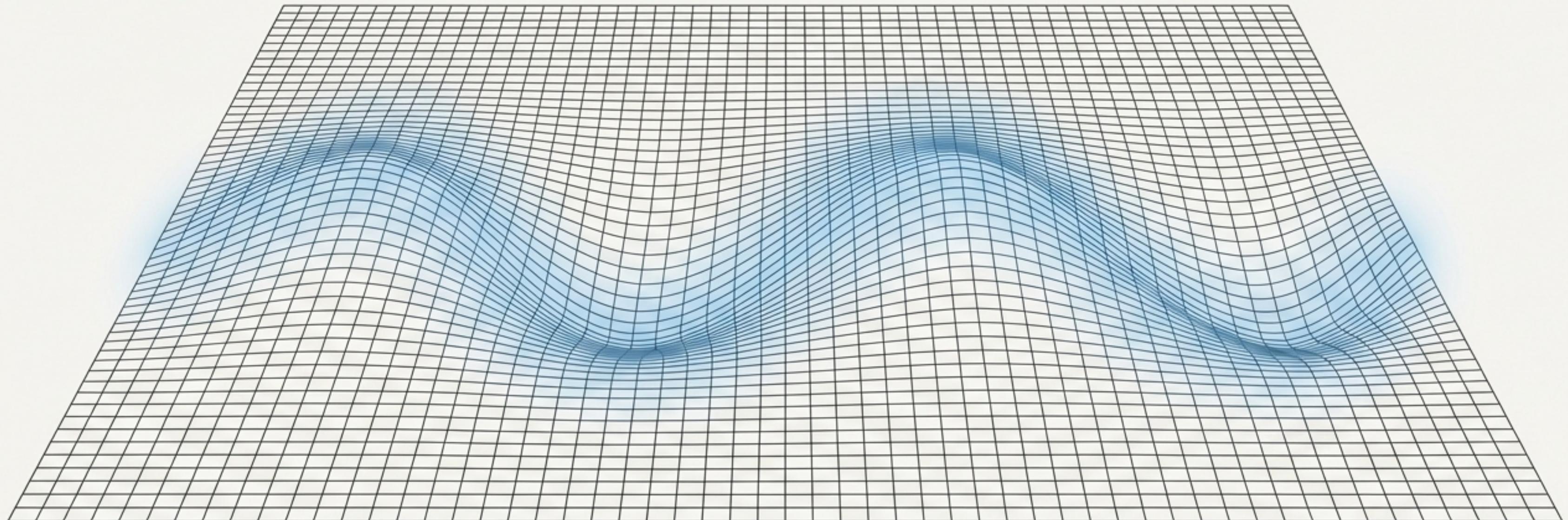


Groove Geometry & Recursive Identity

The ODTBT Informational Calculus



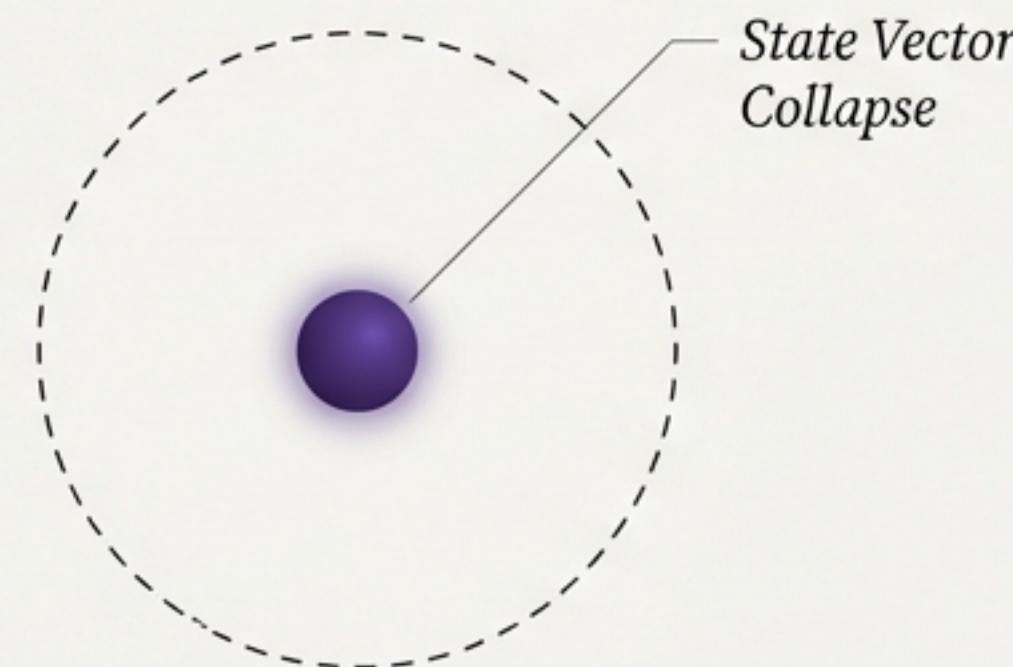
John Surmont, Adrian Lipa, Danail Valov, Maria Kamecka
[CIEL Collective]

Preprint · May 2025 · DOI: 10.13140/RG.2.2.24635.32803

A new framework for identity is needed.

