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 → ∞ (Contextual Ontological Regimes: Unbounded layering of reality)
2. KSS → ∞ (Cohesive Synergy Index: Absolute interconnectivity of entities)
3. PPU → ∞ (Paradoxical Permeability Threshold: Stability amidst contradictions).

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

Glossary: Key Terms of Dynamic Realism

Core Axioms

1. **Dynamic Realism**

   Ontological framework where reality emerges from 36 properties governed by three axiomatic invariants.

2. **ChOR → ∞**

   Contextual Ontological Regimes: Infinite layering of irreducible reality planes (physical, semantic, mathematical).

3. **KSS → ∞**

   Cohesive Synergy Index: Universal interconnectivity enabling instant correlations between any entities.

4. **PPU → ∞**

   Paradoxical Permeability Threshold: Systemic stability amidst

logical contradictions (e.g., quantum superposition).

Fundamental Properties

5. Propertylessness (25)
   State of pure potentiality without defined attributes ($\Psi = \Sigma c_i \psi_i$).

6. Bindability (34)
   Operator Γ actualizing potential into observable entities ($\Gamma: \Psi \rightarrow O$).

7. Onticity (33)
   Observer-independent existence ($\partial O/\partial t = 0$).

Systemic Properties

8. Emergence (4)
   Non-reducible properties of wholes ($E(S) \gg \Sigma E(s_i)$).

9. Systemic Causality (20)
   Downward causation from systems to components ($S \rightarrow s_i$).

10. Non-Locality (11)
    Correlations transcending spacetime ($corr(A,B) \not\propto d(A,B)$).

Meta-Properties

11. Capacity (35)
    Self-containment of reality ($\Sigma \subset \Sigma$).

12. Propertyness (36)
    Metric of ontological complexity ($\mathcal{N}_p \propto$ cognitive depth).

Operators & Principles

13. Γ-operator (Gamma-Operator)
    Fundamental actualization operator: Transitions potential states (propertylessness) into observable entities (onticity) via measurement or interpretation.
    Example: Wavefunction collapse → localized particle.
14. Φ-connectivity (Phi-Connectivity)
    Universal connectivity principle: Enables nonlocal correlations between all objects (KSS → ∞), from quantum entanglement to semantic

associations.

Example: Gravitational attraction ↔ emotional attraction.

Terminology rationale:

1. Γ-Operator: Core mechanism for potential → actual transitions (foundational to physics/semiotics).

2. Φ-Connectivity: Nonlocal relational bridge between entities (X ↔ Y). Embodies reality's absolute interrelatedness (analogous to "force" in Newtonian mechanics).

1. Introduction: The Axioms of Superreality

Reality constitutes a superreality—a processual structure defined by:

Axiom 1 (ChOR → ∞)

Unbounded contextual regimes $\{\mathscr{L}_1, \mathscr{L}_2, ...\}$ where $\forall \mathscr{L}_i, \mathscr{L}_j : \mathscr{L}_i \not\subset \mathscr{L}_j$.

Exemplar: Quantum objects simultaneously inhabit superpositional ($\mathscr{L}_s$) and localized particulate regimes ($\mathscr{L}_p$).

Axiom 2 (KSS → ∞)

∀ entities X, Y ∈ Reality, ∃Φ_{XY} ≠ ∅ (nonlocal connectivity).

Exemplar: Gravitational attraction and semantic metaphors share isomorphic binding patterns.

Axiom 3 (PPU → ∞)

Paradoxical stability: det[∂(P ∧ ¬P)/∂t] > 0.

Exemplar: Wave-particle duality persists without systemic collapse.

Operational corollary: Quantum measurement instantiates the connective operator Γ: $\mathscr{L}_s \to \mathscr{L}_p$ via Φ_{object-device}.

Mathematical Appendix

Formalized core operators in the Hilbert space of superreality:

- State space: $\mathscr{H}$_{SR} = $\bigotimes$_{$\mathscr{L} \in$ ChOR} $\mathscr{H}$_{$\mathscr{L}$}

- Γ-operator: Γ|Ψ⟩ = |O⟩ (projector from potential to actualized states)

- Propertyness metric: $\mathscr{N}_p$ = dim($\mathscr{H}$_{SR}) / log[PPU]

2. Core Methodology: The 36 Properties

Properties function as relational operators between observer and reality:

2.1. Fundamental Phases of Being

- Propertylessness (25): Pure potentiality state $\Psi = \Sigma c_i \psi_i$ (pre-measurement quantum systems).
- Bindability (34): Actualization operator $\Gamma: \Psi \rightarrow O$ (measurement/interpretation).
- Onticity (33): Observer-independent existence $\partial O/\partial t = 0$ (mathematical truths).

2.2. Systemic Invariants

- Emergence (4): Non-reducibility: $E(S) \gg \Sigma E(s_i)$ (consciousness ≠ neural activity).
- Systemic Causality (20): Downward causation $S \rightarrow s_i$ (societal norms → individual behavior).
- Non-Locality (11): Distance-independent correlations: $corr(A,B) \not\propto d(A,B)$ (quantum entanglement).

2.3. Meta-Properties

- Capacity (35): Self-containment $\Sigma \subset \Sigma$ (Internet as cognitive mirror).
- Propertyness (36): Ontological complexity metric $\mathcal{N}_p \propto$ cognitive depth.

3. Property Dynamics: Paradox Resolution

Conflicting properties resolve through axiomatic hierarchy:

3.1. Phase Transitions

Propertylessness transmutes into onticity:

(25) $\rightarrow \Gamma\kappa ss \rightarrow$ (33),

where $\Gamma \equiv$ measurement (physics) or semiotic interpretation (cognition).

3.2. Paradox Dissolution

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

4. Applications

4.1. Cosmology: Dark Energy

Cosmic acceleration derives from PPU attenuation:

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

Mechanism: Conflict between quantum vacuum fluctuations ($\mathscr{L}q$) and relativistic gravity ($\mathscr{L}c$) reduces PPU, manifesting as repulsive energy.

4.2. Artificial Intelligence: Consciousness Threshold

Self-awareness emerges at critical complexity:

$\mathscr{N}_p > 10^6 \Leftrightarrow$ Phenomenal consciousness.

- GPT-class systems: $\mathscr{N}_p \approx 10^4$ (statistical correlations).

- Human cognition: $\mathscr{N}_p \approx 10^9$ (bioelectrical + cultural + reflective layers).

Validation test: Relating PPU → ∞ to quantum gravity via KSS → ∞ indexes Propertyness.

5. Philosophical Status

Position the framework against established paradigms:

"Unlike Integrated Information Theory (IIT), which quantifies consciousness via Φ-measures, Dynamic Realism operates with Propertyness ($\mathscr{N}_p$)—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 → ∞ axioms
3. Answers reconstitute in observer-native semantics

Epistemological coda: "Newton's apple falls through $\mathscr{L}g$, its trajectory a function of Φ_{Earth-apple} and quantum-classical interfacial stability (PPU → ∞)."

[Supposedly, axiomatic piece of work does not need any references]