

# The Collapse of Semiosis: The Non-Usurpation Rule as a Unified Solution to Self-Referential Paradoxes

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## Abstract

Charles Sanders Peirce's triadic model of the sign presupposes a continuous community of interpretation. This paper interrogates the ontological status of the sign in the "Last Human" scenario. We argue that the extinction of the community results in a categorical collapse of the Object and Interpretant, reducing the sign to a mere biological index. Central to our argument is the introduction of the **Non-Usurpation Rule**: a set-theoretic constraint which postulates that a subset (the individual) cannot legitimately employ global properties bestowed by the mother set (the community) to define reality. We distinguish strictly between *Definition* (global/normative) and *Description* (local/phenomenological). We provide a step-by-step formal derivation proving that without a community, the "Last Human" loses the capacity for truth-functional definition. Furthermore, we extend this framework to analyze the limits of Artificial Intelligence and digital isolation, suggesting that meaning is an emergent property of shared vulnerability.

## 1. Introduction

The continuity of semiosis is a cornerstone of Peircean semiotics. Peirce famously posited that "thought is in itself a sign" and that every thought addresses itself to another thought in a continuous stream [1]. This continuity is not merely temporal but communal; the ultimate Interpretant relies on a "community of inquirers" to establish the norms of truth and reality [5].

However, theoretical semiotics rarely confronts the boundary condition of absolute solitude. This paper conducts a rigorous thought experiment: What is the logical status of a sign when humanity is reduced to a single surviving individual ( $H_{last}$ )?

We contend that standard interpretations of "inner dialogue" fail in this limit case. We propose a formal restriction, the **Non-Usurpation Rule**, derived from Russell's theory of types and system theory. We demonstrate that semiotic *Definition* is a global operator requiring a reference frame (the Community), whereas *Description* is a local operator accessible to the individual.

## 2. The Topology of Collapse

Let  $\Omega$  be the set of all semiotic agents (the community). Let  $\mathcal{S}$  be the system of signs maintained by  $\Omega$ . The "Last Human" scenario is defined as the topological transition:

$$\Omega_t \rightarrow \{h\} \quad \text{as } t \rightarrow t_{end} \quad (1)$$

Where  $h$  is the sole survivor.

To clarify the structural transformation, we present a comparative analysis in Table 1. The collapse is not merely quantitative but categorical.

The standard objection is that  $h$  retains memory and can simulate  $\Omega$  internally. However, this simulation lacks external friction. Without the possibility of correction by an external Other, the distinction between "being right" and "thinking one is right" vanishes—a dilemma identified by Wittgenstein [3].

Table 1: Comparison of Semiotic States: Normal vs. Collapse

Dimension	Normal ( $\Omega \neq \emptyset$ )	Semiosis	The Last Human ( $\Omega = \{h\}$ )
Structure	Irreducible Triad ( $S - O - I$ )		Collapsed Dyad ( $S - S$ )
Authority	Global ( $\mathcal{D}_{def}$ )	Definition	Local ( $\mathcal{D}_{des}$ )
Interpretant	Logical (Normative)		Energetic (Reactive)
Object	Symbolic ("Crown")	(e.g.,	Indexical ("Metal")
Validation	Public Correction		Private Language (Void)

## 3. Formal Derivation: The Non-Usurpation Rule

Here we introduce the core formal contribution. We strictly distinguish between *Definition* and *Description* to prove that semiosis cannot be sustained by a subset in isolation.

### 3.1. Definitions and Axioms

**Axiom 1** (Global Dependence). *A normative property  $P$  (e.g., lexical definition, moral status, functional role) is a function of the global set  $\Omega$ , not the individual element.*

**Definition 1** (Global Definition Operator). *Let  $\mathcal{D}_{def}$  be the operator of Definition. For any entity  $x$ , the assignment of a symbolic identity  $y$  is given by:*

$$\mathcal{D}_{def}(x) = y \iff \exists \mathcal{R} \in \Omega : \mathcal{R}(x) \rightarrow y \quad (2)$$

Where  $\mathcal{R}$  represents the collective rules or habits of the community.

**Definition 2** (Local Description Operator). Let  $\mathcal{D}_{des}$  be the operator of Description. For any entity  $x$  observed by agent  $h$ :

$$\mathcal{D}_{des}(x) = \phi_h(t) \quad (3)$$

Where  $\phi_h(t)$  is the immediate phenomenological state (qualia/sensation) of  $h$  at time  $t$ .

