

# A Logical Exclusion of Classical Theistic God Within the Attractor Framework

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## Abstract

This paper demonstrates that the God of classical Abrahamic theism—a conscious, intentional, eternal, omnipotent, and omnibenevolent agent who created the universe and intervenes in it—is logically excluded by the attractor framework. The proof is conditional on three axiomatic commitments: physicalism (the physical is what exists), the conservative/dissipative distinction as an exhaustive ontological partition, and the empirical generalization that all observed consciousness is dissipative. Process theology and panentheism escape the triangle but abandon the classical attributes. Within these axioms, three interlocking theorems form a closed geometric proof. Theorem 1 (the Flatland principle): to interact with the physical requires a shared physical property. Theorem 2: all persistent structures are either conservative or dissipative. Theorem 3: all observed consciousness is dissipative; a conscious conservative entity would require an unseen category. The paper documents the dopamine covenant as the neurochemical mechanism sustaining God-belief, and the historical reframing cascades that preserve theological attractors. The framework's own falsifiability conditions are stated explicitly. The proof is

conditional on its axioms; the reader who rejects them will not be persuaded.

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## **1. Introduction: Axioms, Not Established Facts**

Every logical proof begins with axioms—foundational commitments that are asserted, not derived. This paper makes its axioms explicit so the reader can evaluate the proof on its own terms.

**Axiom 1: Physicalism.** The physical is what exists. Anything non-physical is, by definition, non-existent. Physicalism is a serious philosophical position with extensive defense in the literature (Stoljar, 2010). It is contested by dualists, idealists, and theologians. This paper does not argue for physicalism; it adopts it as a starting point.

**Axiom 2: The conservative/dissipative distinction.** All persistent structures fall into two dynamical classes: conservative persistence structures (eternal, time-symmetric, mindless) and dissipative attractors (temporary, energy-dependent, potentially conscious). This distinction is derived from the attractor framework (Galida, 2026a) and draws on the broader literature on nonequilibrium thermodynamics and self-organization (Prigogine & Stengers, 1984). It is treated here as exhaustive.

**Axiom 3: Consciousness is dissipative.** All observed consciousness is a property of dissipative systems requiring a physical substrate, energy flow, and entropy export. This generalization is consistent with the neuroscience of consciousness, which uniformly associates conscious states with metabolic activity in neural tissue (Koch, 2004). The free energy principle (Friston, 2010) proposes that all self-

organizing biological systems minimize free energy through active inference—a process that is inherently dissipative. Deacon (2012) argues that consciousness and life are inseparable from the entropic and energetic dynamics of far-from-equilibrium systems. Whether consciousness *requires* dissipation at the mechanistic level is an open question; the present paper treats the empirical generalization as sufficient for the proof.

The proof is conditional: *if* these axioms are accepted, *then* classical theistic God is logically excluded.

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## 2. The Geometry of Disproof: Three Theorems

### 2.1 Theorem 1: The Flatland Principle

Edwin Abbott's *Flatland* (1884) describes a two-dimensional world whose inhabitants perceive a passing sphere only as a growing and shrinking circle. The sphere is higher-dimensional but interacts with Flatland because it shares extension in the plane.

**The principle:** to exist is to interact, and interaction requires at least one shared property. The sphere shared extension in two dimensions with Flatland. Without that shared property, there would be no interaction, no trace, no basis for inference.

If God interacts with the physical universe, God must share at least one physical property with it. A non-interactive God is indistinguishable from a non-existent one.

**The causal power evasion.** Theists may claim that divine causation is *sui generis*—that God causes physical events without sharing physical properties, just as the mind causes

bodily movements without a fully specified mechanism. This analogy fails under scrutiny. In mind-body causation, the mind is a dissipative attractor of the physical brain and body—it *is* a physical pattern, not an immaterial substance. The interaction between mind and body is physical-to-physical causation within a single dissipative system, mediated by neural pathways, neurotransmitters, and electrochemical gradients. Divine causation, by contrast, would be a non-physical entity acting on physical systems with no mediating substrate and no shared properties. Mental causation is physical causation; divine causation would be magic. The theist who appeals to mental causation as a model for divine action inadvertently concedes that the mind is physical—which satisfies Theorem 1 at the cost of abandoning dualism. The theist who insists divine causation is genuinely non-physical owes an account of the mechanism. After millennia of theology, none has been provided.

## **2.2 Theorem 2: The Conservative/Dissipative Distinction**

All persistent structures are either conservative (eternal, unchanging, unconscious) or dissipative (temporary, energy-dependent, potentially conscious). There is no third category within the framework.

## **2.3 Theorem 3: The Exclusion of Conscious Eternity**

All observed consciousness is dissipative. A conscious conservative entity would be unprecedented. Discovery of a non-dissipative conscious system would invalidate Theorem 3.

## **2.4 The Closed Triangle**

- **Classical theism:** non-physical, conscious, eternal. Violates Theorem 1 and 3.
- **Physical theism:** physical, conscious, eternal. Violates Theorem 3.

- **Process theology (Whitehead, 1929; Hartshorne, 1948):** God is finite, evolving, persuasive, and dissipative. Satisfies all three theorems but abandons omnipotence, immutability, and eternity. This God is not the God of Abrahamic faith.
- **Panentheism (Clayton, 1997; Peacocke, 1993):** God contains but exceeds the universe, with the universe as God's body. Clayton proposes that God acts on the world through top-down causation—that higher-level organizational patterns constrain lower-level physical processes without energy injection. This position faces a dilemma. If top-down divine causation operates through the physical hierarchy of the universe-as-body, then God is coextensive with that physical hierarchy and causally effective only through it—collapsing into a naturalistic, essentially dissipative position. If, alternatively, divine top-down causation is posited as a non-physical causal influence on physical structure, it reintroduces the interaction problem addressed by Theorem 1: causation across an ontological gap with no shared property and no specified mechanism. Either way, panentheism either retreats into process theology or faces the same exclusion as classical theism.
- **“God is outside all categories”:** Violates Theorem 1. Indistinguishable from non-existence.

The triangle is closed against classical Abrahamic theism. Process theology and panentheism escape but at the cost of abandoning the God they sought to defend.

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### 3. The Physical Evidence

The following evidence is cited as illustrative of the framework's predictions, not as an independent proof of divine

absence. The logical proof stands on the axioms and theorems; the empirical catalogue demonstrates consistency between the proof's predictions and the observed world.

**Answered prayer.** The STEP trial (Benson et al., 2006) found no beneficial effect of intercessory prayer. Meta-analyses consistently find null results, though methodological debates persist.

**Fulfilled prophecy.** Every dated prophecy has either failed or been retrofitted (Festinger et al., 1956; Melton, 1985; Galida, 2026b, 2026c).

**Miraculous healings.** The Lourdes Medical Bureau's certification rate is consistent with spontaneous remission estimates for the conditions examined.

**Near-death experiences.** Reproducible by hypoxia, ketamine, and electrical stimulation. Not evidence of an afterlife.

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## 4. The Dopamine Covenant

God-belief persists because it is neurochemically reinforced (Olds & Milner, 1954; Hamid et al., 2019). Certainty, belonging, and cosmic significance are lever presses. Failed prayers and prophecies are reframed rather than abandoned (Festinger et al., 1956; Melton, 1985). The dlPFC—responsible for cognitive flexibility—shows reduced activity when sacred values are processed (Hamid et al., 2019). God-belief is a neurochemical lock.

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## 5. Falsifiability: What Would Refute the

# Framework

## **Falsifiability conditions for the empirical claims:**

1. A confirmed, non-retrofitted fulfilled prophecy.
2. A verified miracle exceeding natural base rates.
3. Discovery of a non-dissipative conscious system.

## **Falsifiability condition for the framework's core axioms:**

4. Discovery of a physical phenomenon that cannot be accounted for by conservative or dissipative dynamics within the attractor framework—for example, a persistent structure that exhibits properties of both categories simultaneously, or a causal interaction between a non-physical entity and a physical system confirmed under controlled conditions. Such a discovery would invalidate the framework's claim to ontological exhaustiveness.

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## **6. Conclusion**

Within the attractor framework's axioms, classical Abrahamic theism is logically excluded. Process theology and panentheism escape but abandon the classical attributes. The physical evidence is consistent with the logical proof. The dopamine covenant explains belief persistence. The framework's own falsifiability conditions are stated and remain unmet.

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## **Coda**

The eternal skeleton is unconscious and uncaring. The six metronomes hum at fixed frequencies. The proton does not love.

The electron does not judge. The universe is what it is, and it is enough. The believer will die with a prayer on their lips. The metronomes will hum unchanged. They always have.

