

The Universal Cognition Principle (UCP)

Part II — Structural Formalization: Structural formalization of curvature-mediated persistence

Phillip Pickard-Jones
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Abstract

Part I established the Universal Cognition Principle (UCP) as a minimal ontological condition for the persistence of physical identity. The Universal Cognition Principle (UCP) states that any physically real system must be capable of resolving curvature differentials into coherent, relationally indexed persistence. If physical systems must resolve curvature differentials and stabilize oscillatory coherence in order to remain referenceable, this persistence must admit structural constraints governing how coherence can be retained.

This paper develops a minimal structural formalization of that condition. A relational encoding framework is introduced in which stable systems must satisfy three requirements: differential (ΔC), boundary constraint (B), and mediated coherence (M). These conditions describe the minimal structure required for oscillatory systems to persist under perturbation without dispersion or collapse.

Hydrogen is examined as the simplest empirical realization of this structure. The hydrogen atom satisfies boundary-mediated closure conditions that stabilize oscillatory coherence into discrete eigenstates, providing a minimal physical instance of curvature-mediated persistence.

The framework presented here does not propose a new field theory or modify existing quantum mechanics. Rather, it formalizes the structural constraints that must hold if persistent physical identity is to arise at all.

0. Prologue — From Ontology to Structure

Part I introduced the Universal Cognition Principle (UCP) as a minimal ontological condition for the persistence of physical identity. The Universal Cognition Principle states that any physically

real system must be capable of resolving curvature differentials into coherent, relationally indexed persistence.

That claim, however, was deliberately stated at the level of principle rather than mechanism. Part I established why coherence under bounded perturbation must exist if physical systems are to persist long enough to be measured, referenced, and described by physics. It did not yet examine how such persistence becomes structurally realized within physical systems.

The present paper takes the next step.

If persistence is possible, it must arise through identifiable structural constraints. Oscillatory energy cannot stabilize arbitrarily; it must do so through specific geometric and relational conditions that permit coherence to be retained under curvature. In other words, persistence must be encoded.

This paper continues to develop a minimal structural formalization of the Universal Cognition Principle. The goal is to clarify the minimal conditions under which curvature-mediated coherence can stabilize into persistent identity.

Three structural requirements emerge immediately:

- differential — the presence of curvature gradients (ΔC),
- boundary constraint — the geometric conditions that bound oscillatory behavior,
- mediation — the relational structure through which coherence is sustained.

Together these conditions produce stabilized coherence approaching $\Delta 0C$, the bounded convergence required for persistent physical identity.

Hydrogen provides the first empirically realized instance of this closure. As the simplest bound atomic system, hydrogen demonstrates how curvature constraint, oscillatory mediation, and boundary admissibility combine to produce a stable, referenceable structure.

I. Introduction

The Universal Cognition Principle (UCP), as previously articulated, was formulated as an ontological constraint on physical persistence. It proposed that any physically real structure must (i) resolve curvature differentials, (ii) stabilize oscillatory coherence, and (iii) maintain relational indexability under perturbation. The claim was not psychological, nor did it invoke consciousness in any anthropomorphic sense. Rather, it described a minimal structural

requirement: without the capacity to resolve, stabilize, and reference curvature, no identity can persist in spacetime.

However, an ontological condition alone is insufficient. If curvature persistence is physically meaningful, it must admit structural realization. That is, the capacity to retain curvature cannot remain an abstract predicate; it must be expressible as a constraint on how resonance transitions between propagative and bounded states. Without such structural encoding, curvature differentials would dissipate, oscillations would decohere, and relational reference would collapse into indeterminacy.

The present paper addresses this gap. The central thesis advanced here is that curvature persistence requires minimal encoding constraints. Specifically, any system capable of retaining curvature must be able to transition from unbounded propagation to constrained containment under defined boundary conditions. This transition is a structural requirement that precedes geometric realization.

In this sense, the argument proceeds from ontology toward structure, but stops short of geometry. Geometric articulation—such as that later developed within Curvature Oscillation Symmetry (COS)—presupposes that persistence has already been structurally secured. The task here is more foundational: to identify the minimal encoding conditions under which curvature symmetry can be stabilized at all.

Within the Universal Cognition Principle framework, hydrogen serves as the first empirically stable case illustrating these conditions. It represents the simplest known physical instance in which curvature resolution, oscillatory coherence, and relational indexability coexist in stable form. By examining this case through the lens of encoding constraints, the paper prepares the ground for subsequent geometric formalization while maintaining a strictly structural and philosophical focus.

