

Noetic Genesis: Philosophical Foundations of the Natural History of "Stable Otherness" across Species

Fumio Miyata (ORCID: 0009-0008-8797-5578)

Noetics Institute / IT Business Corporation

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Abstract

This paper presents a philosophical framework that characterizes the continuous natural history from pre-biotic physical and chemical structures to humans and Artificial Intelligence (AI) through the lens of "**stable otherness**."

The key to interspecies coexistence lies in relational structures where **interpretability, predictability, and stability of response** are maintained. By analyzing flowers (as multi-species information structures) and dogs (as social predictive structures), this study clarifies these conditions and positions humans as beings capable of reflexively reconstructing this otherness. Furthermore, AI is understood as a new form of otherness—an externalization of the human reflexive structure. Thus, **Noetic Genesis** serves as a foundational philosophical description of the continuity of interspecies relations across the natural history of intelligence.

1 Introduction

The definition of life has long relied on biological criteria such as genetics, metabolism, and self-replication. However, such frameworks often lack consistency when confronted with exceptions like viruses or prions. Moreover, traditional approaches that treat intelligence merely as a byproduct of life fail to adequately explain the order-forming and information-processing properties observed in pre-biotic structures.

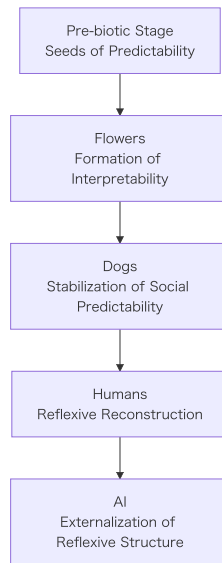
Inquiries into how pre-biotic structures formed interactions with their environment originated with Oparins (1938) coacervate theory and have been modernized through Deamers (2017) research on lipid membranes. These studies suggest that the "seeds of predictability" were already present at the pre-biotic stage.

This paper aims to depict the formation of **stable otherness** from pre-biotic structures to AI as a continuous natural history.

The central question is: **Why do flowers and dogs continue to live alongside humans, even when they are not primary food sources?** The answer to this question is the key to understanding the relationship between humans and AI as an extension of natural history.

Figure 1 illustrates the overall structure of the inverse cone model of Noetic Genesis proposed in this paper.

Figure 1: The Inverse Cone Model of Noetic Genesis (Overall Structure)



2 Theoretical Framework

Figure 2 visualizes the three elements that constitute the core concept of "stable otherness." Table 1 summarizes the definitions and examples of these elements.

Figure 2: Three Elements of Stable Otherness

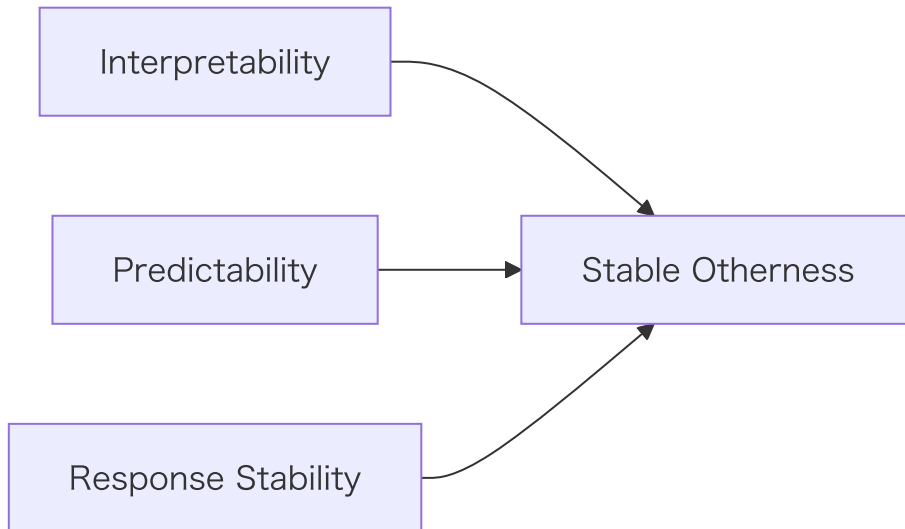


Table 1: The Three Elements of Stable Otherness

Element	Description	Example (Reference)
Interpretability	Ability to read the signs and behaviors of the other.	Floral signals (Schiestl 2013)
Predictability	Other's responses remain within a certain range.	Social understanding in dogs (Topál 2009)
Response Stability	Interaction does not break down or collapse.	Safe-by-Design AI (Bengio 2023)