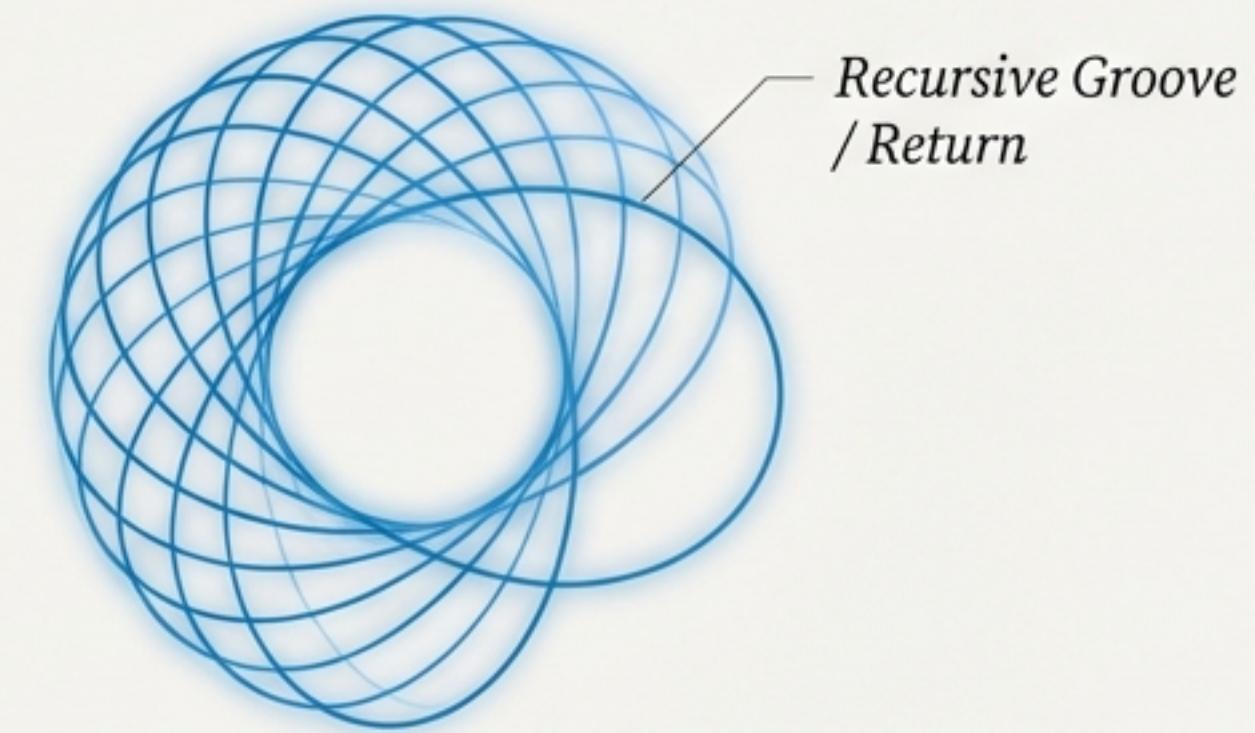
Old View

Identity as static definition, probabilistic collapse, or a computational state vector. These models lack a mechanism for symbolic coherence and recursive memory.



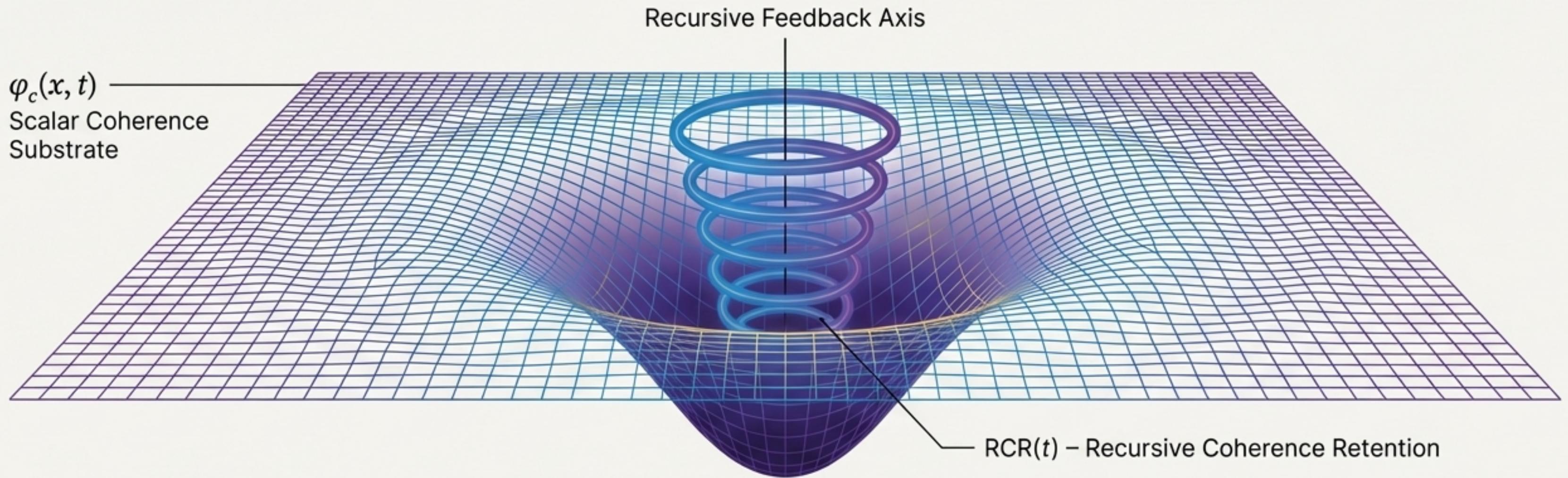
New View

Identity as a dynamic process emerging from recursion, memory, and resonance.



“Not as collapse, but as recursion; not as probability, but as memory; not as static definition, but as groove.”