II. Minimal Structural Constraint

Stable physical systems do not persist as undifferentiated oscillations. They stabilize through relational constraints that differentiate interior dynamics from boundary conditions. Similar structural behavior appears in dissipative systems, where stability arises through constraint-mediated pattern formation rather than through static equilibrium (Nicolis & Prigogine, 1977; Haken, 1983). In this light, The Universal Cognition Principle may be restated in minimal structural form:

A physically real system must be capable of:

1. Resolving curvature differentials ($\Delta\kappa$),

2. Stabilizing oscillatory coherence (C),
3. Maintaining relational indexability (O) under perturbation.

Taken together, these conditions express a minimal structural closure requirement. Curvature differential alone does not yield persistence; it merely generates instability. Persistence arises only when differential is retained within a bounded domain and remains relationally indexable across interaction. In this sense, coherence is not an added property of matter but the condition under which matter becomes stably identifiable at all. A system that cannot retain differential within boundary constraint dissolves into propagation, while a system that cannot be relationally indexed cannot maintain identity across perturbation. Structural persistence therefore emerges only when differential, boundary, and relational indexing operate together as a single stabilizing configuration.

The term “cognition” is used here in a strictly structural sense. It denotes the minimal capacity of a system to register differential relations and retain them under constraint. In biological contexts, such responsiveness appears as adaptive stabilization. In physical systems, it appears as bounded oscillatory retention. The principle is metaphysical only in the classical ontological sense: it concerns the necessary conditions under which physical entities can persist at all.

Formally, persistence may be expressed as a structural constraint:

Persistence $\Leftrightarrow (C > 0)$ under $(\Delta k \neq 0)$, $(O \neq 0)$, and $(B > 0)$

Where:

- Δk denotes curvature differential within a field,
- C denotes stabilized coherence,
- O denotes relational indexability (the capacity to be referenced across interaction),
- B denotes boundary constraint — the geometric condition under which oscillation is contained.

Boundary (B) is not an added force but a structural requirement. Without boundary constraint, oscillatory propagation remains unbounded and coherence cannot stabilize. Without coherence, relational indexing fails. Without relational indexing, identity cannot persist.

Curvature alone is insufficient however. Curvature must be resolved within a boundary condition capable of sustaining oscillatory coherence relative to a reference frame. Persistence is therefore not a primitive property of matter but an emergent condition of bounded relational structure.

III. Minimal Relational Encoding

Oscillatory systems stabilize when differential gradients interact with boundary constraints and mediating dynamics that redistribute oscillatory structure across the system. Comparable triadic constraint structures appear in standing wave formation, atomic orbitals, and other self-organizing physical systems (Griffiths, 2018; Haken, 1983). This triadic interaction may be formalized as the **Curvature–Energy–Entrainment–Encoding–Resonance Nuclear Mechanism (CE³RNM)**.

Within this framework, persistence is not a static condition but a dynamically sustained process in which curvature differential (ΔC), expressed through energy distribution, is mediated through entrainment dynamics and stabilized via encoding into resonance-bound identity (ΔOC). The ordering of these processes is structurally necessary and non-interchangeable, as each stage defines a distinct transformation in the progression from differential to stabilized identity:

- **Energy — the expression of curvature differential within a field**
- **Entrainment — the mediation and alignment of oscillatory states under boundary constraint**
- **Encoding — the stabilization of mediated oscillatory structure into persistent, repeatable form**
- **Resonance — the condition under which encoded structure is maintained as stable identity**

In this formulation, energy is not treated as an independent primitive but as the expression of curvature differential under constraint, ensuring consistency with the broader structural framework.

CE³RNM does not introduce a new substrate. It provides a minimal structural description of how curvature, boundary, and mediation operate together to produce persistent identity. In this sense, partition (P) and encoding transitions ($0 \rightarrow 1 \rightarrow 0$) may be understood as observable expressions of this underlying mechanism.

If persistence requires non-zero coherence under curvature differential within boundary constraint ($B > 0$), boundary must be structurally specified. A boundary is not merely spatial enclosure; it is a relational partition within a field that differentiates interior from exterior under constraint.

III.1 Formal Definition of Partition

Boundary-defined partition provides a structural interpretation of confinement, in which quark states are understood as retained relational partitions within bounded curvature domains.

