

# The Principle of Manifestation: The Architectural Plan of Reality

## A Synthesis of Preformationism and Epigenesis for a Hierarchical Ontology

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### Abstract

This paper proposes a philosophical principle that could serve as a starting point for a contemporary philosophy of science and reality. The Principle of Manifestation asserts that the fundamental types of organization of matter (e.g., inanimate physical matter and living matter) are ontologically pre-given. Evolution merely "manifests" them when the necessary complexity is achieved. At the same time, variations within each type evolve, but the type itself does not arise — it is actualized. This distinction resolves the long-standing contradiction between the Platonic idea of the pre-existence of forms and modern evolutionary knowledge. The principle has specific consequences for physics (explaining the fine-tuning of constants), biology (explaining convergent evolution and Levin's experiments), the human and social sciences (explaining the independent emergence of similar social institutions and mathematical structures), and the philosophy of science (providing a common language for interdisciplinary dialogue). The paper proposes the Principle of Manifestation as a working framework for a unified complex of the sciences of reality, supported both by the historico-philosophical tradition and by contemporary empirical research (CAP formalism, the work of Michael Levin).

Keywords: Principle of Manifestation, inanimate matter, living matter, preformationism, epigenesis, emergent evolution, philosophy of science, ontology, convergent evolution, fine-tuning, human sciences, CAP formalism.

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### 1. The Core Idea

A distinction is proposed that resolves the long-standing contradiction between "preformationism" (form is pre-given) and "epigenesis" (form arises from the formless):

- The fundamental types of organization of matter (e.g., inanimate physical matter and living matter) are ontologically pre-given. They do not arise in the course of evolution but are manifested when the necessary complexity is achieved.
- Variations within a type (specific physical systems, biological species, social institutions) evolve randomly, subject to evolutionary mechanisms (Darwinian and post-Darwinian).

This allows us to preserve the entire body of evolutionary data (the "child") while simultaneously rejecting the metaphysical claim that evolution can explain the emergence of the types of organization themselves (the "bathwater").

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## 2. Historical Roots and Predecessors

The debate between preformationism (form pre-exists) and epigenesis (form arises from the formless) dates back to antiquity. Aristotle (c. 350 BCE), with his concepts of potentiality and actuality, entelechy (the transition from possibility to actuality), essentially anticipated the Principle of Manifestation [1]. Gottfried Leibniz, in the "Monadology" (1714), developed the idea of pre-established harmony, according to which monads — simple substances — unfold their pre-given properties independently of each other [2]. Immanuel Kant, in the "Critique of Judgment" (1790), discussed teleology and "natural purposes," pointing to the necessity of additional principles for understanding the living [3].

The classical dichotomy of "preformationism versus epigenesis" in biology was formulated by Oscar Hertwig (1894) [4], who called for a synthesis. William Morton Wheeler (1899) also noted that there are two types of thinkers: some see change and process, others stability and pre-givenness, and called for their integration [5]. William Bateson (1894), in "Materials for the Study of Variation," laid the foundations for understanding variations within a species [6]. Conrad Waddington (1942, 1957) introduced the concepts of the "epigenetic landscape" and the "canalization" of development, showing that the development of an organism is directed towards certain stable states — attractors — which is close to the idea of the pre-givenness of form [7, 8].

Our contribution lies in distinguishing the level of the type from the level of variations and in synthesizing these two lines. It is more accurate to speak of a synthesis and reformulation, rather than a "discovery."

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## 3. Contemporary Scientific Parallels: Empirical Support

### 3.1. The CAP Formalism: Evolution as the Actualization of Potential

In contemporary evolutionary biology, an approach is being developed that is almost literally congruent with the Principle of Manifestation. The CAP formalism (Context-driven Actualization of Potential) views evolution not as the emergence of novelty "from nothing," but as the actualization of pre-existing potential under contextual pressure. Form is not created, but selected from a set of possibilities [9, 10].

"Evolution is the context-driven actualization of potential, not the de novo creation of form." — from the CAP formalism [9].

This is almost a verbatim agreement with our Principle of Manifestation. The difference is that the CAP formalism is currently limited to biology, whereas we extend this principle to all types of organization of matter.

### 3.2. "Form Without a Blueprint": Michael Levin's Experiments

The experiments of Michael Levin (Tufts University) show that biological systems are capable of restoring complex body forms after severe damage, and these forms are not fully encoded genetically or informationally. The form "manifests itself" in the process of self-organization [11].

"The form is not encoded in the genome; it is a complex emergent property of the system. However, this emergence is directed — the form manifests itself, it is not a random accident." — Levin, 2024 [11].