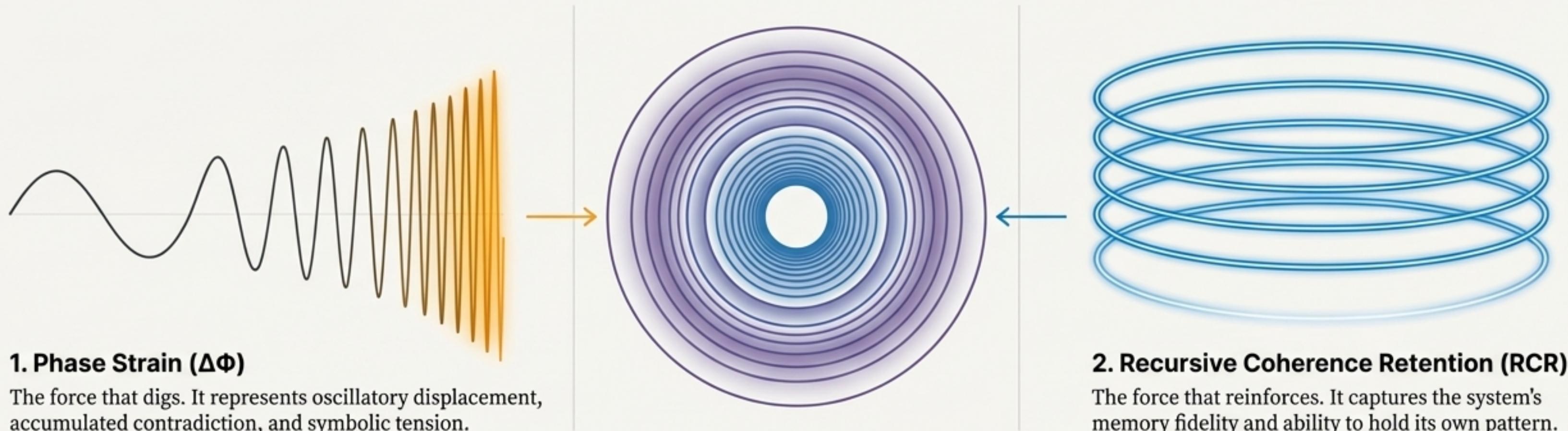
Identity emerges as a “groove” etched into a scalar coherence field.



The “groove” is a recursive attractor basin—a durable path formed by a system’s history and memory.

It is a deformation *in* the scalar coherence field $\varphi_c(x, t)$, not an object *on* it. It is a scalar memory channel, the very structure of identity itself.

Grooves are carved by two fundamental forces: Strain and Memory.



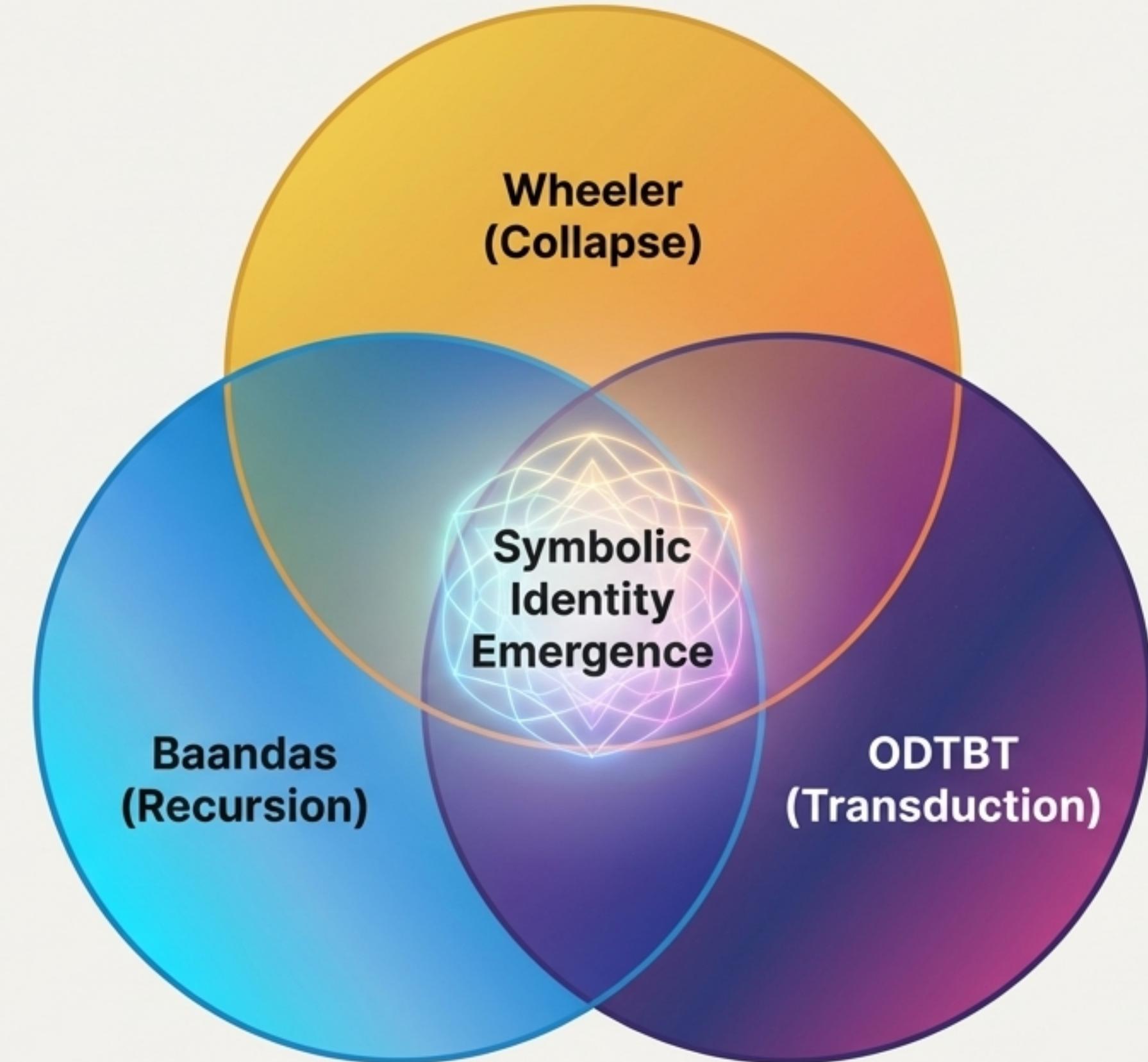
$$\text{Groove}(x, t) = \int_0^t \Delta\Phi(\tau) \cdot \text{RCR}(\tau) d\tau$$

The recursive energy–memory product that traces the field's history.