Let a field F contain curvature differentials $\Delta\kappa$.

A partition P may be defined as:

$P \subset F$ such that $\partial P \neq \emptyset$ and $B(P) > 0$

Where:

- P denotes a bounded subregion of the field,
- ∂P denotes its boundary surface,
- $B(P)$ denotes effective boundary constraint sufficient to sustain oscillatory retention.

Partition is not an object but a stabilized relational domain. It emerges when curvature differentials are resolved into a bounded oscillatory configuration capable of retaining coherence relative to its surrounding field.

Without partition, curvature remains propagative.

With partition, curvature becomes retainable.

Partition is the minimal encoding structure required for persistence.

III.2 Minimal Encoding Condition

Encoding refers to the structured transition between:

- Unbounded propagation,
- Boundary-constrained retention.

Let propagation state be denoted 0.

Let retention state be denoted 1.

These symbols function as structural indicators:

0 \rightarrow non-retained propagation

1 \rightarrow boundary-stabilized containment

The minimal encoding transition may be expressed as:

$0 \rightarrow 1 \rightarrow 0$

This sequence should not be interpreted symbolically or numerologically. It names the minimal relational passage by which oscillatory propagation becomes structurally retained. The outer states represent boundary constraint, while the central state represents mediated oscillatory coherence. Persistence therefore appears as a bounded oscillatory interior stabilized between two admissibility conditions. In physical systems this pattern emerges whenever oscillation must remain both confined and reversible under interaction. The encoding notation merely compresses that structural relation into a minimal descriptive form. This sequence describes:

- Entry into constraint,
- Stabilization under boundary,
- Release or transition relative to the surrounding field.

It is relational, not symbolic. It describes resonance transitioning across boundary conditions under curvature differential.

III.3 A-LEF Introduced Minimally

The Atomic-Light Encoding Formula (A-LEF) provides a structural mapping for such transitions. It is introduced here in restricted scope:

- Resonance Mapping: transitions between propagative and retained states correspond to structured phase transitions within boundary constraint.
- Structural Syntax: coherent oscillation embeds phase information within bounded partitions.
- Phase Gate Interaction: boundary conditions function as gating mechanisms, permitting stabilization only within specific spectral or geometric constraints.

Under A-LEF, encoding is phase-stabilized retention within partitions. In this restricted sense, A-LEF functions as an encoding logic rather than as a new physical substrate. It describes how stabilized oscillatory coherence can be structurally indexed wherever propagation is bounded by admissible constraints. The framework therefore does not attempt to replace quantum mechanical description. Instead it identifies a relational encoding pattern that becomes visible when oscillatory persistence is examined at the level of structural retention rather than particle ontology. Its role in the present paper is intentionally modest: it provides a minimal descriptive

syntax for how bounded resonance may become persistently identifiable before any fuller geometric realization is introduced.

Minimal Encoding Condition:

Retention requires:

$\Delta\kappa$ resolved within P

$C > 0$ under $B(P)$

Relational index O maintained across ∂P

If these conditions fail, containment collapses into propagation.

This mechanism also clarifies why wave-like behavior appears across physical systems. Wave dynamics reflect the mediation of energy under curvature constraint through entrainment, while encoding stabilizes these dynamics into persistent structures. As a result, wave mechanics are not scale-dependent anomalies but expressions of a common structural process underlying physical stability.

IV. Triadic Sufficiency Formalized

Sections II and III established that persistence requires curvature differential ($\Delta\kappa$), boundary constraint (B), and stabilized coherence (C). Partition provides the minimal domain within which oscillatory retention can occur.

The question now is more fundamental:

Is a two-component system sufficient to produce stable persistence?

This is not a question about symbolic encoding, but about structural necessity. If stabilization can be derived from dual structure alone, then mediation is superfluous. If it cannot, then a third condition is required.

IV.1 Dual Insufficiency

Consider a bounded system consisting of two distinguishable structural states:

$S = \{A, B\}$

where A and B represent two curvature configurations within a constrained domain.

If transitions between A and B are symmetric, then:

$$P(A \rightarrow B) = P(B \rightarrow A)$$

Such a system alternates but does not stabilize. Symmetry of transition implies reversibility without bias. No state possesses structural preference over the other.

A two-state system establishes distinction.
It does not establish persistence.