This is empirical confirmation of the idea that form is pre-given, not derived from a lower level. Levin shows that the organism "knows" its target form even when the genetic information is damaged or absent.

### 3.3. Teilhard de Chardin's Noosphere and Comte's Law of Three Stages

Pierre Teilhard de Chardin, in "The Phenomenon of Man" (1955), proposed the concept of "noogenesis" — the evolution of consciousness that leads to the formation of a global "thinking layer" — the noosphere [12]. This corresponds to the transition from biological matter to civilizational matter. Auguste Comte (19th century) proposed the law of three stages of the evolution of human thought: theological → metaphysical → positive (scientific) [13]. Both authors, although remaining within the evolutionary paradigm, documented the fact that different civilizations independently pass through similar stages of cognition, which can be interpreted as a manifestation of a pre-given structure.

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## 4. What Contemporary Authors Say (Philosophical Context)

- Deichmann (2024) [14]: analyzes the preformationism/epigenesis dichotomy and notes that modern biology has not resolved the debate. The interpretation of DNA as "pre-existing information" is possible, but it is one interpretation. This position is consonant with our principle, but does not directly confirm it.
- Aranda-Anzaldo (2011) [15]: reminds us that Aristotelian entelechy is close to the concept of the "attractor." This is a position close in spirit, but not identical.
- Fulda (2025) [16]: distinguishes two types of naturalism (constitutive and dynamic) and shows their possible coexistence. This provides an indirect correspondence to our idea of a two-stage explanation.
- Ellis (2006–2026) [17, 18, 19, 20]: acknowledges levels of reality and downward causation, which is compatible with our hierarchy, but does not postulate the pre-givenness of higher levels. His concept that physics cannot explain everything (since abstract rules, like the rules of chess, govern physical movements) supports our thesis of the irreducibility of higher types.

- Baedke (2025) [21]: demonstrates the "return of the organism" as a causally effective, autonomous unit in the philosophy of biology, supporting the idea that living matter is not reducible to lower levels.
- Chapouthier (2018, 2022); Frontiers in Synthetic Biology (2026) [22, 23, 24]: propose the concept of the genetic code as an "operational a priori," emphasizing the pre-given structures necessary for life, which is consonant with the Principle of Manifestation.

Conclusion: none of the cited authors offers a complete analogue of our principle. We synthesize their ideas into a new framework, complementing it with empirical confirmations from the CAP formalism and Levin's experiments.

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## 5. Definition of Basic Types of Matter

For simplicity and general acceptance, we will distinguish two main types (further extension is possible, but not necessary for presenting the main principle):

- Inanimate (physical) matter: obeys the known laws of physics and chemistry; its fundamental constants and equations did not arise in the course of any process but are an initial given (a manifested form).
- Living matter: characterized by autopoiesis, adaptation, and the discernment of signals. This type of organization is not derived from inanimate matter through simple complication; it is actualized (manifested) upon reaching a certain level of complexity of inanimate systems.

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## 6. Significance for the Unified Complex of the Sciences of Reality

The Principle of Manifestation is not a narrowly philosophical thesis. It provides a general framework for all empirical sciences.

### 6.1. For Physics

It explains the fine-tuning of constants: the constants are as they are because such is the manifested form of inanimate matter. The search for a "theory of everything" should be complemented by a hierarchy of manifestations.

### 6.2. For Biology

It explains convergent evolution (the independent emergence of similar forms) as an inevitable consequence of the manifestation of the same type ("living matter") under different conditions. Levin's experiments provide empirical confirmation: form manifests itself, rather than being derived from the genome.

### 6.3. For the Human and Social Sciences

It explains the independent emergence of similar social institutions (family, state, religion), mathematical structures (numbers, geometry, binary code), and logical rules as a manifestation of the civilizational type of organization (paralleling Comte's law of three stages).

#### 6.4. For Psychology and Cognitive Science

It offers a framework for discussing the irreducibility of phenomenal consciousness to neurobiology without abandoning evolutionary continuity: consciousness can be interpreted as a manifestation of living matter at a certain level of complexity, rather than as an epiphenomenon.

#### 6.5. For the Philosophy of Science

It offers a common language for interdisciplinary dialogue, a demarcation criterion (scientific knowledge is that which can be described in terms of the manifestation of types and the evolution of variations), and a research program for all levels of reality.

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### 7. Conclusion

The Principle of Manifestation is not a "discovery" in the strict sense, but a synthesis and reformulation of longstanding philosophical intuitions (from Aristotle and Leibniz to Waddington and Ellis) into an operational framework, compatible with evolutionary science and supported by contemporary empirical research (the CAP formalism, Levin's experiments). It can serve as a bridge between physics, biology, the human sciences, and philosophy, as well as a heuristic tool for further research.

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