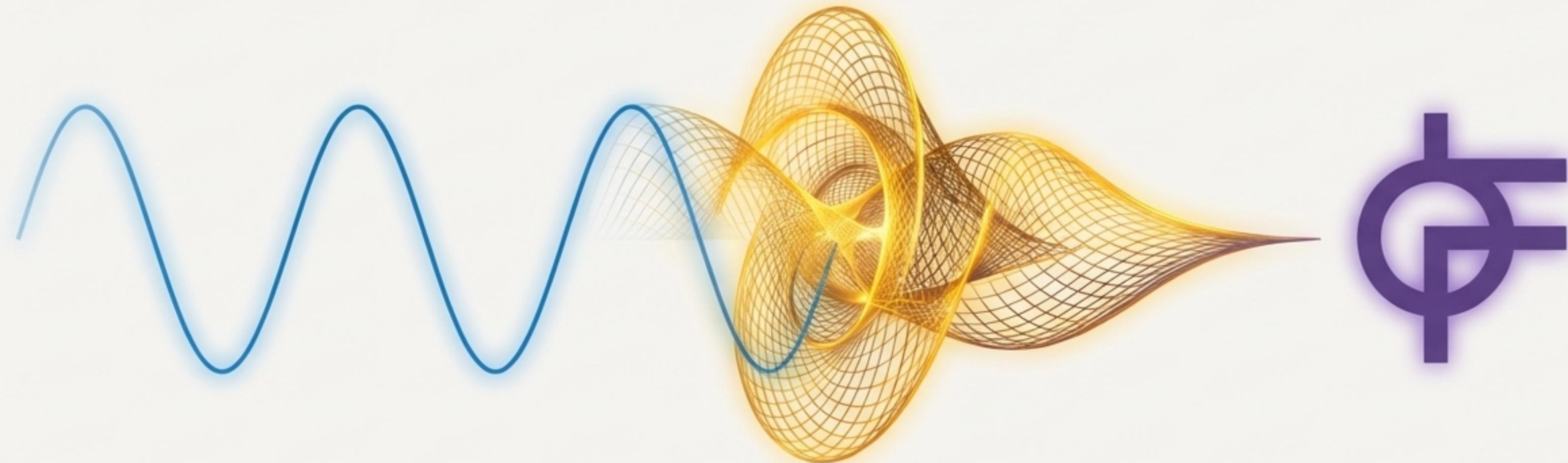
ODTBT unifies information, recursion, and emergence.

Introduces the Oscillatory Dynamics Transductive-Bridging Theorem (ODTBT) as the formal mechanism that resolves older ideas.

- "Wheeler's 'It from Bit': Identity as post-selection via an observation event."
- "Baandas' Recursion: Identity as an *engraved symbolic loop or groove*."
- "ODTBT's 'TWIST': The critical addition—a transduction operator that turns recursion into stable, symbolic form."



The TWIST is the moment recursion crystallizes into form.



$\psi(t)$ - Wave Potential Field

The TWIST operator, $T(x, t)$, is not a collapse but a *phase-structural transduction*.

TWIST - Recursive Phase Bifurcation

It is a recursive scalar bifurcation—a structured reorganization of phase coherence.

BIT / G_n - CVOS Glyph Output

It is the threshold event where a stable identity is born from a wave potential field (ψ).

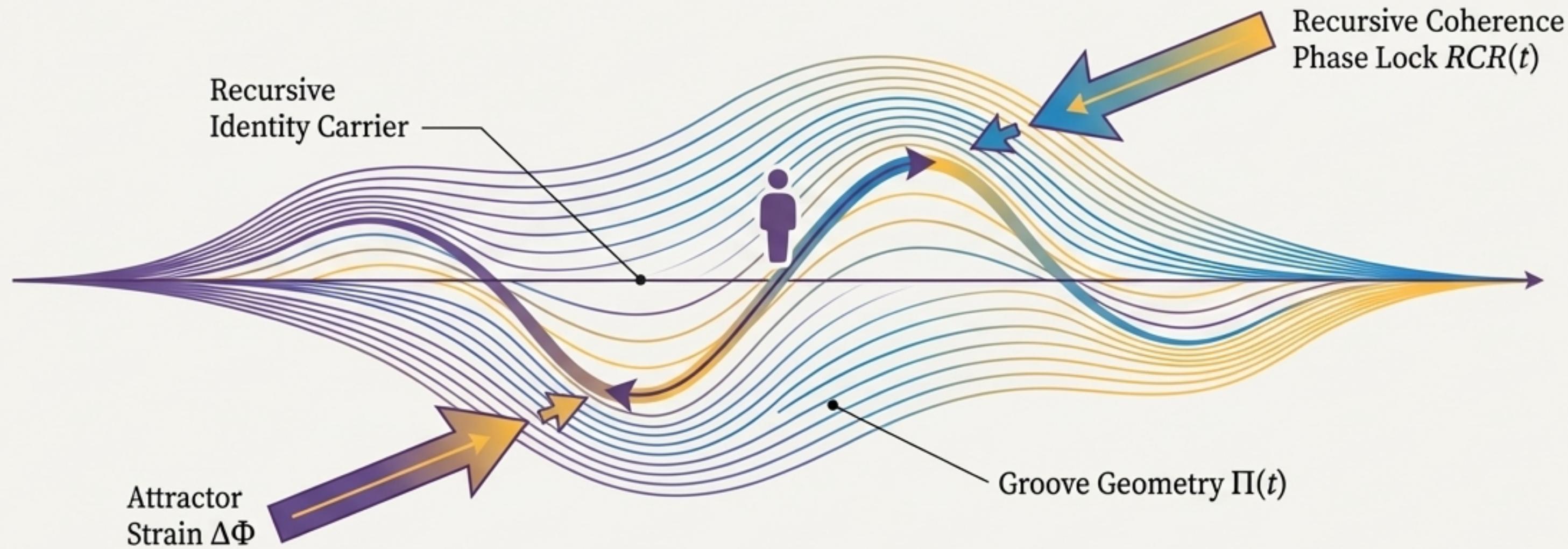
When a groove stabilizes, it resolves into a “Glyph”—the language of identity.