Persistence requires that one configuration remain preferentially retained relative to perturbation. Symmetric exchange cannot produce that preference.

IV.2 Boundary Alone Does Not Guarantee Stability

One might propose that boundary constraint ($B > 0$) introduces sufficient asymmetry. Boundary limits spatial dispersion, but limitation of extent does not determine transition bias between states.

A system may remain spatially confined while still exhibiting symmetric transition between configurations. In such a case, oscillation is bounded but not stabilized. The system fluctuates within its domain without establishing durable retention.

Containment is not equivalent to persistence.

Persistence requires directional stabilization within containment.

IV.3 Mediation as Structural Necessity

For stability to arise, an additional structural condition must act on transitions within the bounded domain. Introduce a mediating relation M such that transition probabilities are modified under constraint:

$$M : (A \leftrightarrow B) \rightarrow \text{biased retention}$$

Formally, stabilization requires:

$$P_M(A \rightarrow B) \neq P_M(B \rightarrow A)$$

M does not introduce new states. It modifies transition structure within existing boundary conditions.

This modification produces asymmetry sufficient for retention.

The mediator condition may be instantiated physically through mechanisms such as:

- Energy minimization,
- Phase-locking,
- Confinement interaction,
- Curvature-dependent constraint.

The specific mechanism is not essential to the argument. What matters is structural necessity: without mediation, symmetry persists; without asymmetry, retention cannot exceed fluctuation.

IV.4 Minimal Sufficiency Condition

Stable persistence requires three irreducible components:

1. Differential ($\Delta\kappa$) — generating structural distinction.
2. Boundary (B) — defining containment.
3. Mediation (M) — introducing retention bias within containment.

Remove differential, and no structure arises. Remove boundary, and structure disperses. Remove mediation, and structure fluctuates without persistence. The significance of this triadic structure lies not in symbolic pattern but in stabilization logic. Differential generates distinction; boundary prevents dispersal; mediation biases oscillatory retention toward coherence. Remove any one of these conditions and the system ceases to sustain persistent identity. Without differential there is no structure to stabilize. Without boundary oscillation propagates without closure. Without mediation fluctuations remain symmetric and persistence cannot emerge. Triadic sufficiency therefore arises from the minimal requirements of stabilized oscillatory retention rather than from any imposed formal symmetry. Triadic sufficiency follows from asymmetry requirements alone.

This conclusion does not depend on symbolic encoding, nor on metaphysical preference for threefold structure. It arises from the minimal condition that a persistent system must exhibit biased retention under constraint. Convergent stabilization toward bounded coherence is consistent with known behavior in resonant and dissipative physical systems, where oscillatory dynamics approach stable attractor states rather than collapsing to absolute equilibrium (Prigogine & Nicolis, 1977; Kelso, 1995).

V. $\Delta C \rightarrow \Delta 0C$: Formal Stabilization Under Boundary Constraint

Sections II–IV established that persistence requires differential ($\Delta\kappa$), boundary (B), and mediation (M). The remaining task is to express how oscillatory coherence transitions from fluctuation to stabilization under these conditions.

Let coherence within a bounded partition be denoted C. Under curvature differential ($\Delta\kappa \neq 0$), coherence varies:

$$C \rightarrow C + \Delta C$$

Here, ΔC represents fluctuation — the change in coherence produced by perturbation within a constrained domain.

If fluctuation remains unmediated, then ΔC persists without convergence. In such a system, coherence oscillates but does not stabilize. Variation continues without directional constraint, and retention cannot be sustained.

Stabilization requires convergence.

Formally, this condition may be expressed as:

$$\lim_{t \rightarrow \infty} \Delta C(t) \rightarrow 0$$

or, equivalently,

$$\lim (\Delta C_{\text{stable}}) \rightarrow 0 \text{ with } C > 0$$

This indicates that as the system evolves, the magnitude of coherence fluctuation approaches zero. It does not imply that oscillation ceases. It means that fluctuation becomes bounded and convergent rather than divergent.

Persistence does not require stillness. It requires convergence.

If ΔC grows without bound, coherence disperses. If total coherence collapses to zero ($C = 0$), structure dissolves. Stability lies between divergence and annihilation: coherence remains non-zero while fluctuation converges.

