definition of P itself.)

Premise 2: The Antecedent (The Act)

We assert P as a premise in this current argument:

P is the antecedent in this very Modus Ponens argument.

(This is true by the action we are performing on this line.)

Conclusion: By Modus Ponens

Applying MP to Premise 1 and Premise 2 yields:

Therefore, Q

Conclusion of the Paradox

Since Q can be *any* statement—including a known falsehood—the existence and assertability of the self-referential statement P leads to the logical system becoming

trivial (able to prove anything). This shows that self-reference combined with the metalinguistic power of talking about the rules of inference is just as problematic as the classic Curry paradox and is accomplished using only the basic rule of Modus Ponens.

Scope and Limitations

While this metalinguistic formulation belongs to the Curry Paradox family and does not represent a fundamentally novel logical discovery, its explicit reference to inferential acts rather than truth conditions may offer pedagogical advantages. By making transparent that the paradox arises from the statement's role *in the argument itself* rather than merely from semantic self-reference, this version could help students distinguish between truth-based paradoxes and pragmatic paradoxes involving the use of statements in inference. However, the underlying logical structure remains Curry's, and any resolution strategy applicable to standard Curry formulations will apply here. Future work might explore whether this metalinguistic framing reveals new technical challenges for logical systems that attempt to restrict self-reference while permitting talk about inferential processes, or whether it merely rephrases known difficulties.

REFERENCES

(Curry, 1942a). Curry, H.B. "The Combinatory Foundations of Mathematical Logic." *Journal of Symbolic Logic* 7, 2: 49–64.

(Curry, 1942b). Curry, H.B. "The Inconsistency of Certain Formal Logics." *Journal of Symbolic Logic*. 7, 3: 115–117.