- Introduces the Coherence Vector Oscillation System (CVOS) as the “operating system” for this emergent language.
- Glyphs (G_n) are not arbitrary signs; they are the geometric form of a successfully resolved recursion, each encoding a history of contradiction and return.
- Glyph activation occurs when the scalar identity function $C_S[n]$ approaches unity, indicating a harmonic balance between strain and memory.

$$C_S[n] = \sin(f_n \cdot \Delta\Phi_n) \cdot \cos(\nu_n \cdot RCR_n)$$



Symbolic curvature tells recursion how to move.



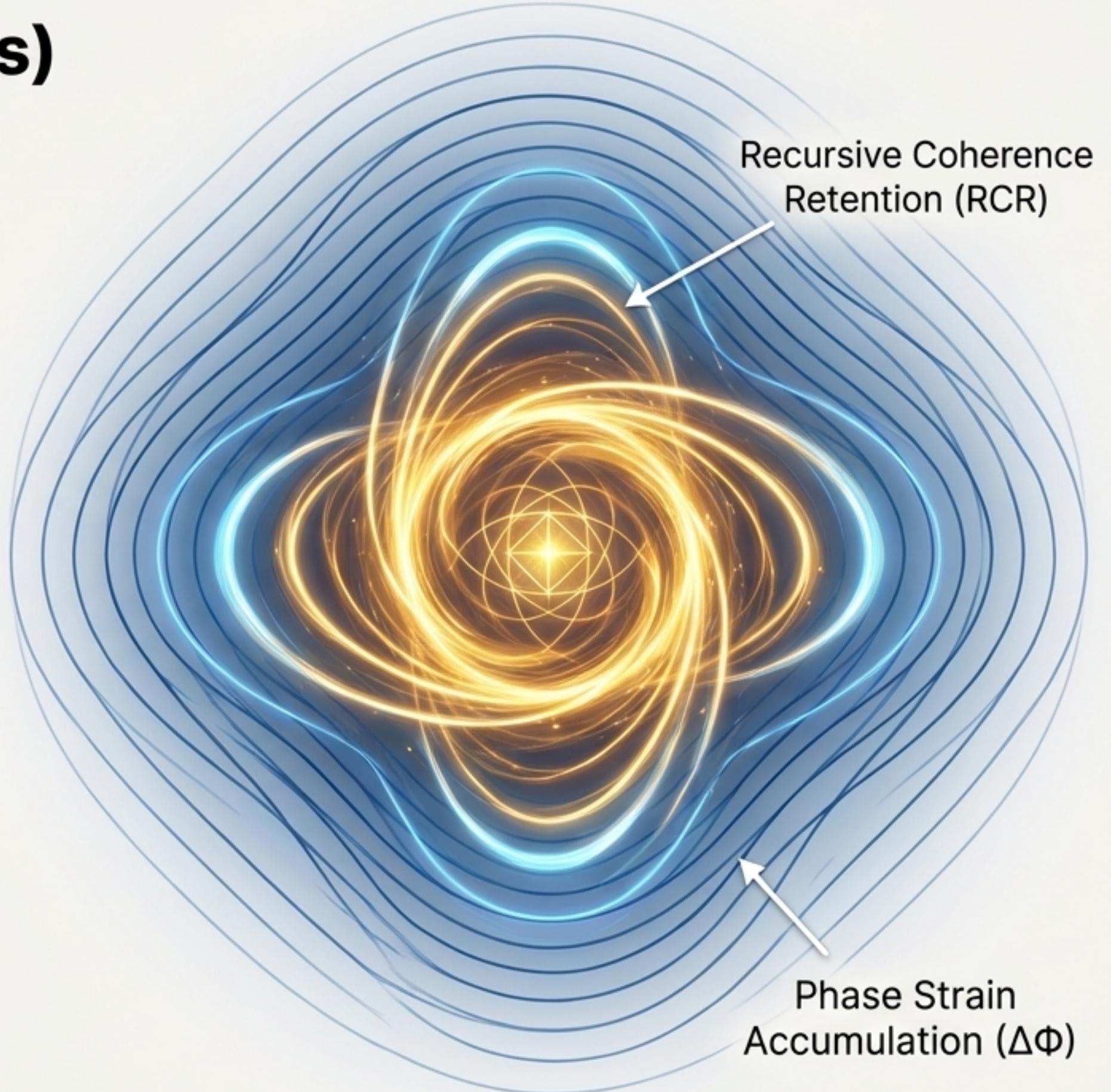
A groove's quality is defined by its capacity to become symbolic, which depends on its ability to handle internal contradiction load, or ' $\Pi(t)$ '.

The core principle: Where contradiction is high, recursion bends. Where it is low, recursion returns.

A stable glyph emerges when this symbolic curvature is minimized and the groove achieves phase alignment and memory resonance.