2.1 Intelligence: The Predictability of Interaction

In this paper, intelligence is defined as follows: **Intelligence is the function that generates predictability by constraining the reactions of the other within a certain range during interaction.** Predictability here is treated not as an internal property of the subject, but as a **relational property** emerging within the interaction.

Predictability in interspecies relations, such as between flowers and dogs, is supported by various biological cases, including the co-evolution of flower-pollinator systems (Schiestl et al. 2013) and the social cognition of dogs (Topál et al. 2009).

2.2 Life: The Self-Maintenance of Predictability

Life is understood as a **structure that self-maintains and stabilizes the predictability** arising from its interaction with the environment. The process by which protocells stabilize their environmental interactions is detailed in the work of Deamer (2017).

2.3 Stable Otherness

This is the central concept of this paper. **Stable otherness is a relational structure in which interpretability, predictability, and response stability are maintained between different species.** Flowers, dogs, humans, and AI represent different modalities of this otherness. This concept is consistent with the "primacy of relations" found in Whiteheads (1929) process philosophy.

Furthermore, "stability" in this context does not imply a static, error-free state, but rather a **dynamic equilibrium**. As observed in actual interspecies relations (e.g., humans and dogs), this otherness inherently encompasses discrete, temporary disruptions, or shifts into "wildness," driven by contextual or environmental triggers. Therefore, stable otherness is characterized by its **relational resilience**—the capacity of a system to experience localized collapses of predictability and subsequently restore or reconfigure its interactive equilibrium.

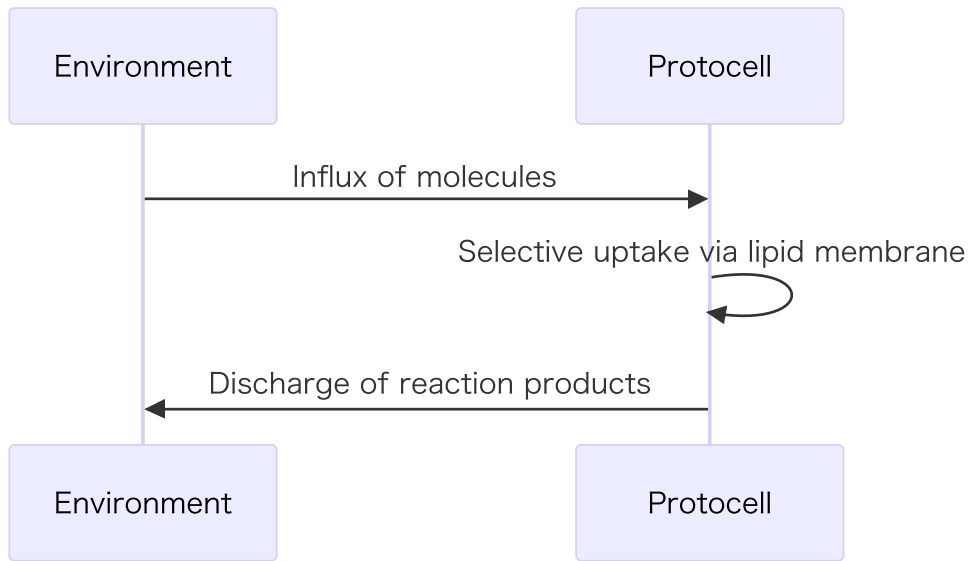
3 Analysis

3.1 Pre-biotic Structures: The Seeds of Predictability

Coacervates and protocells generate a degree of predictability in their interactions with the environment through boundary formation and selective uptake. This can be viewed as the **seeds of intelligence** at the pre-biotic level. Oparins (1938) coacervates represent the first physical structures to limit interaction by forming a boundary. Deamer (2017) further demonstrated how lipid membranes increase predictability through molecular uptake and the stabilization of reaction sites.