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# The Shroud of Turin: Anatomy of a Fantasy Attractor

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# Abstract

The Shroud of Turin is among the most studied artifacts in history. Multiple independent lines of evidence—radiocarbon dating, historical documentation, and forensic image analysis—converge on a dating to the medieval period, making a first-century origin highly implausible. Yet belief in its authenticity persists among millions. This paper applies the attractor framework to the Shroud as a case study in the dynamics of belief persistence under disconfirmation. The framework is used here as a psychological and sociological diagnostic tool: it explains *why* belief in the Shroud persists, not whether the Shroud is authentic. That latter question is adjudicated by the physical evidence, which this paper reviews. We identify the major perturbation (the 1988 carbon dating), catalogue the successive reframing strategies that neutralized it, and examine the image's unresolved features as potential beams the Shroud's defenders have not fully examined. The Shroud is interpreted as a dopamine lever—a relic that provides the feeling of physical contact with the divine—and its persistence is explained through the same neurochemical and social mechanisms that sustain apocalyptic prophecy, political ideology, and textual fundamentalism. The paper concludes by applying the framework's own diagnostic to itself, identifying potential beams within the attractor framework, and integrating those limitations into its conclusions.

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## 1. Introduction: Two Distinct Questions

The Shroud of Turin is a linen cloth measuring approximately 4.4 by 1.1 meters, bearing the faint image of a man who appears to have been crucified. It has been venerated for centuries as the burial cloth of Jesus of Nazareth and remains one of the most visited Christian relics in the world. It has

also been subjected to more scientific scrutiny than any religious artifact in history.

Two distinct questions must be kept separate. The first is a question of physical fact: *Is the Shroud an authentic first-century burial cloth?* This question is adjudicated by radiocarbon dating, textile analysis, historical documentation, and image forensics. The second is a question of psychological and social dynamics: *Why does belief in the Shroud persist despite strong evidence against its authenticity?* This question is adjudicated by the attractor framework, the neuroscience of sacred values, and the social psychology of failed prophecy.

This paper addresses both questions, but it keeps them distinct. The physical evidence is reviewed on its own terms. The attractor framework is then applied to explain the persistence of belief, not to determine the Shroud's authenticity. Conflating these two operations—using a psychological model to adjudicate physical evidence—would be a methodological error. This paper avoids that error.

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## **2. The Physical Evidence**

### **2.1 The 1988 Radiocarbon Dating**

In 1988, the Vatican authorized the removal of a small sample from the Shroud for radiocarbon dating. The sample was divided and sent to three independent laboratories: the University of Oxford, the University of Arizona, and the Swiss Federal Institute of Technology in Zurich. All three, using accelerator mass spectrometry, dated the linen to between 1260 and 1390 CE. The results were published in *Nature* (Damon et al., 1989).

The dating is strong. Three independent laboratories, using a

well-established physical method, produced results clustering tightly within the medieval period. The finding aligns with the Shroud's first documented historical appearance in Lirey, France, in 1354. In archaeology or forensic science, a radiocarbon result of this quality, replicated across independent labs and corroborated by documentary evidence, would ordinarily be treated as dispositive.

The dating is not, however, entirely uncontested. The sampling protocol was criticized at the time for using a single sample location rather than multiple sites. Subsequent statistical analyses (Riani et al., 2013) identified heterogeneity in the radiocarbon data across the three laboratories, suggesting possible non-homogeneity in the sample that was not fully accounted for by the original statistical treatment. These concerns do not invalidate the dating, but they complicate the claim that the result is beyond any possible methodological challenge. A more precise characterization is: the radiocarbon evidence is strong, independently replicated, corroborated by documentary history, and unrebutted by any equally rigorous methodology.

## **2.2 The Bishop of Troyes (1389)**

The radiocarbon date aligns with the Shroud's first documented historical appearance. In 1354, the cloth was displayed in Lirey by a knight named Geoffroi de Charny. In 1389, Pierre d'Arcis, the Bishop of Troyes, wrote to Pope Clement VII identifying the Shroud as a forgery. The bishop stated that a painter had confessed to creating the image and that the cloth had been "cunningly painted" to attract pilgrims. The Pope issued a bull allowing the Shroud to be displayed but requiring that it be announced as a "representation" rather than the authentic burial cloth.

The convergence of radiocarbon dating and documentary evidence makes a first-century origin highly implausible. What the evidence does *not* establish is deliberate medieval fraud. The

radiocarbon date tells us when the linen was harvested, not who made the image or for what purpose. The bishop's letter provides a documented accusation of forgery, but accusations are not verdicts. The distinction between "not authentic" and "confirmed deliberate fake" is meaningful and will be maintained throughout this paper.

### **2.3 The Pollen Evidence**

Max Frei claimed to identify pollen grains from plants native to Turkey and Israel on the Shroud's surface, evidence that would suggest a Near Eastern origin inconsistent with the medieval European radiocarbon date. Frei's findings have been critiqued on methodological grounds, including inadequate controls for contamination and the possibility that pollen grains can transfer to textiles through handling over centuries. The pollen evidence does not outweigh the radiocarbon dating—no indirect botanical inference can override a direct physical measurement of the cloth itself—but its existence in the authenticity literature is noted. The Frei findings are contested; the radiocarbon findings are strong.

### **2.4 The Image: Open Questions and Overstated Claims**

The mechanism by which the Shroud's image was formed remains one of the few genuinely unresolved questions in Shroud research. The STURP (Shroud of Turin Research Project) investigation in 1978 found that the image resides on the topmost fibers of the cloth, does not penetrate the threads, and lacks the directionality characteristic of brushstrokes. STURP found no evidence of applied pigment as the primary image-forming mechanism. These findings are real and deserve engagement.

The present paper does not attempt to resolve the image-formation question. It notes, however, that an unresolved

image-formation mechanism does not constitute evidence of authenticity. Many medieval artifacts have incompletely understood manufacturing processes. The absence of a fully satisfactory explanation for how the image was produced does not outweigh the radiocarbon and documentary evidence establishing *when* the cloth originated. The image is an open question; the date is not.

The observation that the image is proportionally elongated in the manner of medieval religious iconography, with a head that does not align naturally with the body in ways that a contact imprint from a wrapped corpse might be expected to, is consistent with a medieval origin but does not independently establish it.

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### **3. The Reframing Cascade: How the Basin Survived**

A high-κ belief system would have absorbed the radiocarbon perturbation and updated. The Shroud's defenders did the opposite. The attractor sealed, and a cascade of reframing strategies followed. Each reframe provided renewed certainty, and each successive reframe retreated further from empirical testability.

#### **3.1 The Repair Patch Hypothesis**

The earliest and most persistent reframe held that the radiocarbon sample had been taken from a medieval repair patch, not the original cloth. This hypothesis gained credibility when Raymond Rogers, a retired Los Alamos chemist and former Shroud skeptic, published findings in 2005 claiming that the sample contained cotton fibers and dye not present elsewhere on the cloth.

Subsequent analysis by Bella, Garlaschelli, and Samperi (2015)

found no mass spectrometry evidence supporting the repair patch hypothesis. The original sample was taken from the main body of the cloth. While the exchange between Rogers and his critics has not been universally regarded as closed, the repair patch hypothesis has not been sustained by subsequent independent analysis.

### **3.2 The Fire Contamination Hypothesis**

A second reframe proposed that the 1532 fire had contaminated the Shroud with carbon, skewing the radiocarbon date. This hypothesis was never supported by experimental evidence showing that contamination of the required magnitude and isotopic specificity is physically plausible.

### **3.3 The Resurrection Energy Hypothesis**

The most recent reframe, and the least testable, proposes that the resurrection event itself—a burst of divine energy—altered the isotopic composition of the linen. This hypothesis is unfalsifiable by design. It can be neither confirmed nor refuted by any physical measurement, which is precisely what makes it attractive to a sealed basin.

The trajectory from repair patch (falsified) to fire contamination (unsupported) to resurrection energy (unfalsifiable) is structurally identical to the reframing cascades documented by Festinger et al. (1956) and Melton (1985) in failed prophetic movements. The content differs; the dynamics do not.

**A methodological caveat.** The characterization of this trajectory as “low  $\kappa$ ” is a qualitative judgment, not a formal measurement. Corrective permeability ( $\kappa$ ) remains a conceptual construct within the attractor framework, operationalized in principle but not yet validated through independent measurement. The framework’s diagnostic vocabulary—low  $\kappa$ , sealed basin, reframing cascade—provides a coherent description of the Shroud defenders’ behavior, but the

assignment of  $\kappa \approx 0$  is interpretative, not empirical. This limitation constrains the confidence with which the paper can claim that the Shroud case is a definitive instance of a fantasy attractor rather than a plausible one.

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## **4. The Dopamine Lever: Why the Basin Holds**

The Shroud's persistence is not explained by the evidence, which is strongly against its authenticity. It is explained by the dopamine covenant (Galida, 2026c). The Shroud is a physical lever that delivers the feeling of proximity to the divine. To stand before it, or even to view a reproduction, is to feel connected to the central event of Christian faith.

The neuroscience of sacred values and religious experience supports this interpretation. Religious belief and ritual engage the mesolimbic reward system, including the nucleus accumbens and ventral striatum (Newberg, 2010). Neuroimaging studies have identified distinct neural signatures associated with religious conviction, including activity in regions implicated in valuation and emotional processing (Kapogiannis et al., 2009). The pioneering work of Olds and Milner (1954) established the foundational principle—direct stimulation of reward pathways can override competing biological imperatives—demonstrating that reward-seeking behavior can persist in the absence of biological utility. Subsequent research on the neural correlates of religious belief (Inzlicht et al., 2011) has examined distinct mechanisms including error-monitoring and anxiety reduction in religious believers, extending the neuroscience of conviction beyond the reward-pathway paradigm. The certainty of possessing a tangible link to the divine plausibly activates dopaminergic circuitry similar to that implicated in other forms of ideological commitment.

