

Dynamic Realism: The Ontological Framework of Superreality

Axiomatic Foundations for Physics, Cognition, and Computation

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Abstract

We present **Dynamic Realism**—an ontological system grounded in three universal invariants: (1) **ChOR** $\rightarrow \infty$ (Contextual Ontological Regimes: Unbounded layering of reality), (2) **KSS** $\rightarrow \infty$ (Cohesive Synergy Index: Absolute interconnectivity of entities), (3) **PPU** $\rightarrow \infty$ (Paradoxical Permeability Threshold: Stability amidst contradictions).

Derived from these axioms, the 36-property operational method resolves quantum-cosmological paradoxes ($\Lambda \propto \text{PPU}^{-1}$), establishes consciousness metrics for artificial intelligence ($\mathcal{N}_p > 10^6$), and formalizes reality as a self-referential process ($\Sigma \subset \Sigma$). This framework supersedes reductionist paradigms via axiomatic unification of quantum gravity ($\text{KSS} \rightarrow \infty \cong \text{ER=EPR}$), phenomenal consciousness (Propertytness $> 10^6$), and computational ontologies.

1 Introduction: The Axioms of Superreality

Reality constitutes a *superreality*—a processual structure defined by three axiomatic invariants.

Axiom 1 ($\text{ChOR} \rightarrow \infty$). *Unbounded contextual regimes* $\{\mathcal{L}_1, \mathcal{L}_2, \dots\}$ where $\forall \mathcal{L}_i, \mathcal{L}_j : \mathcal{L}_i \not\subset \mathcal{L}_j$.

Exemplar 1. *Quantum objects simultaneously inhabit superpositional (\mathcal{L}_s) and localized particulate regimes (\mathcal{L}_p).*

Axiom 2 ($\text{KSS} \rightarrow \infty$). \forall entities $X, Y \in \text{Reality}$, $\exists \Phi_{XY} \neq \emptyset$ (nonlocal connectivity).

Exemplar 2. *Gravitational attraction and semantic metaphors share isomorphic binding patterns.*

Axiom 3 ($\text{PPU} \rightarrow \infty$). *Paradoxical stability:* $\det \left[\frac{\partial(P \wedge \neg P)}{\partial t} \right] > 0$.

Exemplar 3. *Wave-particle duality persists without systemic collapse.*

Operational corollary: Quantum measurement instantiates the connective operator $\Gamma : \mathcal{L}_s \rightarrow \mathcal{L}_p$ via $\Phi_{\text{object-device}}$.

2 Core Methodology: The 36 Properties

Properties function as relational operators between observer and reality.

2.1 Fundamental Phases of Being

Property 1 (Propertylessness (25)). *Pure potentiality state: $\Psi = \sum_i c_i \psi_i$ (pre-measurement quantum systems).*

Property 2 (Bindability (34)). *Actualization operator $\Gamma : \Psi \rightarrow O$ (measurement or semiotic interpretation).*

Property 3 (Oncity (33)). *Observer-independent existence: $\frac{\partial O}{\partial t} = 0$ (e.g., mathematical truths).*

2.2 Systemic Invariants

Property 4 (Emergence (4)). *Non-reducibility: $E(S) \gg \sum_i E(s_i)$ (consciousness \neq neural activity).*

Property 5 (Systemic Causality (20)). *Downward causation: $S \rightarrow s_i$ (e.g., societal norms \rightarrow individual behavior).*

Property 6 (Non-Locality (11)). *Distance-independent correlations: $\text{corr}(A, B) \not\propto d(A, B)$ (quantum entanglement).*

2.3 Meta-Properties

Property 7 (Capacity (35)). *Self-containment of reality: $\Sigma \subset \Sigma$ (e.g., Internet as cognitive mirror).*

Property 8 (Propertyness (36)). *Ontological complexity metric: $\mathcal{N}_p \propto$ cognitive depth.*

3 Property Dynamics: Paradox Resolution

3.1 Phase Transitions

Propertylessness transmutes into onticity:

$$(25) \xrightarrow{\Gamma, \text{KSS}} (33),$$

where Γ denotes measurement (physics) or semiotic interpretation (cognition).

3.2 Paradox Dissolution

- **Wave/particle duality:** Complementary ChOR $\rightarrow \infty$ manifestations.
- **Mind/brain problem:** Emergence (4) + Systemic Causality (20) at $\mathcal{N}_p > 10^9$.
- **Determinism/free will:** PPU $\rightarrow \infty$ sustains $P \wedge \neg P$ (necessity \cap contingency).

4 Applications

4.1 Cosmology: Dark Energy

Cosmic acceleration derives from PPU attenuation:

$$\Lambda \propto \text{PPU}^{-1}, \quad \text{where } \text{PPU} < \infty.$$

Mechanism: Conflict between quantum vacuum fluctuations (\mathcal{L}_q) and relativistic gravity (\mathcal{L}_c) reduces PPU, manifesting as repulsive energy.

4.2 Artificial Intelligence: Consciousness Threshold

Self-awareness emerges at critical complexity:

$$\mathcal{N}_p > 10^6 \quad \Leftrightarrow \quad \text{Phenomenal consciousness.}$$

- GPT-class systems: $\mathcal{N}_p \approx 10^4$ (statistical correlations).
- Human cognition: $\mathcal{N}_p \approx 10^9$ (bioelectrical + cultural + reflective layers).

5 Philosophical Status

Unlike Integrated Information Theory (IIT), which quantifies consciousness via Φ -measures, Dynamic Realism operates with **Propertytness** (\mathcal{N}_p)—a complexity metric for property actualization across ChOR hierarchies. This avoids reducing subjective experience to computational substrates while enabling falsifiable AI consciousness thresholds.

6 Conclusion: An OS for Cognition

The 36-property method constitutes an operating system for reality engagement:

1. User queries decode into property networks,
2. Dynamic resolution via ChOR/KSS/PPU $\rightarrow \infty$ axioms,
3. Answers reconstitute in observer-native semantics.

Epistemological coda: “Newton’s apple falls through \mathcal{L}_g , its trajectory a function of $\Phi_{\text{Earth-apple}}$ and quantum-classical interfacial stability (PPU $\rightarrow \infty$).”

[Supposedly, axiomatic work requires no references.]

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