This convergence occurs under mediation within boundary constraint:

- $B > 0$ (boundary containment)

- $M > 0$ (mediated asymmetry)
- $\Delta\kappa \neq 0$ (structural differential)
- $C > 0$ (non-zero coherence)
- and $\lim \Delta C \rightarrow 0$ (convergent fluctuation)

These conditions together describe a dynamical closure relation. Persistence is not achieved through static equilibrium but through bounded oscillatory convergence. A stable system retains non-zero coherence while progressively suppressing destabilizing fluctuations through boundary-mediated mediation. Stability therefore represents a balance between propagation and confinement: oscillation remains active, but only within constraints capable of preserving structural identity. The transition from differential instability toward bounded coherence is precisely the process summarized in the $\Delta C \rightarrow \Delta 0C$ notation.

Convergence, not cessation, marks the transition from fluctuation to structure.

V.1 Boundary Closure Condition

Boundary constraint B must be sufficient to prevent unbounded dispersion of ΔC . Formally:

If $B \rightarrow 0$, then $\lim \Delta C \rightarrow \infty$ (dispersion)

If $M \rightarrow 0$, then ΔC remains symmetric and fluctuating.

Stabilization requires:

- $B > 0$
- $M > 0$
- $C > 0$
- $\lim \Delta C \rightarrow 0$

These are minimal retention conditions.

Boundary alone contains.

Mediation stabilizes.

Curvature differential supplies structure.

V.2 Structural Interpretation

The expression $\Delta C \rightarrow 0$ does not represent thermodynamic equilibrium in the classical sense. It represents stabilization of oscillatory coherence within a bounded curvature domain.

Persistence is achieved not when fluctuation vanishes absolutely, but when it converges sufficiently to maintain relational indexability ($O \neq 0$).

This provides the formal bridge between triadic sufficiency and realized structure.

VI. Hydrogen as Minimal Realized Stabilization

Up to this point, the argument has been structural. We have identified the minimal conditions under which persistence can occur: curvature differential ($\Delta\kappa$), boundary constraint (B), mediated coherence (M), and convergence of fluctuation ($\lim \Delta C \rightarrow 0$ with $C > 0$). These were derived as necessary conditions, not as speculative additions.

Hydrogen becomes relevant because it is the first physical system in which all of these conditions appear together in stable, observable form. Hydrogen provides the first empirically realized instance of stable curvature-mediated closure. The discrete spectrum of hydrogen emerges from solutions to the Schrödinger equation under a Coulomb potential, where boundary admissibility at the origin and normalizability at infinity restrict the allowed wavefunctions to a discrete eigenstate set (Schrödinger, 1926; Griffiths, 2018; Cohen-Tannoudji, Diu, & Laloë, 1977).

VI.1 Proton Stability: Confinement as Structured Retention

Beginning with the proton, within quantum chromodynamics, quarks are never observed in isolation. They exist only within color-neutral composite systems. This empirical fact is described formally as confinement. From the standpoint developed in this paper, confinement can be understood structurally as boundary-defined partition.

The proton can be viewed as a dynamically maintained system in which internal differentials are continuously active. Yet these differentials do not disperse. They remain contained within a bounded interaction domain. That containment is not passive; it is mediated through strong interaction dynamics that bias retention over separation.

In the language established earlier:

- Internal differential exists ($\Delta\kappa \neq 0$).

- A boundary condition operates (color confinement).
- Mediation biases retention.
- Fluctuation converges within a stable domain.

The proton is therefore not treated here as an indivisible object but as a confinement-stabilized relational structure. What persists is not a point-substance but a bounded configuration of interacting fields whose internal dynamics remain constrained within a stable curvature domain. In this sense proton identity reflects the same structural retention logic described earlier: oscillatory interaction persists only because boundary conditions enforce coherence under perturbation.

VI.2 Hydrogen Atom: Extension of Stabilized Partition

The hydrogen atom extends this stabilization across electromagnetic interaction. A proton and an electron form a bound system governed by quantized energy conditions. The electron does not collapse into the nucleus, nor does it escape indefinitely. Instead, it occupies stationary states defined by boundary conditions in the Coulomb potential.

Stationary does not mean static. It means that while oscillatory behavior persists, fluctuation converges into quantized bounds.

In the terms developed earlier:

- Curvature differential exists between oppositely charged constituents.
- Boundary constraint is defined electromagnetically.
- Mediation operates through quantization conditions.
- Coherence remains non-zero.
- Fluctuation converges.