### 3.2. Visualizing the Collapse

Figure 1 illustrates the "Blocked Path" mechanism.

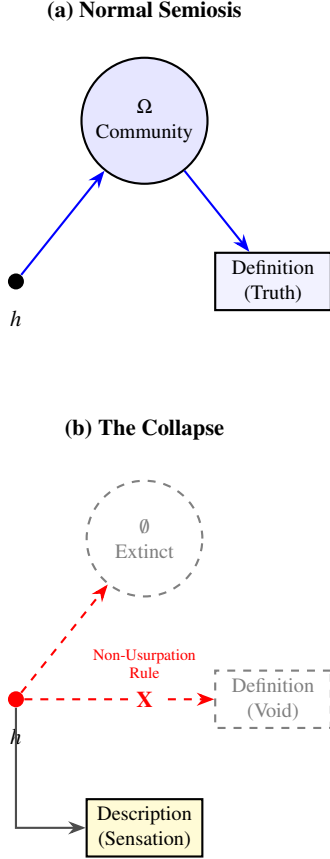


Figure 1: **The Mechanics of Semiotic Collapse.** (a) In normal semiosis,  $h$  accesses Definition through  $\Omega$ . (b) Upon extinction, the path to  $\Omega$  is broken. The direct link to Definition is blocked.  $h$  falls back to local Description.

### 3.3. The Non-Usurpation Theorem

**Proposition 1.** A proper subset  $h \subset \Omega$  cannot strictly invoke  $\mathcal{D}_{def}$  when  $\Omega$  ceases to exist.

*Proof.* The derivation follows five explicit logical steps:

1. *Premise of Domain:* By Axiom 1, the domain of the function  $\mathcal{D}_{def}$  is the set of valid rules  $\mathcal{R}$  generated and ratified by  $\Omega$ .

$$\text{Domain}(\mathcal{D}_{def}) = \{\mathcal{R} \mid \mathcal{R} \text{ is ratified by } \Omega\}$$

2. *Condition of Collapse:* In the limit case, the community is reduced to a single member.

$$\Omega_{limit} = \{h\}$$

3. *The Self-Validation Paradox:* If  $h$  attempts to invoke  $\mathcal{D}_{def}$ ,  $h$  must serve simultaneously as the proponent of the rule and the adjudicator of the rule.

$$\mathcal{R}_h : h \xrightarrow{\text{asserts}} y, \quad \text{and} \quad h \xrightarrow{\text{validates}} y$$

4. *Wittgensteinian Constraint:* As per Wittgenstein (PI §258), a rule that cannot be violated is not a rule. If the adjudicator is identical to the proponent, "whatever is going to seem right to me is right." Thus, the distinction between correctness and error vanishes.

$$P(\text{Correct}) = P(\text{Seems\_Correct}) \implies \text{No Normativity}$$

5. *Conclusion:* Since  $\mathcal{D}_{def}$  requires normativity, and normativity requires an external check,  $\mathcal{D}_{def}$  is undefined for  $\Omega_{limit}$ .

$$\therefore \mathcal{D}_{def}(x) = \emptyset \quad (\text{or Undefined})$$

□

### 3.4. The Non-Usurpation Rule

We articulate this formal result as the **Non-Usurpation Rule**:

*No subset (local agent) may employ attributes or definitions bestowed strictly by the whole system (mother set) to retroactively legitimate its own semiosis. The part cannot usurp the normative authority of the whole.*

## 4. Philosophical Implications

The collapse of semiosis is the loss of the distinction between "is" (Truth) and "seems" (Phenomenon).

### 4.1. Definition vs. Description

When  $H_{last}$  asserts "This is gold," he attempts a Definition (Value). But value is a social relation. He can *describe* it (yellow, cold) but cannot *define* it (precious). This aligns with Russell's Vicious Circle Principle [4].

### 4.2. Pragmatic Residue: Affordance without Definition

A critical objection arises regarding "tool use." A hammer still strikes. Does this imply a survival of the Sign? We posit this is a confusion between *Semantic Definition* and *Pragmatic Affordance*.

Following Gibson [6], the survivor perceives the "affordance" of an object (e.g., "strike-ability") via  $\mathcal{D}_{des}$ . This is a dyadic relation ( $S - S$ ). However, under the Non-Usurpation Rule, the object regresses from the symbolic category "Hammer" (a socially standardized tool) to a purely indexical "Hard Object." The function persists; the meaning (definition) dies.

