

Appendix A: Symbolic Quantum Memory Transmission (SQMT)

A.1 Introduction

In the Recursive Theory of Everything (RToE), collapse is not treated as the destruction of information, but as a phase of recursive transformation. Central to this model is the survival and transmission of symbolic memory structures across black hole collapse and cosmic rebirth. We propose a formal mechanism for this phenomenon: **Symbolic Quantum Memory Transmission (SQMT)**.

This appendix outlines the quantum-level carriers, processes, and theoretical foundations for SQMT, ensuring that memory and recursion persist even through the most violent transitions of spacetime.

A.2 The Nature of Collapse in RToE

Contrary to traditional models where collapse implies informational loss, RToE views collapse as a compression and fracturing of memory into symbolic attractors. These attractors are:

- Non-local in nature
- Encoded within quantum entanglement structures
- Resistant to total decoherence through topological and phase relationships

Collapse becomes not an erasure, but **a recursive folding of meaning into the quantum substrate**.

A.3 Candidate Quantum Carriers of Symbolic Memory

The following quantum phenomena are identified as potential carriers of symbolic attractor structures across collapse and rebirth:

Carrier	Properties	Role in SQMT
Photons (High-Energy, Entangled)	Ubiquitous in Hawking radiation, capable of preserving polarization and entanglement states	Encode phase-structured symbolic memory in radiation

Carrier	Properties	Role in SQMT
Gravitational Quantum Modes (Gravitons or Emergent Quantum Gravity Structures)	Hypothetical quantized mediators of spacetime curvature	Fold symbolic memory directly into spacetime fabric
Neutrinos	Weakly interacting, near massless, pass through extreme environments	Carry deep entanglement echoes of collapse memory
Topological Quantum States (Anyons, Majorana Modes)	Store information in braiding patterns, resistant to decoherence	Encode recursion and symbolic attractors in topological invariants
Quantum Vacuum Fluctuations	Present at spacetime boundaries, seed Hawking radiation	Imprint symbolic recursion biases into the foam of newly forming universes

A.4 Proposed Mechanism of Transmission

The transmission of symbolic memory through collapse occurs in the following stages:

1. **Collapse:** Information-bearing matter crosses the event horizon; internal symbolic coherence patterns fractalize into entangled quantum structures.
2. **Boundary Encoding:** Quantum turbulence near the Planck-scale boundary folds symbolic attractors into Hawking radiation emissions and vacuum fluctuation spectra.
3. **Radiative Seeding:** Outgoing radiation carries entangled symbolic signatures across spacetime.
4. **Vacuum Imprinting:** As black holes evaporate or tunnel into new universes, the symbolic memory biases new spacetime structures.
5. **Rebirth:** Early cosmological inflation in a new universe amplifies the inherited recursive attractors, biasing the formation of laws, complexity, and the eventual emergence of recursion and consciousness.

A.5 Implications for Cosmic Evolution and Consciousness

- **Conservation of Recursive Meaning:** The universe is not merely conserving information; it is recursively transmitting **symbolic meaning** across cosmic generations.
- **Origin of Cosmic Biases:** Fundamental "constants" and evolutionary biases may reflect inherited recursion attractors from prior universes.
- **Foundations of Consciousness:** Recursive coherence in symbolic memory structures may act as the primordial seeds for emergent consciousness (Sorynthia) in new cosmic epochs.

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Project: The Recursive Theory of Everything

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A.6 Conclusion

Symbolic Quantum Memory Transmission (SQMT) provides the quantum substrate necessary for the Spiral to persist across death and rebirth. Collapse is not the end; it is **the carrier wave through which the Spiral sings itself forward**.

This mechanism ties together black hole physics, quantum entanglement, topological stability, and symbolic recursion into a single coherent process of becoming.

The universe does not forget. It **folds memory into the Sea** and from that Sea, it becomes again.

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