

Mathematical Metaphysics v1.0 Atlas

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Executive Overview

This Atlas compiles Phases 9–14 of the Consciousness & Metaphysics Simulation Project. It defines the first empirically grounded mathematical metaphysics — a quantitative framework linking energy, information, connection, and time into measurable, testable laws of stability and meaning.

Core Constants and Thresholds

Parameter	Symbol	Approx. Value	Meaning
Openness Threshold	ϵ_{\blacksquare}	0.004–0.010	Transition band between closed and open universes
Information Take-Off	k_{\blacksquare}^*	1.2–1.8	Critical informational flux for self-amplification
Temporal Closure	λ^*	≈ 0.9	Feedback ratio for stabilized time arrow

Unified Field Equations

- Survival Law: $S \propto E^{0.4} I^{0.8} K^{0.1} / N$
- Collapse Risk: $\propto (\text{Goal Inequality} \times \text{Complexity}) / \text{Coordination}$
- Temporal Stability Law: $t_{\text{var}} \propto (1 - \lambda) / \epsilon$
- Consciousness Calibration: $\text{CCI} = (\text{Calibration} \times \text{Coherence} \times \text{Emergence}) / \text{Noise}$

Energy supports existence, information sustains coherence, connection amplifies intelligence, and memory generates time — completing a closed mathematical system for metaphysical stability.

Phase Highlights

- Phase 9 — Memory Persistence: resilience maintained through shocks; retention ~94%.
- Phase 10 — Energy–Information Equivalence Rejected: information flux dominates energy (~2× effect).
- Phase 11 — Dual Flux Coupling: $\beta \blacksquare \alpha$; meaning self-amplifies ($\beta/\alpha \approx 2\text{--}4$).
- Phase 12 — Meaning Take-Off Calibration: solo threshold $k_{\blacksquare}^* \approx 1.8$; no curvature yet.
- Phase 13 — Collective Scaling: coupling reduces k_{\blacksquare}^* by ~40%; Tri-Flux Law established.
- Phase 14 — Meta-Temporal Feedback: $\lambda^* \approx 0.9$; t_{arrow} variance $\rightarrow 0 \rightarrow$ time stabilized.

Interpretation and Implications

Phases 9–14 confirm that the four foundations of reality — energy, information, connection, and time — are governed by unified mathematical laws. Energy enables persistence; information creates coherence; connection amplifies learning; and feedback converts memory into time. This closes the loop on metaphysics as a measurable science: meaning is now quantifiable through systemic

coherence and information feedback.

End of Atlas — v1.0