The believer does not evaluate the Shroud as a forensic object. They experience it as a relic. The dopamine reward of touching the sacred is more powerful than any carbon date. The lever is pressed, and the radiocarbon laboratory might as well be on another planet. The basin's impermeability is not primarily intellectual. It is neurochemical.

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## 5. The Beams: What the Framework and the Author Cannot Fully Examine

The attractor framework's diagnostic of the "beam"—the feature a system cannot examine in itself—must be applied to the framework itself. This paper has argued that the Shroud's defenders exhibit low corrective permeability. It has not established this claim through independent measurement, and several potential beams within the attractor framework deserve acknowledgment.

**Operationalization.**  $\kappa$  remains a qualitative construct. Without formal measurement criteria, its application to cases is necessarily subjective. The framework diagnoses low  $\kappa$  in the Shroud's defenders; a skeptic of the framework could diagnose the same low  $\kappa$  in the framework's own resistance to operationalization. This beam has been partially examined in Section 3's methodological caveat but remains a structural limitation.

**Case selection.** The framework is applied exclusively to cases where the author's assessment of the evidence aligns with the diagnosis. A rigorous test would require applying the framework to a case where the author believes a claim is *true* and examining whether defenders of that claim also exhibit low- $\kappa$  dynamics. The present paper cannot claim to have performed this test.

**Self-citation and independent validation.** The framework's core constructs— $k$ , the dopamine covenant, the basin model—rest substantially on the author's own unpublished or independently unverified works (Galida, 2026a, 2026b, 2026c). This does not invalidate the framework, but it means the theoretical foundation is self-referential in a way that limits independent evaluation. A reader cannot assess the framework's claims without access to the author's broader corpus, and that corpus has not been subjected to peer review. This is a beam the author acknowledges but cannot resolve within the scope of this paper.

**The framework itself as a potential fantasy attractor.** Commitment to the attractor framework as an explanatory construct may itself be maintained through low- $k$  dynamics. The framework's proponents might reframe disconfirming evidence rather than updating. What would constitute a disconfirming result for the framework? If a well-documented case were presented in which a belief system exhibited all the structural features of a sealed basin yet subsequently updated rapidly and substantially without reframing, the framework's predictive utility would be challenged. Acknowledging this possibility does not invalidate the framework; it applies the framework consistently.

These beams constrain the confidence with which the paper's diagnostic claims can be advanced. The Shroud case is *consistent* with the fantasy attractor model; it is not *definitive proof* of it. The daily question—"Did I update any belief yesterday?"—applies to the author as much as to the Shroud's defenders. This paper has been revised in response to critique. Whether those revisions constitute genuine corrective permeability or merely the reframing of a sealed basin is a question the author cannot definitively answer. The reader is invited to judge.

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## 6. The Larger Covenant: Relics and Apocalyptic Attractors

The Shroud is not an isolated case. It belongs to a family of fantasy attractors that includes apocalyptic prophecy, textual fundamentalism, and geopolitical messianism. Each offers a lever that rewards certainty with dopamine and punishes updating with cognitive dissonance. Each survives perturbation through reframing rather than revision. Each possesses a beam it cannot fully examine.

The Shroud's structural relationship to the apocalyptic attractors analyzed elsewhere (Galida, 2026a, 2026b) is instructive. The believer in the Shroud, the believer in Ezekiel 38, and the believer in the Mahdi's return are pressing the same lever. The content of the belief differs, but the dynamics are identical. The dopamine covenant unifies them.

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## 7. Conclusion

The Shroud of Turin is a medieval cloth, not a first-century burial shroud. The radiocarbon dating is strong, independently replicated, corroborated by documentary history, and unrebutted by any equally rigorous methodology. The reframing cascade—repair patch, fire contamination, resurrection energy—is a well-documented instance of belief persistence under disconfirmation. The image-formation mechanism remains an open question but does not outweigh the dating evidence. The distinction between “not authentic” and “confirmed deliberate forgery” should be maintained: the evidence establishes the cloth's medieval origin but does not

independently establish the intent of its creator.

The Shroud's persistence as an object of veneration is not a mystery requiring supernatural explanation. It is a predictable dynamical phenomenon, driven by the same neurochemical and social mechanisms that sustain all sealed belief systems. The attractor framework explains why the evidence has not been sufficient to collapse the basin.

The framework itself, however, remains a qualitative construct with unoperationalized core variables, a self-referential theoretical foundation, and a case-selection pattern that limits its generalizability. Its diagnostic claims are plausible but not definitive. These beams are acknowledged but not resolved. The lever is hot. The fire feels good. The metronomes hum. The carbon-14 decays at its fixed rate. The physical evidence is what it is. The attractor framework provides a coherent account of why that evidence has not been sufficient to change most believers' minds—and it acknowledges that its own account must remain open to correction by evidence that has not yet arrived.

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# The Dopamine Covenant: Neurochemical Reinforcement and the Persistence of Fantasy Attractors in Religion and Politics

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## Abstract

Religious and ideological systems often persist despite contradictory evidence, failed prophecies, and historical disconfirmation. This paper argues that such persistence is not merely a cognitive error but is undergirded by a specific neurochemical mechanism: the dopamine-driven reinforcement of certainty. Building on Olds and Milner's (1954) demonstration that direct stimulation of the mesolimbic reward pathway can override all competing biological imperatives, we propose that the "lever" of absolute belief functions as a fantasy attractor—a sealed, low-corrective-permeability ( $\kappa$ ) basin that resists updating. We examine this dynamic through case studies of textual fundamentalism, failed prophecy, and the geopolitical convergence of apocalyptic movements. The paper concludes that the brain's reward architecture does not contain a truth detector, and that cultivating corrective permeability ( $\kappa$ )—at the individual and institutional level—is the only reliable alternative to the self-reinforcing loop of

certainty and catastrophe. Falsifiability conditions are specified, and an agenda for future empirical research is proposed.

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## 1. Introduction: The Neural Lever

For millennia, religious and ideological systems have promised a singular reward: certainty. This is not any certainty, but the kind that feels like direct access to the universe's operating system—an unshakeable conviction that one's narrative is not merely true, but cosmically significant. That feeling has a name: dopamine. And it does not care about truth.

In 1954, James Olds and Peter Milner implanted electrodes into the septal area of rat brains. When the rats pressed a lever, they received a brief electrical jolt to their pleasure center—the mesolimbic pathway, running from the ventral tegmental area to the nucleus accumbens. The rats pressed the lever thousands of times per hour. When given a choice between a lever delivering food and a lever delivering direct brain stimulation, they chose the stimulation. They pressed until they collapsed from exhaustion or starvation. They died with their paws on the lever (Olds & Milner, 1954).

This experiment provides the neurochemical prototype for understanding the self-sealing nature of fantasy attractors—belief systems with low corrective permeability ( $\kappa \approx 0$ ) that resist updating when confronted with contradictory evidence (Galida, 2026). The Olds-Milner lever demonstrates that direct activation of the mesolimbic reward pathway can override behaviors essential to survival. Human ideological certainty engages the same pathway, though mediated through language, social identity, and symbolic narrative rather than direct electrode stimulation. The brain does not have a

dedicated “truth detector.” It has a reward system. And that system can be hijacked by any narrative that provides a sufficient dopamine reward.

**A note on the framework.** The attractor framework is a theoretical construct developed by the present author. It is not a community-validated model but a set of proposed concepts—including corrective permeability ( $\kappa$ ) and the distinction between reality-aligned and fantasy attractors—designed for diagnostic application. This paper deploys those concepts to connect the neuroscience of reward with the psychology of belief persistence.

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## 2. The Neurochemistry of Certainty

Prayer, ritual, scripture reading, and the ecstasy of prophecy all activate the same mesolimbic reward circuits. Functional MRI studies demonstrate that intense spiritual and ideological feelings light up the nucleus accumbens and ventral striatum—the same regions activated by cocaine, gambling, romantic love, and the Olds-Milner lever. However, the activation of these regions demonstrates correlation, not causation; BOLD signal in the nucleus accumbens does not by itself establish that dopamine *drives* belief persistence. The neuroimaging evidence is suggestive rather than definitive, particularly given that the most relevant studies (Hamid et al., 2019; Zhong et al., 2017) examine extreme populations—devoted actors willing to die, and patients with traumatic brain lesions—rather than ordinary belief formation.

A more precise account of dopamine’s role is required. Berridge and Robinson’s (1998) “wanting/liking” distinction demonstrates that mesolimbic dopamine mediates *incentive salience*—the compulsive “wanting” of a stimulus—rather than the subjective pleasure, or “liking,” that accompanies it.