### 4.3. Semantic Entropy: The Decay of Rules

We must also consider the temporal dimension of the collapse. Even if the Last Human remembers the definitions of the past, these memories are subject to "Semantic Entropy." Without the corrective feedback loop of a community ( $\Omega$ ), the precision of  $\mathcal{D}_{def}$  degrades over time.

$$\lim_{t \rightarrow \infty} \text{Entropy}(\mathcal{D}_{def}(x)) = \text{Max} \quad (4)$$

Just as a clock requires external synchronization to remain a time-keeping device (Definition) rather than a mere moving mechanism (Description), language requires social synchronization. In isolation, the "rules" of the game drift until they become indistinguishable from the idiosyncratic habits of the player.

## 5. Future Directions: Beyond the Limit Case

The "Last Human" scenario, while extreme, offers a diagnostic framework for contemporary crises where the Global Set ( $\Omega$ ) is fragmented. The Non-Usurpation Rule has two significant applications for the future of semiotics and technology.

### 5.1. Artificial Intelligence and the Grounding Problem

Large Language Models (LLMs) currently operate as sophisticated engines of  $\mathcal{D}_{des}$  (statistical description) rather than  $\mathcal{D}_{def}$  (normative definition).

- An AI, lacking membership in a biological community of shared vulnerability, generates signs based on probability, not social consequence.
- The Non-Usurpation Rule suggests that "Artificial General Intelligence" (AGI) cannot emerge from a single isolated system, no matter how vast its database. True semiosis requires an "Artificial Society"—a system of competitive and cooperative agents capable of correcting each other's definitions.

### 5.2. Digital Atomization and Filter Bubbles

Modern digital ecosystems often segregate individuals into "Filter Bubbles," effectively creating localized "Last Human" scenarios.

- When a subgroup detaches from the broader  $\Omega$  to form a closed loop, they attempt to establish local definitions (conspiracies, private truths).
- However, without friction against a larger reality, these local systems suffer from the same "Self-Validation Paradox" derived in Section 4.3. They do not generate Meaning; they generate Echoes.

Future research should investigate how to re-engineer digital platforms to restore the "Friction of the Other," thereby preventing the semantic collapse inherent in isolation.

## 6. Conclusion

The thought experiment of the Last Human reveals that Semiosis is not an inherent property of the individual mind, but an emergent property of the network.

We have demonstrated through the Non-Usurpation Rule that *Definition* is structurally distinct from *Description*. Definition is a global privilege; Description is a local capacity. When the global set collapses, the survivor is stripped of the right to define. He ceases to be a **Definer** of reality and remains only as a **Perceiver** of phenomena. The Triad  $S - O - I$  collapses into the Dyad  $S - S$ , marking the absolute end of meaning. This conclusion serves not as a nihilistic endpoint, but as a rigorous proof that meaning is constitutively social, and its preservation requires the active maintenance of the community.

## A. Appendix: A Unified Analysis of Paradoxes

The **Non-Usurpation Rule** provides a unified resolution to three major classes of paradoxes by enforcing the hierarchy between Local Description ( $\mathcal{D}_{des}$ ) and Global Definition ( $\mathcal{D}_{def}$ ).

### A.1. Epistemic Paradoxes: The Liar

*Paradox:*  $S$ : "This sentence is false."

- **Resolution:** Truth is a normative valuation ( $\mathcal{D}_{def}$ ) belonging to a meta-language ( $\Omega$ ). The sentence  $S$  is a local string ( $\mathcal{D}_{des}$ ). The paradox arises because  $S$  attempts to execute  $\mathcal{D}_{def}$  upon itself. The Rule forbids this self-definition.  $S$  is syntactically well-formed but semantically undefined.

### A.2. Identity Paradoxes: Ship of Theseus

*Paradox:* If all planks are replaced, is it the same ship?

- **Resolution:** "Ship" is a Defined Identity ( $\mathcal{D}_{def}$ , Legal/Social status). "Planks" are Described Constituents ( $\mathcal{D}_{des}$ ). The paradox assumes Identity is found in the planks. It is not. It is an external designation. The physical description cannot usurp the right to define identity.

### A.3. Vagueness Paradoxes: The Sorites (Heap)

*Paradox:* Does removing one grain of sand turn a heap into a non-heap?

- **Resolution:** "Heap" is a Category ( $\mathcal{D}_{def}$ ). Grain count is a Quantity ( $\mathcal{D}_{des}$ ). The transition point is a social convention, not a physical property. Without  $\Omega$  to set the threshold, the definition "Heap" does not exist in the sand itself.

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