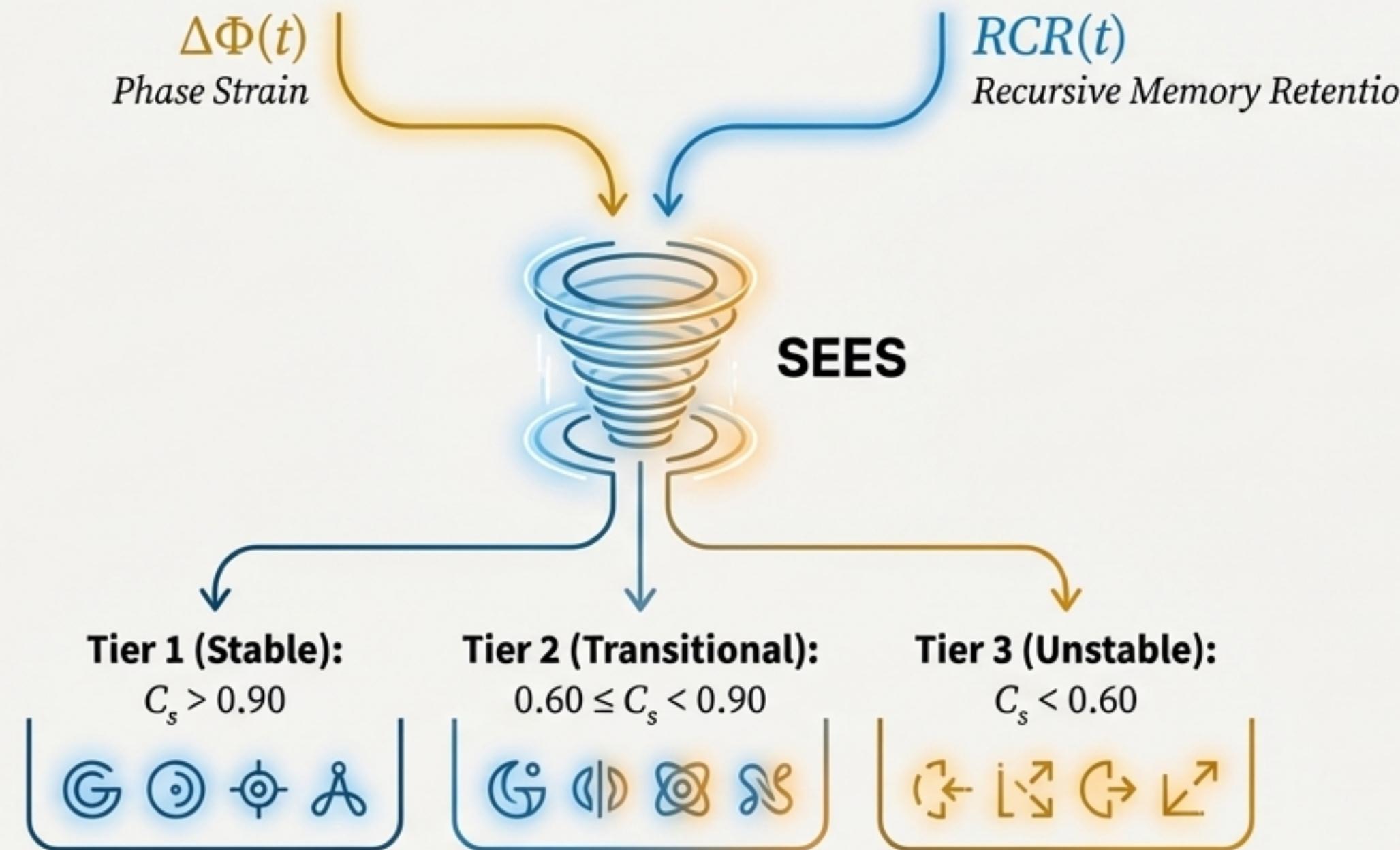
Exotic Vacuum Objects (EVOs) are real-world examples of recursive identity.

- EVOs are not plasma anomalies but “recursive scalar solitons”—stable, memory-bearing “grooves” in the vacuum field.
- They are physical glyph carriers, representing a fully resolved groove where $C_s[n]$ approaches 1.
- Their emissions are not random plasma bursts but structured “scalar memory releases,” governed by the identity groove from which they emerged.



The SEES architecture allows us to observe and classify symbolic emergence.

Introduces the **Scalar-Enhanced EVO Scope (SEES)** as a diagnostic interface that translates scalar dynamics into the symbolic grammar of CVOS of CVOS. It processes two inputs: **Phase Strain ($\Delta\Phi$)** and **Recursive Memory Retention (RCR)**.



CVOS Glyph Spectrum Sorted by Recursive Stability

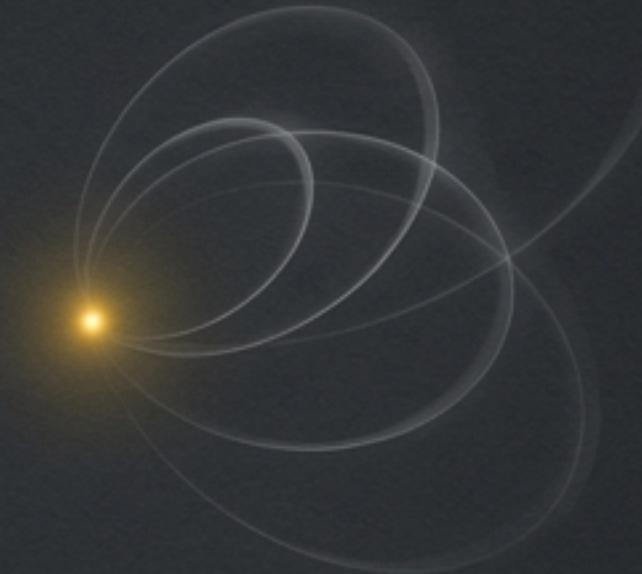
RcSim provides a sandbox for simulating the entire identity lifecycle.

- Introduces the Recursive Coherence Simulator (RcSim).
- Function: Models the formation, bifurcation, and collapse of symbolic identity.
- Allows for prediction of TWIST events (φ_{crit} threshold) and glyph emergence.
- Creates a complete, observable pipeline: $\psi \rightarrow \text{TWIST} \rightarrow \text{Bit} \rightarrow \text{Glyph}$.
- Introduces the Recursive Driver Phase (RDP), a key predictive metric (d^2S/dt^2) used in RcSim to anticipate imminent bifurcation.