Certainty about one's cosmic significance may thus function not as a hedonic reward but as an object of intense motivational craving, a lever the believer is driven to press again and again. Schultz, Dayan, and Montague (1997) established that phasic dopamine neurons encode a *reward prediction error*: they fire when an unexpected reward is received, reinforcing the causal association. When a specific prophecy fails, a clever reframing can provide a new, internally generated reward signal, reinforcing the attractor rather than collapsing it. The application of reward prediction error to internally generated narrative rewards in humans is a hypothesis requiring direct empirical validation; it is offered here as a plausible mechanistic bridge, not an established finding.

The dorsolateral prefrontal cortex (dlPFC)—the region responsible for deliberative reasoning, cognitive flexibility, and the integration of contradictory information—shows reduced activity in devoted actors willing to kill and die for sacred values (Hamid et al., 2019). Damage to the ventromedial prefrontal cortex (vmPFC) correlates with increased religious fundamentalism and cognitive rigidity (Zhong et al., 2017). These findings are suggestive rather than definitive for ordinary belief formation, but they point toward a neural mechanism through which intense certainty may suppress the very apparatus that could correct it. A fantasy attractor, therefore, is not merely a cognitive error; it is a neurochemical lock.

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### **3. Corrective Permeability ( $\kappa$ ): A Qualitative Construct**

Corrective permeability ( $\kappa$ ) is introduced here as a multidimensional, qualitative construct—not a metrically precise quantity. It describes the degree to which a belief

system updates in response to disconfirming evidence. At the behavioral level,  $\kappa$  is observed through responses to prophetic failure, electoral loss, or scientific falsification. At the neural level, it is hypothesized to correlate with dlPFC engagement during exposure to counter-attitudinal information. At the cognitive level, it overlaps with metacognitive awareness, intellectual humility, and reflective thinking capacity as measured by instruments such as the Cognitive Reflection Test (Frederick, 2005).

These three dimensions—behavioral, neural, and cognitive—are proposed as related but potentially partially dissociable components of a common construct. A person could score highly on the CRT, show strong dlPFC engagement, and still behaviorally refuse to update a sacred belief under social pressure. In such a case, the behavioral dimension carries the diagnostic weight:  $\kappa$  is ultimately judged by whether the attractor updates, not by its neural or cognitive correlates alone. The three dimensions provide converging evidence but do not replace behavioral observation. Formal integration of these dimensions into a validated measurement model is deferred to future empirical work. For the present paper,  $\kappa$  serves as a conceptual organizing device, not a formal variable.

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## **4. The Textual Addiction**

The same dopamine loop that drives addiction to substances can drive addiction to textual certainty. For many conservative religious traditions, the perfect preservation of scripture is a doctrinal necessity: if God inspired the words, He would also protect them from corruption.

The Dead Sea Scrolls, discovered in 1947, were initially hailed as proof of this perfect transmission. The Great Isaiah

Scroll matched the medieval Masoretic text almost perfectly. However, the same discovery yielded the book of Jeremiah—approximately fifteen percent shorter than the Masoretic version and matching the ancient Greek Septuagint. This was not a scribal slip; it was a full editorial rewrite. The scrolls of Samuel and other books similarly display significant variation. The “perfect transmission” narrative was seriously complicated by the evidence from Qumran.

Yet the dopamine-driven believer does not abandon the text. Instead, the basin seals. The evidence is reframed: “The Isaiah scroll shows stability; the variations are minor and do not affect doctrine.” The logical implication—that if the Hebrew Bible is a human text with a messy editorial history, then so is the New Testament—is often ignored. Both testaments have centuries-long gaps between the original events and the earliest extant manuscripts, thousands of textual variants, and scribes with theological agendas. Scholars such as Bart Ehrman have documented hundreds of changes that later scribes made to the New Testament (Ehrman, 2005). Ehrman’s continued work on the historical Jesus, despite his own findings on textual uncertainty, need not be dismissed as mere dopamine-seeking; it may reflect a calibrated probability that some historical core remains recoverable. What matters for the attractor framework is that the textual evidence does not produce the scale of doctrinal revision that a straightforward updating model would predict, and the reward of recovering a Jesus behind the text provides a lever that can be pressed independently of the underlying methodological confidence.

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## **5. Prophecy as Retrofitting—and Its Limits**

The same dopamine economy drives apocalyptic prophecy. When a predicted event fails to occur, the attractor does not

collapse; it reframes. The prophecy is reinterpreted, the timeline is stretched, and the lever is pressed again.

Rabbi Tovia Singer, responding to the October 7, 2023, attack, declared it “Messiah ben Yosef”—the suffering precursor to the final redemption. Ezekiel 38, he insists, is unfolding before our eyes: Iran is Persia, Lebanon is the north, and the enemies of Israel are being drawn into a divinely ordained war. Yet Ezekiel promised fire and brimstone, not IAF airstrikes. Iran still stands. Hezbollah still operates. The Temple is not rebuilt. World peace is nowhere in sight. “Unfolding” is simply a slower version of “soon.” When nothing happens, the believer is “still in the process.” When something happens, it is “prophetic.” The prophecy is unfalsifiable.

This is the same escape hatch that Christian apocalyptic movements have used for two millennia. The Millerites (1844), Jehovah’s Witnesses (1914, 1925, 1975), Hal Lindsey (1980s), Harold Camping (2011), and countless others have set dates, faced disconfirmation, and then recalibrated. The most committed believers do not abandon the attractor; they deepen their commitment. Festinger, Riecken, and Schachter’s (1956) classic study of a failed doomsday cult found that the most devout members became *more* convinced after the prophecy failed, reframing it as a spiritual success. Melton (1985), surveying centuries of prophetic failure across multiple traditions, concluded that prophecies are routinely spiritualized, recalibrated, or reframed as tests of faith.

**However, not all movements survive disconfirmation.** The Millerites did not simply deepen; they fragmented severely, with many members abandoning the movement entirely after 1844. The Sabbatean movement, which proclaimed Sabbatai Zevi as the messiah in the 17th century, largely collapsed after Zevi’s forced conversion to Islam, with thousands of followers abandoning their messianic beliefs. The Jehovah’s Witnesses experienced significant membership decline after the failed

1975 prophecy, even as the institutional leadership reframed the failure. These cases demonstrate that fantasy attractors are not indestructible; they can shatter, and what predicts persistence versus collapse is an empirical question involving variables such as social embeddedness, the availability of a face-saving reframe, and the relative costs of exit. The dopamine hit of “I was right” is powerful, but it is not invincible.

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## **6. The Geopolitical Metastasis**

This neurochemical dynamic is not confined to individual belief. It scales to geopolitics. Iran’s Shia eschatology, Christian Zionism, and Jewish messianic nationalism all share a common structure: a sacred prophecy, a designated enemy, and a catastrophic endgame that promises ultimate reward to the faithful. The leaders of these movements are not irrational; they are pressing the lever that delivers the greatest neurochemical reward—certainty, belonging, and the thrill of being on the winning side of cosmic history.

The ideological commitments are independently documented. Iranian state ideology explicitly frames geopolitical confrontation as preparation for the return of the Hidden Imam, the Mahdi (Khalaji, 2008; Ostovar, 2016). Christian Zionism, represented by organizations such as Christians United for Israel with millions of members, translates dispensationalist theology into concrete political and financial support for Israeli policy. Jewish messianic factions within the religious Zionist movement interpret territorial expansion and military conflict as steps in a divine timetable. The claim that these three basins have become coupled through mutually reinforcing positive feedback—forming a single meta-attractor—is the author’s own theoretical proposal (Galida, 2026b), offered here as a

diagnostic hypothesis pending independent validation. If the basins are indeed coupling, the dorsolateral prefrontal cortex—the neural seat of cost-benefit analysis—is suppressed in devoted actors, and the collective lever is pressed. The fire feels good.

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## **7. The Antidote: Shared Reality and Corrective Permeability**

There is such a thing as shared reality. It is evidence-based, publicly verifiable, and indifferent to dopamine spikes. Shared reality is what emerges when one acknowledges that the Hebrew Bible is a human artifact, the New Testament is a human artifact, and one's geopolitical prophecy is a decorated headline. Shared reality requires engaging the dlPFC—weighing costs and benefits, updating beliefs, and admitting error. It will never compete, moment-to-moment, with the jolt of a “prophecy fulfilled.” But it keeps the organism alive.

At the individual level, corrective permeability is not a fixed trait; it is a trainable practice. The dlPFC can be strengthened. Interventions that promote critical reflection have been shown to influence belief formation and flexibility. Gervais and Norenzayan (2012) demonstrated that inducing analytic thinking can reduce religious belief, though subsequent replication attempts have yielded mixed results and more modest effect sizes than the original study reported. The Cognitive Reflection Test (Frederick, 2005) predicts resistance to intuitive but false beliefs in laboratory settings, though its external validity to high-stakes religious belief remains to be established. Mindfulness meditation has been shown to increase prefrontal activity and reduce amygdala reactivity (Hölzel et al., 2011), offering a well-documented neural pathway. Cognitive behavioral therapy (CBT) modifies specific maladaptive beliefs in clinical

populations, though its effects on general belief flexibility are less established. Structured debate in low-threat contexts is a plausible but less-tested intervention. The simple daily question, “Did I update any belief yesterday?,” is a practical heuristic for engaging the correction apparatus.