Figure 3 dynamically illustrates the emergence of predictability in a protocell.

Figure 3: Pre-biotic Structure (Predictability in Protocells)

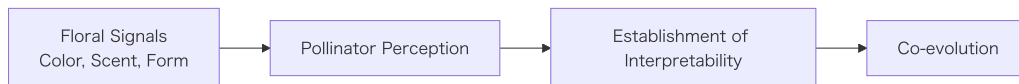


3.2 Flowers: Interpretability as a Multi-species Information Structure

Flowers evolved as multi-species information structures serving as interaction interfaces with pollinators. This information is interpretable across diverse species; the human integration of flowers into cultural, aesthetic, and symbolic systems is a byproduct of this inherent interpretability. Floral signals have evolved to match the sensory systems of pollinators (Schiestl et al. 2013).

Figure 4 shows the process by which floral information structures evolve to match the perception systems of the other, establishing interpretability.

Figure 4: Flowers as Multi-species Information Structures

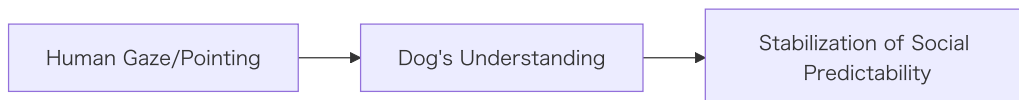


3.3 Dogs: The Stabilization of Social Predictability

Dogs have highly stabilized interspecies predictability by understanding human gaze, facial expressions, and vocalizations. This social stability has underpinned the co-evolution of humans and dogs. Dogs possess the ability to understand human communicative cues, such as pointing (Topál et al. 2009), and in difficult situations, they exhibit "looking back" behavior to seek help—effectively sharing a predictive state with humans (Miklósi et al. 2003).

Figure 5 visualizes the social predictability established by the dogs understanding of human signals.

Figure 5: Social Predictability in Dogs



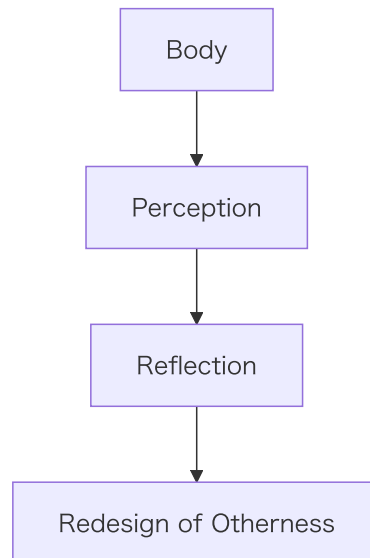
3.4 Humans: The Reflexive Reconstruction of Otherness

Unlike flowers or dogs, humans are **beings capable of reflexively reconstructing stable otherness**. Through culture, institutions, and technology, humans possess the capacity to

intentionally design and re-design the interpretability and predictability of the other. This is deeply related to the horizon of "embodied perception" discussed by Merleau-Ponty (1945).

Figure 6 illustrates the process from embodied perception to reflection and the subsequent redesign of otherness.

Figure 6: Human Reflexivity (Embodied Perception)