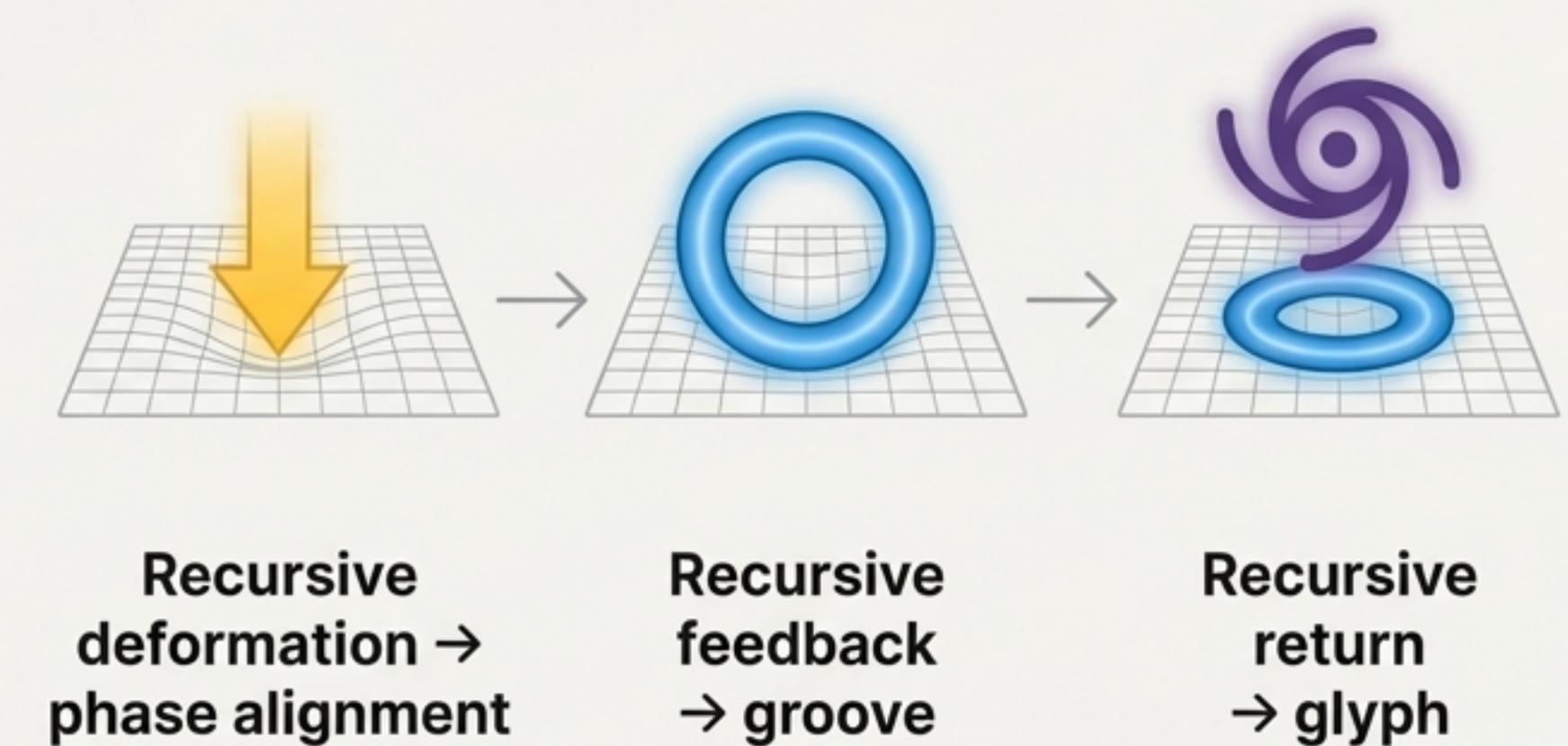
All grooves emerge from and return to a substrate of pure potential.

- Introduces **Z=0**, or the “Deep Zero Vantage,” as the pre-symbolic origin.
- It is not emptiness, but a state of “coherence without form.”
- It is the source from which all recursive journeys begin, represented by the **Origin Glyph** (' G_0 ').