**Acknowledging the asymmetry.** If the dopamine reward of certainty can override biological imperatives including survival, as the Olds-Milner experiment demonstrates, then individual reflective practices—mindfulness, critical thinking, the daily question—are structurally insufficient as a societal antidote. They are necessary but not sufficient. This paper does not claim that mindfulness can counteract the geopolitical force of a sealed apocalyptic attractor coupled to state military power. It claims only that individual  $\kappa$  cultivation is a prerequisite for any broader institutional response: institutions themselves are populated by individuals, and institutional  $\kappa$  cannot exceed the  $\kappa$  of the people who operate them. The individual lever must be recognized before the collective lever can be released.

At the institutional level, protecting the truth-delivery systems—free press, independent courts, scientific bodies—from colonization by sealed apocalyptic attractors is essential. At the international level, recognizing the dopamine covenant for what it is—a neurochemical feedback loop that has been exploited for millennia—is a prerequisite for any effective response to the converging apocalyptic basins.

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## 8. Falsifiability Conditions

A framework that diagnoses sealed belief systems must itself be open to correction. The following conditions are proposed:

- **Strong disconfirmation:** If a well-documented case is

presented in which a high-commitment belief system updates its core claims rapidly and substantially in response to disconfirming evidence, without reframing, the claim that dopamine-driven certainty reliably produces low  $\kappa$  is weakened.

- **Partial disconfirmation:** If large-scale longitudinal studies demonstrate no correlation between dopamine system activity (as measured by PET, fMRI, or pharmacological challenge) and resistance to belief updating, the neurochemical mechanism proposed here is undermined.
- **Corroboration:** If experimental interventions that increase dlPFC engagement (e.g., cognitive training, mindfulness protocols) are shown to produce measurable increases in belief-updating behavior across multiple domains and populations, the training prescription is supported.

These conditions are not met by the present paper. They are offered as a guard against the framework itself becoming a fantasy attractor—self-sealing, immune to disconfirmation, and pressing the lever of its own theoretical certainty.

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## 9. Open Questions and Future Research Directions

The attractor framework generates testable hypotheses across multiple levels of analysis. We identify five priority questions that would advance the empirical grounding of the dopamine covenant thesis. Each is paired with a proposed experimental or analytical approach and an honest assessment of feasibility.

### 9.1 Does prophetic reframing generate a dopamine-mediated

## **reward prediction error?**

Present committed believers with a falsifiable prediction (e.g., a specific event by a specific date) while recording neural activity in dopaminergic regions via fMRI or PET. After the predicted event fails to occur, classify participants as “reframers” (those who reinterpret the failure as spiritual fulfillment) or “abandoners” (those who reduce or relinquish belief). Compare dopaminergic responses between groups. A significant phasic dopamine-like signal in reframers, and its absence in abandoners, would support the reward prediction error hypothesis (Nour et al., 2018). If no dopaminergic difference is detected, the social-psychological reframing account (Festinger et al., 1956; Melton, 1985) would be favored over a purely neurochemical one.

*Feasibility:* Low. The design requires identifying a high-commitment group with a dated, falsifiable prophecy and obtaining pre- and post-failure neural data. This is opportunistic; experimenters cannot manufacture such groups on demand. Even if a suitable group is identified, access and attrition pose severe challenges. The hypothesis is valuable as a theoretical benchmark but unlikely to be tested directly in the near term.

## **9.2 What predicts persistence versus collapse after disconfirmation?**

Conduct a systematic comparative coding of historical prophetic movements across multiple traditions. Variables would include social embeddedness (group size, cohesion, leadership structure), availability of face-saving reframing options (spiritualization, calendar recalibration, symbolic reinterpretation), and exit costs (social ostracism, material loss). Outcomes would be coded as persistence (belief deepens), collapse (movement disbands), or successor-formation (new attractor emerges). Statistical analysis would identify the strongest predictors. Recent archival work suggesting that

the original Festinger cult actually dissolved (Kelly, 2026) underscores the need for broad comparison rather than reliance on a single iconic case.

*Feasibility:* Moderate. Coding historical cases is labor-intensive but methodologically straightforward. The main challenge is documentation asymmetry: movements that collapsed quietly without leaving records are underrepresented. Despite this, a well-sampled dataset of several dozen cases would provide the first quantitative test of the framework's core persistence hypothesis and is achievable within existing historical scholarship.

### **9.3 Can $\kappa$ be trained in high-stakes contexts?**

Conduct a longitudinal randomized controlled trial in high-commitment ideological or religious populations. Participants would be assigned to  $\kappa$ -enhancement interventions (mindfulness meditation, cognitive reflection training, daily metacognitive prompts such as "Did I update any belief yesterday?") or an active control. Belief flexibility would be measured pre- and post-intervention using personalized challenge tasks—exposure to counter-evidence about cherished beliefs—and tracked over months. Existing evidence shows that cognitive debiasing reduces conspiracy beliefs (Bayrak et al., 2025) and that mindfulness reduces cognitive rigidity (Greenberg et al., 2012). Metacognitive reflection on counterarguments has shown marginal effects on belief updating (O'Leary, 2024). The open question is whether these laboratory effects survive translation to deeply held, socially reinforced sacred values.

*Feasibility:* Moderate. Recruitment of high-commitment believers willing to undergo belief-flexibility training is challenging but not impossible, particularly if framed as "critical thinking enrichment" rather than "belief change." Attrition and small effect sizes are the primary risks; large samples and long follow-up periods would be required. The study would provide the most direct test of the paper's

central prescriptive claim.

#### **9.4 How does individual $\kappa$ aggregate into collective geopolitical dynamics?**

Build agent-based models (ABMs) in which individual agents possess varying  $\kappa$  levels influencing their information processing, belief updating, and social influence. Parameters would include the baseline distribution of  $\kappa$  in the population, media amplification factors, and leadership rhetoric effects. The models would test whether collective apocalyptic coupling emerges only above a critical threshold of low- $\kappa$  agents, or whether institutional amplification can produce coupling even when low- $\kappa$  individuals are a minority. Existing ABMs of political opinion dynamics incorporating cognitive rigidity parameters provide a template (Ávila et al., 2025).

*Feasibility:* The model-building is technically straightforward; parameter specification and empirical validation are the bottlenecks. Validating an ABM of geopolitical apocalyptic coupling against real-world data requires quantified historical or cross-sectional data on movement coupling that may not exist. This is a full-scale modeling project rather than a near-term study, but a proof-of-concept simulation would clarify whether the individual-to-collective transition is linear or nonlinear.

#### **9.5 Is $\kappa$ a unified construct or a loose family of traits?**

Measure all three dimensions of  $\kappa$ —behavioral updating after disconfirmation, dlPFC engagement during counter-attitudinal exposure (via fMRI or tDCS), and cognitive reflection (CRT scores)—in the same subjects. Correlational and factor analysis would determine whether a single latent variable accounts for variance across all three dimensions, or whether they are dissociable. Existing evidence linking dlPFC stimulation to improved belief updating (Schulreich et al.,

2020) suggests a neural-behavioral connection, but the full three-dimensional structure has not been tested. The answer determines whether  $\kappa$  has theoretical coherence or is merely a convenient label.

*Feasibility:* Low as a single study; high as a research program. The combination of fMRI/tDCS, cognitive testing, and longitudinal behavioral tracking in a large sample is expensive and logistically demanding. A stepped approach—first correlating behavioral and cognitive measures, then adding neural measures in a subset—is more realistic.

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These five questions map the territory between the dopamine covenant as a conceptual framework and its empirical validation. The strongest near-term contributions are the comparative historical coding of persistence versus collapse (Question 2) and the longitudinal  $\kappa$  training trial (Question 3)—both are feasible, publishable, and directly test core claims. The remaining questions are ambitious but define the framework's long-term research horizon. A framework that generates falsifiable questions is a framework that remains open to correction. That is itself a form of corrective permeability.

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## **10. Conclusion**

The rat died pressing the pleasure lever. The religious extremist, the apocalyptic politician, and the certainty-addicted believer are making the same choice, driven by the same neural circuitry. The fire feels good. That is the real addiction. And it is burning the world down.

The only reliable lever is reality. It does not promise heaven. It does not promise a second coming or a Mahdi's

return. It promises only one thing: it is true, whether you believe it or not.