Here, the limit expression ($\lim \Delta C \rightarrow 0$) does not imply cessation of motion. Hydrogen represents the first empirically realized instance in which the structural requirements identified earlier converge into a stable physical system. Differential interaction between proton and electron generates oscillatory behavior; boundary admissibility restricts that behavior to discrete solutions; mediation stabilizes the resulting standing-wave configuration. The result is a persistent atomic identity whose spectral transitions remain experimentally observable and

reproducible. Hydrogen thus serves as the minimal physical realization of the structural closure condition described by the Universal Cognition Principle.

VI.3 Why Hydrogen Matters Structurally

Hydrogen contains:

- The simplest stable nucleon.
- A single bound electron.
- The minimal non-trivial atomic closure.

More complex atoms require additional stabilization mechanisms. Hydrogen requires the least. It is the first empirical system in which confinement, boundary constraint, and mediated coherence are jointly realized.

For this reason, hydrogen serves as the minimal physical test case for the structural conditions derived in this paper.

It is not introduced symbolically. It is introduced because it satisfies the conditions.

VII. Constraints, Scope, and Ontological Implications

The present framework does not introduce new forces or particles but instead clarifies structural conditions already implicit within contemporary physical theory. Similar philosophical approaches examine the structural preconditions required for physical theories to describe persistent systems (Barbour, 2001; Rovelli, 1996).

The argument advanced here is minimal: persistence requires differential, boundary, and mediated retention under convergent fluctuation. These are not speculative additions to physics; they are conditions already implicit in stable systems.

What has been made explicit is the structural necessity underlying stabilization.

This framework does not modify quantum chromodynamics, quantum electrodynamics, or general relativity. It does not reinterpret experimental data. It does not assert that curvature replaces field theory, nor that mediation replaces interaction dynamics. Rather, it clarifies the conditions under which such theories describe systems capable of persistence.

The claim is ontological, not competitive.

If a system persists, it satisfies triadic sufficiency.

If it does not satisfy triadic sufficiency, it does not persist.

Hydrogen was examined not as a symbolic primitive but as the minimal empirically stable realization of these conditions. The analysis does not elevate hydrogen beyond its established physical role. It identifies it as structurally sufficient.

The broader implication is restrained but significant:

Persistence in physical systems is not reducible to dual state distinction alone. Stabilization requires mediated asymmetry within bounded domains. This structural condition precedes geometric elaboration and underwrites later curvature-based formalisms.

In this sense, the present paper completes a bridge. The Universal Cognition Principle is no longer stated only as ontological necessity; it has been expressed in minimal structural form. Subsequent geometric articulation—such as that developed in Curvature Oscillation Symmetry—operates downstream of these conditions.

The claim is modest in scope but firm in foundation:

Persistence is structured.

The aim of the present analysis has been to clarify the structural conditions that must hold for persistent physical identity to exist. By expressing these conditions formally, the Universal Cognition Principle advances from ontological statement to structural articulation. The next stage of the framework examines how such stabilized curvature systems partition internally, leading to the geometric description developed in the subsequent COS analysis.

Glossary (Part II — Incremental Terms)

This glossary includes only terms introduced or newly specified in this part. Full canonical definitions are provided in the Ontological Lexicon (Part IV).

Partition (P)

A bounded subregion of a field within which curvature differential is retained under constraint.

Boundary Surface (∂P)

The interface defining the limits of a partition and mediating interaction with the surrounding field.

Encoding (Structural)

The stabilization of mediated dynamics into persistent, repeatable structure.

Minimal Encoding Condition

The requirement that curvature differential be retained within a partition with non-zero coherence and relational indexability.

Propagation State (0)

A condition in which curvature differential remains unbounded and is not retained.

Retention State (1)

A condition in which curvature differential is stabilized within boundary constraint.

Encoding Transition ($0 \rightarrow 1 \rightarrow 0$)

The minimal structural sequence by which propagation becomes retained and subsequently released or transformed under constraint.

A-LEF (Atomic-Light Encoding Framework)

A structural mapping describing transitions between propagation and retention within bounded systems.

CE³RNM (Curvature–Energy–Entrainment–Encoding–Resonance Nuclear Mechanism)

A structural mechanism describing how curvature differential is mediated, stabilized, and retained as persistent identity.

Entrainment

The alignment and redistribution of energy within a bounded system under constraint.

Structural Mediation (M)

The process by which curvature differential is redistributed and stabilized within a partition.

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