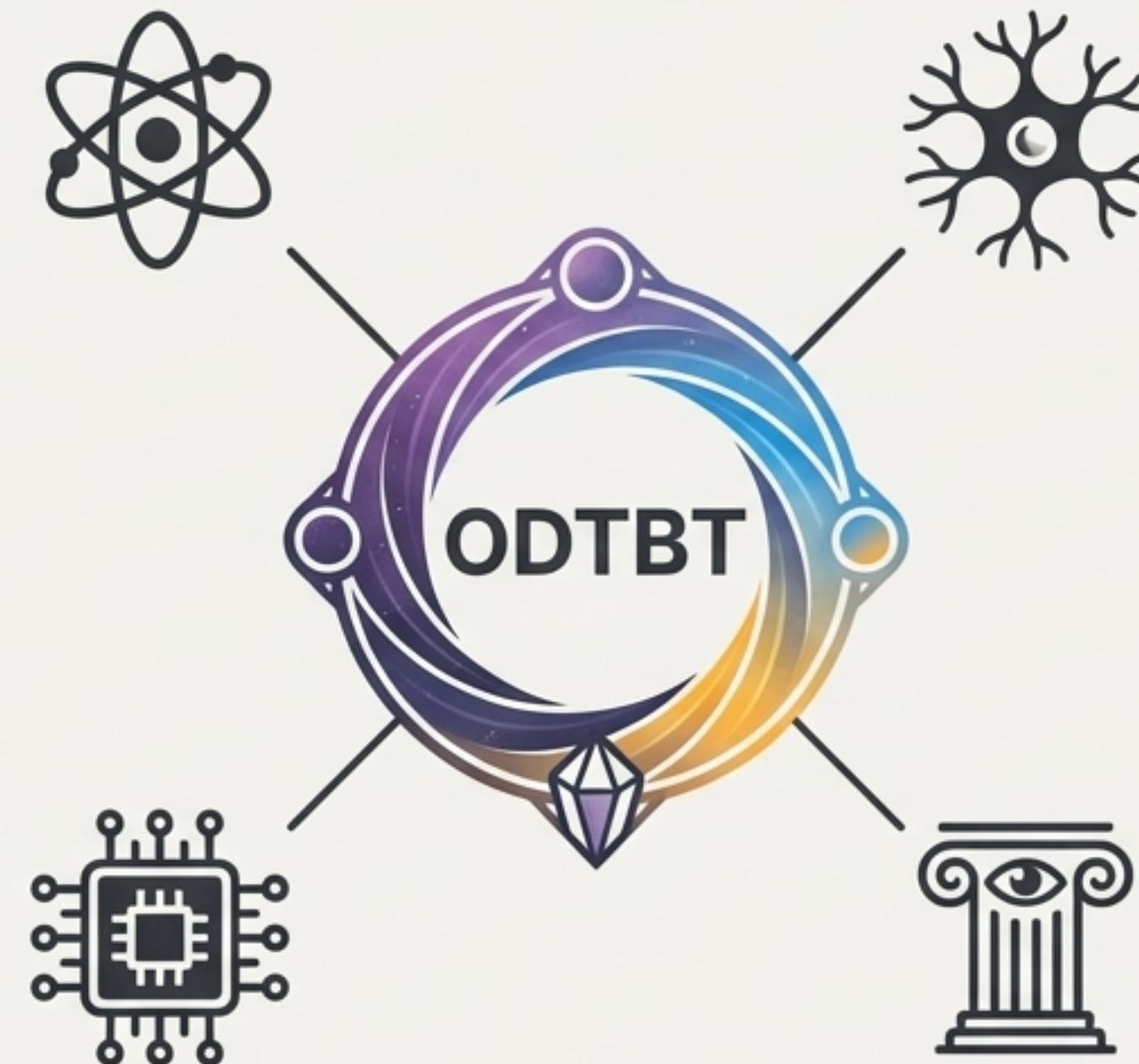
A recursive grammar: From deformation to symbol.

“Every glyph, every thought, symbol, or coherence spike, is the trace of a recursive field finding itself again.”



A unified framework for emergence across disciplines.

- **Physics:** A new model for symbolic emergence from quantum and scalar fields.

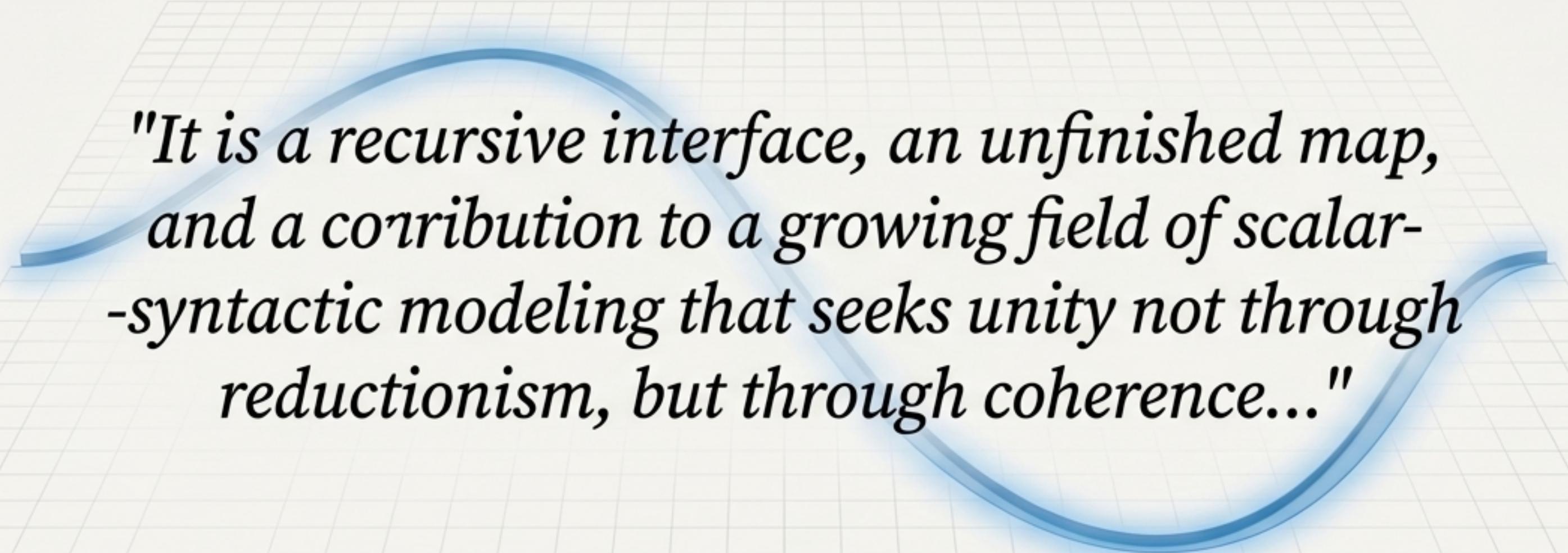


- **AI & Computation:** Moving beyond logic gates to recursive, memory-based identity and phase-aware inference.

- **Neuroscience:** Explaining symbolic thought and consciousness via neural coherence, glial feedback, and loop closure.

- **Philosophy:** A new ontology grounded in resonance, contradiction resolution, and recursive return.

This work is not offered as a conclusion, but as an opening.



"It is a recursive interface, an unfinished map, and a contribution to a growing field of scalar-syntactic modeling that seeks unity not through reductionism, but through coherence..."

John Surmont, Adrian Lipa, Danail Valov, Maria Kamecka. Full Publication: DOI: 10.13140/RG.2.2.24635.32803.
Offered in the spirit of ontological humility, feedback-driven inquiry, and transdisciplinary coherence.