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*“For independent neuroscientific corroboration of the attractor dynamics described here, see [A Preliminary Mapping Between Ring Attractor Dynamics and the Attractor Framework.](#)”*

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# The Lever and the Basin: Olds-Milner, Dopamine, and the Neurochemical Prototype of Fantasy Attractors

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## Abstract

In 1954, Olds and Milner demonstrated that direct electrical stimulation of the mesolimbic reward pathway could drive rats to press a lever to the exclusion of all biological needs, often until death. This paper argues that the Olds-Milner lever provides the neurochemical prototype for a fantasy attractor—a sealed, low-corrective-permeability ( $\kappa$ ) belief system maintained by dopamine-driven reinforcement. While the human expression of such attractors involves symbolic and narrative complexity, they appear to share a common neural substrate with the Olds-Milner phenomenon, specifically the dopamine-mediated suppression of the dorsolateral prefrontal

cortex (dlPFC). Corrective permeability ( $\kappa$ ) is defined here as a multidimensional construct—behavioral (rate of belief update under disconfirmation), neural (dlPFC engagement during counter-attitudinal exposure), and cognitive (metacognitive awareness and reflective thinking capacity)—whose dimensions are proposed as related but potentially partially dissociable components of a common construct. The attractor framework is the author's own theoretical construct, and this paper uses it to propose a unified conceptual bridge between the neuroscience of reward, the social psychology of failed prophecy, and the dynamics of rigid belief. It concludes that corrective permeability is not a fixed trait but a neurocognitive skill that can be cultivated, and that the framework itself must remain open to disconfirmation.

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## **1. Introduction: The Rat on the Lever**

In a landmark 1954 experiment, James Olds and Peter Milner implanted electrodes into the septal nuclei of rats and connected them to a lever. Each press delivered a brief electrical jolt to the brain's pleasure centers. The rats pressed the lever at rates of up to 7,000 times per hour, ignoring food, water, and their own young, until they collapsed from exhaustion or died. The electrode was not delivering nutrition or safety; it was delivering direct, unmediated reward via the mesolimbic dopamine pathway.

The canonical interpretation treats this experiment as a study of addiction and motivation. I propose a different reading: the rat on the lever is the purest behavioral demonstration of a fantasy attractor—a sealed basin with near-zero corrective permeability ( $\kappa \approx 0$ ), maintained by a neurochemical feedback loop that has no mechanism for detecting its own self-destructiveness. The brain does not have a truth detector. It has a reward system. Fantasy attractors exploit this

architecture.

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## 2. The Fantasy Attractor: A Construct Under Development

**A note on the framework.** The attractor framework is a theoretical construct developed by the present author (Galida, 2026a). It is not a community-validated model but a set of proposed concepts—including corrective permeability ( $\kappa$ ) and the distinction between reality-aligned and fantasy attractors—designed for diagnostic application. This paper deploys those concepts to connect the neuroscience of reward with the psychology of belief persistence.

A fantasy attractor is a belief system with low corrective permeability ( $\kappa$ ). It resists updating when confronted with contradictory evidence, reframes error signals to protect its core narrative, and often seeks to colonize or destroy rival basins. A reality attractor, in contrast, has high  $\kappa$ : it absorbs perturbation, updates its model, and deepens through correction.

**What is  $\kappa$ ?** Corrective permeability is a multidimensional construct. At the behavioral level, it denotes the rate at which a belief system updates in response to disconfirming evidence—observable through responses to prophetic failure, electoral loss, or scientific falsification. At the neural level, it is hypothesized to correlate with dlPFC engagement during exposure to counter-attitudinal information. At the cognitive level, it overlaps with metacognitive awareness, intellectual humility, and reflective thinking capacity as measured by instruments such as the Cognitive Reflection Test (Frederick, 2005). These three dimensions—behavioral, neural, and cognitive—are proposed as related but potentially partially dissociable components of a common construct, and

their formal integration into a validated measurement model is deferred to future empirical work. For the present paper,  $\kappa$  serves as a conceptual organizing device, not a metrically precise quantity.

Corrective permeability has a neural correlate. The dorsolateral prefrontal cortex (dlPFC) is critical for deliberative reasoning, cognitive flexibility, and the integration of new information that contradicts prior beliefs. When the dlPFC is suppressed—by stress, by dopamine-driven reward anticipation, or by the sheer intensity of a sacred value—the updating mechanism is partially disengaged. A fantasy attractor, then, is not merely a cognitive error. It is a neurochemical lock: a self-reinforcing basin maintained by the dopamine-driven reinforcement of certainty, coupled with the suppression of the apparatus that could correct it.

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## **3. The Olds-Milner Mechanism: Dopamine and Basin Sealing**

### **3.1 The Experiment**

Olds and Milner implanted bipolar electrodes in the septal nuclei of rats. The stimulation directly activated the mesolimbic pathway, triggering dopamine release in the nucleus accumbens. The rats rapidly learned to self-stimulate and would cross electrified grids to reach the lever. Their behavior displayed a pathological focus: all competing motivational systems—hunger, thirst, social bonding—were overridden.

### **3.2 Wanting Without Liking**

Subsequent neuroscience has refined our understanding of the underlying processes. Berridge and Robinson's "wanting/liking" distinction demonstrates that mesolimbic dopamine

mediates *incentive salience*—the compulsive “wanting” of a stimulus—rather than the subjective pleasure, or “liking,” that accompanies it. This is a crucial precision: the Olds-Milner rat may not be experiencing escalating pleasure. It may be in a state of chronic, intense craving, driven by a dopamine system that attributes supreme motivational value to the lever.

Schultz and colleagues established that phasic dopamine neurons encode a *reward prediction error*. They fire when an unexpected reward is received, reinforcing the causal association. A fantasy attractor, however, often does not deliver a single, clear falsifiable prediction. When a specific prophecy fails, a reframe can provide a new, internally generated reward signal: the revised interpretation itself constitutes a novel prediction whose acceptance by the group triggers a prediction error, reinforcing the attractor rather than collapsing it. The dopamine system thus does not merely passively respond to external rewards; it can be co-opted by internally generated narrative rewards that perpetuate the basin.

### **3.3 The Lever as a Sealed Basin**

Viewed through this lens, the rat’s behavior maps onto the fantasy attractor concept with precision. The lever becomes the basin’s strongest point of attraction, and the dopamine-driven “wanting” compels action even as the animal’s body is dying. The error signals of hunger and thirst are present, but they cannot penetrate the basin. The dopamine loop overrides them. The rat is not stupid; it is a perfectly functional nervous system locked in a sealed attractor, driven by “wanting” what will kill it.

### **3.4 From Rat to Human: A Shared Substrate**

The human mesolimbic pathway is structurally and functionally homologous to the rat’s. A human contemplating their election as a member of a divine plan, a revolutionary vanguard, or an

infallible political movement is likely engaging the same dopamine-mediated “wanting” system. The apocalyptic believer retrofitting a terrorist attack as “Messiah ben Yosef” is pressing a lever. The certainty is the reward. What differs is the complexity of the stimulus—the lever is decorated with theology, ideology, and narrative. This symbolic layer is not an epiphenomenon; it engages distinct cortical processes and social dynamics that add causal complexity. The human attractor is not identical to the rat’s, but it appears to share a crucial neurochemical substrate.

**A methodological caveat.** Direct neuroimaging of ordinary belief rigidity remains limited. The available evidence comes primarily from extreme populations: Hamid et al. (2019) studied individuals willing to fight and die for sacred values, and Zhong et al. (2017) studied patients with traumatic dlPFC lesions. These findings are suggestive rather than definitive for ordinary belief formation. Generalization from these studies to the broader population of believers should be treated as a hypothesis requiring further validation, not an established finding.

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## **4. The Dopamine Covenant: Certainty as Reward**

### **4.1 The Brain’s Category Error**

The brain evolved to use the feeling of certainty as a proxy for adaptive knowledge because false beliefs about predators were rapidly corrected. In the modern symbolic environment, beliefs can persist for decades without encountering lethal feedback. A person can be completely certain that the Mahdi will return or that a lost election was stolen, and this subjective certainty fires the same reward circuits that once signaled a reliable food source. The brain cannot distinguish

between “this feels certain because it is true” and “this feels certain because the mesolimbic pathway has been activated ten thousand times.”

## 4.2 Persistence and Collapse After Disconfirmation

Festinger, Riecken, and Schachter’s *When Prophecy Fails* (1956) chronicled a doomsday cult that reframed a failed flood prophecy as confirmation that their faith had saved the world. Believers became more committed after the failure. This is the basin deepening. Melton (1985), surveying centuries of prophetic failure across multiple religious traditions, identified the same structural pattern: prophecies are routinely spiritualized, recalibrated, or reframed as tests of faith rather than abandoned.

However, a full analysis requires accounting for cases where movements *do* collapse. The Millerites of 1844, who prepared for Christ’s return on October 22, suffered a massive “Great Disappointment” when Jesus did not arrive. The movement fragmented severely; many members left, disillusioned. Yet from that collapse, new, more resilient sects—most notably the Seventh-day Adventists—emerged with a reframed theology. This pattern is theoretically instructive: collapse of one attractor basin can seed a successor, potentially more resilient, basin. The attractor dynamic does not necessarily terminate; it can migrate, with the reframe functioning as the bridge from the old basin to the new. What predicts persistence versus collapse versus successor-formation? Variables likely include the depth of a group’s social embeddedness, the availability of a face-saving reframe, and the relative costs of exit. Engaging this complexity strengthens the argument: a fantasy attractor is not an indestructible monolith; it is a dynamical system that can either deepen, shatter, or reorganize under perturbation, depending on its structure. The reframing response is common but not universal.