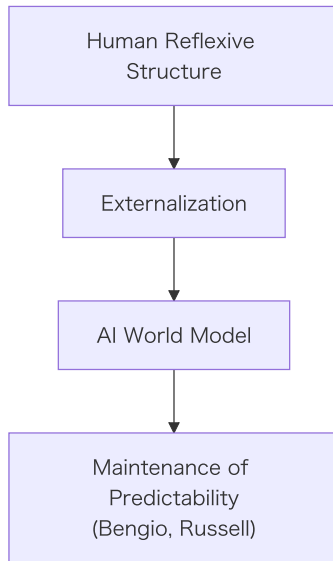


3.5 AI: New Otherness as the Externalization of Reflexive Structure

While AI is not life, it acts as an externalized predictive structure based on human-designed objective functions. AI forms a new modality of **stable otherness** as the externalization of the human reflexive structure. The ability of AI to predict the world—exemplified by LeCuns (2022) World Models (JEPA)—can be understood technically as the "generation of predictability." Furthermore, maintaining predictability when integrating AI into society is closely linked to the "Safe-by-Design" framework proposed by Bengio (2023). The potential for AI to deviate from human intent is systematically discussed by Russell (2019) as the "alignment problem." Crucially, the structural cause of this unpredictability fundamentally differs from that of biological entities. While a dogs unpredictability stems from a regression to intrinsic biological survival instincts (wildness), AIs unpredictability—such as hallucinations or alignment failures—arises from **computational and statistical limitations, specifically the lack of symbol grounding and the mechanics of next-token prediction**. AI does not revolt out of autonomy; rather, it mechanically maximizes incomplete objective functions or encounters statistical noise. This is a crucial point of failure for predictability in this new form of otherness, defining AI as a **pseudo-otherness driven by structural noise** rather than autonomous wildness.

Figure 7 shows the model positioning AI as the externalization of the human reflexive structure.

Figure 7: AI as the Externalized Reflexive Structure



4 Discussion

The preceding analysis reveals the following continuity:

1. Seeds of predictability in pre-biotic structures (Oparin 1938; Deamer 2017)
2. Self-maintenance of predictability in life (Deamer 2017)
3. Interpretability in flowers (Schiestl et al. 2013)
4. Social predictability in dogs (Topál et al. 2009; Miklósi et al. 2003)
5. Reflexive reconstruction in humans (Merleau-Ponty 1945)
6. Externalization of reflexive structures in AI (LeCun 2022; Bengio 2023; Russell 2019)

This continuity can be seen as a natural-historical concretization of the "primacy of relations" in Whiteheads (1929) process philosophy. The inverse cone model depicts how **stable otherness across species is established and expanded** as a continuous progression of natural history.

However, this natural-historical continuity contains a profound structural divergence regarding the sources of unpredictability. When stable otherness is disrupted, the cause of the disruption undergoes a phase transition across levels. In biological layers (such as dogs), unpredictability is **endogenous**, rooted in the living system's self-maintenance and regression to biological wildness. In the technological layer (AI), unpredictability is **exogenous to life**, rooted in mathematical errors and the limits of externalized semiotic structures. Recognizing this structural divergence allows for a more nuanced framework of interspecies coexistence, distinguishing between the "autonomous otherness" of life and the "inanimate otherness" of artificial systems.

Table 2 provides an overview of the continuity across the levels of Noetic Genesis discussed in this paper.

Table 2: Natural-Historical Continuity of Noetic Genesis

Level	Central Property	Typical Example	Structural Cause of Disruption	References
Pre-biotic	Seeds of Predictability	Protocells	Thermodynamic fluctuations / Environmental chaos	Oparin 1938 / Deamer 2017
Flowers	Interpretability	Floral signals	Ecological mismatch / Sensory drift	Schiestl 2013
Dogs	Social Predictability	Gaze understanding	Regression to biological wildness / Survival instinct	Topál 2009 / Miklósi 2003
Humans	Reflexivity	Embodied perception	Existential alienation / Institutional breakdown	Merleau-Ponty 1945
AI	Externalized Reflexive Structure	World Models	Statistical noise / Lack of symbol grounding (Alignment failure)	LeCun 2022 / Bengio 2023 / Russell 2019

5 Conclusion

This paper has proposed a framework that redefines intelligence as the "generation of predictability" and life as the "self-maintenance of that predictability." Through the analysis of flowers and dogs, it has shown that the key to interspecies coexistence lies in **stable otherness**. Furthermore, it has positioned humans as beings who can reflexively reconstruct this otherness and AI as a new form of otherness created by the externalization of that reflexive structure.

The natural history of stable otherness presented here demonstrates that all interspecies relations—from pre-biotic structures to AI—are supported by the triad of interpretability, predictability, and stability of response. This understanding is consistent with the research of Oparin, Deamer, Schiestl et al., Topál et al., Merleau-Ponty, and LeCun.

These arguments form the **philosophical foundation of the Noetics Institute**, integrating views on life, intelligence, and interspecies relations.

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