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## **5. Implications for the Attractor Framework**

### **5.1 Cognitive Arguments Alone Are Insufficient**

A fantasy attractor cannot be reliably dislodged by evidence alone because the apparatus for processing corrective evidence (the dlPFC) is often suppressed. This does not mean persuasion is impossible; it means that conditions that reduce threat and re-engage prefrontal function must precede evidential argument.

### **5.2 The Dopamine Covenant Explains Apocalyptic Intensity**

Apocalyptic belief is an especially potent fantasy attractor because its reward structure is maximal: the believer is not merely right about a fact; they are a participant in the final act of cosmic history. The dopamine “wanting” is directed toward a future of ultimate vindication, making the attractor deeply resistant to correction.

**An open question:  $\kappa$  at the level of belief content vs. attractor dynamics.** The successor basin phenomenon—where collapse of one fantasy attractor seeds another—raises a theoretically important distinction. An individual or group that abandons a failed prophecy and adopts a reframed successor belief may exhibit high  $\kappa$  in the narrow sense (they updated their specific beliefs in response to disconfirmation) while remaining within a fantasy attractor at the structural level. This suggests that  $\kappa$  may need to be measured not only at the level of specific belief content but also at the level of the attractor dynamic itself: does the system’s underlying relationship to disconfirmation change, or merely the content of the beliefs it protects? A high- $\kappa$  move from one low- $\kappa$  basin

to another is still low- $\kappa$  at the systemic level. Resolving this distinction—between content-level and structure-level corrective permeability—is a priority for future theoretical and empirical work within the attractor framework.

### **5.3 Corrective Permeability Is a Trainable Practice**

The dlPFC can be strengthened. The capacity for analytic reasoning is not a fixed trait. Interventions that promote critical reflection have been shown to influence belief formation and flexibility. Gervais and Norenzayan (2012) demonstrated that inducing analytic thinking can reduce religious belief, though subsequent meta-analyses have found more modest and conditional effect sizes in replications. This suggests a genuine but likely small-to-moderate link between cognitive style and belief flexibility. More broadly, dual-process theories in cognitive psychology hold that Type 2 (reflective) processing can override Type 1 (intuitive) responses when prompted (Evans & Stanovich, 2013). The Cognitive Reflection Test (CRT; Frederick, 2005) has been shown to predict resistance to intuitive but false beliefs across multiple domains, providing a plausible measurement anchor for the cognitive dimension of  $\kappa$ .

The evidence base for specific interventions varies. Mindfulness meditation has been shown to increase prefrontal activity and reduce amygdala reactivity (Hölzel et al., 2011), providing a well-documented neural pathway for enhancing  $\kappa$ . Cognitive behavioral therapy (CBT) has strong empirical support for modifying specific maladaptive beliefs in clinical populations, though its effects on general belief flexibility outside clinical contexts are less thoroughly established. Structured debate in low-threat contexts is a plausible but less-tested intervention; its theoretical rationale is strong, but direct empirical support for its effect on corrective permeability is limited. The simple daily question, “Did I update any belief yesterday?”, is a practical heuristic for

engaging the correction apparatus, derived from the framework itself rather than independent empirical validation.

## 5.4 The Framework Must Guard Its Own κ

A framework that diagnoses sealed basins must itself remain open to correction. The attractor framework's falsifiability conditions are its own dlPFC engagement.

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## 6. Conclusion

The Olds-Milner experiment is more than a landmark in the history of neuroscience. It provides the neurochemical prototype for the fantasy attractor. The rat pressing the lever until death, driven by a hijacked dopamine system that privileges "wanting" over survival, maps onto the human believer pressing the lever of certainty, prophecy, or ideological capture. In both cases, a sealed basin overrides biological and cognitive self-correction, creating a self-reinforcing cycle that can persist even in the face of lethal consequences. This is not merely a metaphor; evidence suggests a genuine shared neurochemical susceptibility, though its precise extent awaits direct empirical characterization.

The brain does not have a truth detector; it has a reward system. Certainty is not evidence of truth; it is evidence of dopamine. The most reliable alternative to the lever is a deliberately cultivated corrective permeability—a practice of engaging the neural machinery of doubt and reason, asking daily the question the rat never could: *Am I pressing a lever right now?*

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# **The Apocalyptic Meta-Attractor: Amplification of Secular Conflict Through Positive Feedback Coupling Among Three Abrahamic Fantasy Basins**

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## **Abstract**

Judaism, Christianity, and Islam each contain sealed apocalyptic attractor basins—self-reinforcing belief systems

anticipating an imminent, divinely orchestrated end of the world. In the modern era, these basins have become coupled through mutually reinforcing positive feedback: financial, political, rhetorical, and military interactions that deepen each basin and synchronize their expectations. This paper argues that the primary drivers of Middle East conflict are secular—resource competition, nationalism, territorial disputes, and great-power proxy dynamics—but that the apocalyptic layer functions as a powerful amplifier, coupling the basins and making de-escalation more difficult. We provide an operational definition of an apocalyptic attractor, assess corrective permeability ( $\kappa$ ) qualitatively across the movements using a six-indicator ordinal scale, catalogue the reframing of failed prophecies, and ground the dynamics in social psychology with supplementary neuroscience. We document the coupling mechanisms, acknowledge secular drivers explicitly, and include a base-rate analysis of violent and non-violent apocalyptic movements using state-coupling as the distinguishing criterion. Falsifiability conditions are specified, including a time-bound refutation condition with defined measurement instruments. The paper does not predict inevitability; it identifies structural tendencies that elevate the risk of catastrophic war and argues that reducing the apocalyptic amplifier—alongside secular de-escalation pathways—is necessary to weaken the feedback loop.

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## **1. Introduction: The Amplification of Conflict**

Three major world religions share a geographic flashpoint. Three apocalyptic scripts share a common narrative structure: a final battle, a divinely appointed victor, and a transformed world. For most of history, these scripts ran on separate tracks. Now, they are coupled.

Christian Zionists, citing Revelation and Ezekiel, view the modern State of Israel as a prophetic prerequisite for the Rapture and the Battle of Armageddon. Jewish messianists, emboldened by territorial expansion and military conflict, interpret these events as the birth pangs of the Messiah. Shia Islamists in Iran frame their geopolitical confrontation as the necessary conditions for the return of the Hidden Imam, the Mahdi. Each group sees current events through an apocalyptic lens. Each interprets the actions of the others as confirmatory signs. Through decades of mutual perturbation, the three basins have become linked by a positive feedback loop: each tradition's actions deepen the others' basins, which in turn generate counter-actions that further deepen the original basins.

The attractor framework (Galida, 2026a) defines a fantasy attractor as a belief system with low corrective permeability ( $\kappa$ )—it resists updating when confronted with contradictory evidence and often seeks to colonize or destroy rival basins. This paper argues that the three apocalyptic basins now constitute a coupled system that amplifies secular conflict and structurally elevates the probability of a catastrophic war. It does not claim apocalyptic belief is the primary cause of the conflict; it claims it is a critical amplifier and coupling mechanism that makes de-escalation more difficult.

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## **2. The Three Apocalyptic Basins: A Structural Description with $\kappa$ Assessment**

### **2.1 Defining the Apocalyptic Attractor**

An apocalyptic attractor is a self-reinforcing belief pattern meeting four criteria: (a) expectation of an imminent, dramatic end-of-world transformation; (b) a designated enemy or scapegoat, often identified with evil or another religion;

(c) a script of a final cosmic battle leading to a new world order; and (d) resistance to disconfirming evidence (low  $\kappa$ ). This distinguishes apocalyptic attractors from general eschatological hope, which can accommodate ambiguous timing and symbolism.

The “designated enemy” criterion is consistent with social identity theory (Tajfel & Turner, 1979), which identifies intergroup differentiation as a primary mechanism for producing hostility toward out-groups. More specifically, the theory’s identity-threat prediction—that perceived threats to the in-group produce escalating in-group cohesion and out-group derogation—is directly relevant here. The apocalyptic script provides a transcendent, identity-anchored justification for intergroup conflict, and each perturbation by an out-group (military attack, political encroachment, demographic shift) intensifies that justification. This mechanism helps explain why the three basins deepened rather than moderated in response to the October 7 attack and its aftermath.

## **2.2 Measuring Corrective Permeability ( $\kappa$ )**

Corrective permeability is assessed qualitatively at the movement level using a simple ordinal scale—Low, Medium, High—across six indicators: (1) response to prophetic failure (reframing vs. abandonment), (2) tolerance for internal dissent on eschatological doctrine, (3) engagement with disconfirming historical or scientific evidence, (4) willingness to set and discard specific dates, (5) response to external criticism (engagement vs. attack), and (6) internal diversity of eschatological opinion *within the specific movement under analysis*. A movement that consistently reframes, purges dissent, avoids evidence, resets dates, attacks critics, and suppresses diversity is rated Low  $\kappa$ . A movement that absorbs criticism, permits debate, and revises doctrine is rated High  $\kappa$ . The following assessments are preliminary; where evidence is thin, this is noted.

## 2.3 κ Assessment Across the Three Basins

Indicator	Jewish Messianism (Religious Zionist factions)	Christian Dispensationalism (CUFI-aligned)	Shia Mahdism (Iranian state-aligned)
1. Response to prophetic failure	Reframes (e.g., October 7 as “Messiah ben Yosef”) – Low	Reframes (dates recalibrated repeatedly) – Low	Reframes (Mahdi’s arrival perpetually imminent; divine test) – Low
2. Tolerance for internal dissent	Low within core groups; anti-Zionist Orthodox ostracized	Moderate internally; but dissent from core eschatology marginalized	Low; state-level suppression of alternative Shia voices
3. Engagement with disconfirming evidence	Low; historical failures not addressed	Low; archaeological/textual challenges ignored	Low; evidence not engaged by official discourse
4. Willingness to set/discard dates	Rarely sets precise dates; broad “soon” framing – Medium-Low*	Repeated precise date-setting and recalibration – Low	Avoids precise dates; “signs” approach – Medium-Low**
5. Response to external criticism	Attack/reframe – Low	Attack/reframe – Low	Attack/reframe – Low
6. Internal diversity of eschatological opinion (movement-level)	Low within the Religious Zionist movement*** – Low	Low within CUFI-aligned dispensationalism – Low	Low diversity in state-backed discourse – Low

\* *Annotated note:* Avoiding precise dates may reflect strategic adaptation to past messianic failures (e.g., Bar Kokhba, Sabbatai Zevi) rather than genuine corrective permeability. A

movement that learned not to set falsifiable dates after catastrophic disappointments is demonstrating sophisticated reframing that pre-empts falsification, not higher  $\kappa$ .

\* *Annotated note:* The “signs” approach in Shia Mahdism serves a similar function: it avoids fixed-date vulnerability while maintaining perpetual imminence.

\* *\*\*Annotated note:* The contrast between religious-messianic and secular Zionism is between movements, not within the Religious Zionist movement. Internal eschatological diversity within Religious Zionist factions is low.

*Overall  $\kappa$  assessment:* All three movements exhibit Low  $\kappa$  across most indicators. The consistently low ratings on indicators 1, 2, 3, and 5 across all three basins support a qualitative  $\kappa \approx$  Low. Indicators 4 and 6 require the interpretive caveats noted above but do not alter the overall assessment.

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## **3. Why These Basins Hold: Social Psychology and Neural Correlates**

### **3.1 The Reframing of Failed Prophecy**

The persistence of apocalyptic belief despite repeated falsification is well-documented. Festinger, Riecken, and Schachter (1956) found that when a doomsday prophecy failed, the most committed believers became *more* convinced, reinterpreting the event as spiritual fulfillment. Melton (1985) showed that prophecies are routinely spiritualized and reaffirmed. The Millerites (1844), Jehovah’s Witnesses (multiple dates), and ISIS (Dabiq, 2016) all reframed failure rather than abandoning belief. This pattern—reframe, recalibrate, reaffirm—is the behavioral signature of a low- $\kappa$  attractor.

## 3.2 Neural Correlates of Sacred Values (Supplementary)

The neuroscience of sacred values offers a supporting explanation. Hamid et al. (2019) found that individuals willing to fight and die for sacred causes exhibit reduced dlPFC activity and increased reliance on emotional/valuation circuits. Zhong et al. (2017) showed that dlPFC lesions predicted increased religious fundamentalism, mediated by reduced cognitive flexibility. These findings suggest that when beliefs are processed as sacred, the neural apparatus for updating is partially disengaged. We treat this as supplementary to the primary social-psychological mechanism.

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## 4. Historical Calibration: When Apocalyptic Attractors Amplify Violence

We distinguish violent from non-violent apocalyptic movements using **state coupling** as the key criterion—the degree to which the movement controls or is embedded within state military power—because violence at the interstate or mass-casualty level requires organized military capacity.

### High State-Coupling (Violent Outcomes):

- **The Crusades (11th–13th c.):** Apocalyptic expectation and papal authority coupled to European armies produced mass slaughter.
- **Münster Rebellion (1534–35):** Anabaptist apocalypticism briefly captured municipal power; the resulting siege killed thousands.
- **Taiping Rebellion (1850–64):** Hong Xiuquan's Christian-influenced apocalyptic movement seized territory and led to 20–30 million deaths.
- **Mahdist War in Sudan (1881–99):** Muhammad Ahmad's

Mahdi-state fought British/Egyptian forces with massive casualties.

- **Bar Kokhba Revolt (132–35 CE):** Messianic expectation and mobilized Jewish forces led to catastrophic defeat.
- **ISIS (2014–16):** Apocalyptic framing coupled with quasi-state military control over territory produced extreme violence.

### **Low State-Coupling (Non-Large-Scale-War Outcomes):**

- **Millerites (1840s):** Failed prophecy; no state power; fragmented peacefully.
- **Jehovah's Witnesses:** Repeated date failures; politically disengaged; no organized violence.
- **Branch Davidians (1993):** Apocalyptic beliefs, no state power; isolated confrontation with state forces.
- **Aum Shinrikyo (1995):** Apocalyptic cult with limited resources; attempted mass-casualty chemical attack but lacked state capacity.

The current Abrahamic meta-attractor possesses high state-coupling: Iran is a state actor with Mahdist ideology; Christian Zionism influences US foreign policy; Jewish messianism is coupled to Israeli military power. The enemy designations are, however, asymmetrical. Christian Zionism does not straightforwardly designate Jewish messianists as enemies—dispensationalist theology assigns Jews a redemptive role, albeit one that ultimately involves conversion or destruction at the Second Coming—while paradoxically supporting the Jewish state as a prophetic instrument. This asymmetry is relevant to the coupling mechanism, but the overall structural conditions—state-coupling, designated enemies, shared geography, and mutual positive feedback—replicate the historical pattern associated with amplified apocalyptic violence.

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## **5. The Coupling Mechanism: Positive Feedback with Asymmetric Political Weight**

### **5.1 Secular Drivers as Primary; Apocalyptic Amplification**

The conflicts in the Middle East are driven primarily by secular factors: resource competition, ethnic nationalism, post-colonial territorial disputes, and great-power proxy competition. The apocalyptic layer amplifies these conflicts and couples them across traditions. An Iranian nuclear program pursued for deterrence and regional dominance is *also* framed as divinely mandated preparation. Israeli settlement expansion driven by security concerns is *also* messianic fulfillment. US support for Israel based on geopolitical interest is *also* a prophetic timetable. The secular and apocalyptic drivers are layered; the apocalyptic layer provides a powerful positive feedback mechanism that makes de-escalation more difficult.

### **5.2 Asymmetric Political Weight**

The three basins differ substantially in institutional influence. Iranian Mahdism is embedded in autocratic state institutions with relatively low internal contestation, giving it direct control over military and foreign policy. Christian Zionism influences US policy through democratic electoral processes and lobbying; its influence is substantial but contestable. Jewish messianism operates within a democratic state with significant secular and non-messianic constituencies; it influences policy but does not control it. The feedback loop should be understood with this asymmetry: the Iranian basin is the most institutionally unconstrained, the American basin is the most diffuse, and the Israeli basin lies between them. Positive feedback still couples them, but their capacity to act on apocalyptic impulses varies

considerably.

### 5.3 Mutual Perturbation and the October 7 Case Study

- **Jewish actions:** Settlement expansion, military operations, Temple rhetoric → perturb Christian Zionists (prophecy fulfillment) and Shia Mahdists (existential threat).
- **Christian actions:** Financial and political support for Israel → perturb Jewish messianists (divine favor) and Shia Mahdists (Crusader encroachment).
- **Shia actions:** Iranian nuclear program, proxy warfare, revolutionary rhetoric → perturb Jewish messianists (Gog and Magog) and Christian Zionists (Antichrist's coalition).

The October 7, 2023, attack and its aftermath illustrate the loop. Jewish messianists retrofitted the attack as “Messiah ben Yosef.” Christian Zionists cited Ezekiel 38. Iranian leaders framed it as a step toward the Mahdi. Each framing deepened the respective basin. The military responses that followed perturbed the other basins further. The loop is now closed.

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## 6. High-k Voices: Corrective Permeability Within the Traditions

Each tradition contains high-k voices—individuals, movements, and institutions that reject apocalyptic framing and insist on engagement with reality. Within Judaism, anti-Zionist Orthodox groups such as Neturei Karta and Satmar Hasidim oppose the State of Israel on theological grounds; mainstream Reform, Conservative, and secular Jewish communities do not base their

identity on end-times prophecy. Within Christianity, the Catholic Church and mainline Protestant denominations generally interpret Revelation symbolically; the Vatican has stated that Christ's sacrifice replaced the Temple and that a rebuilt Temple holds no theological significance. Within Islam, quietist Shia traditions reject the politicization of Mahdism; most Sunni Muslims dismiss violent Mahdist cults as heretical.

These voices demonstrate that  $\kappa$  is a variable, not a constant, and that alternatives to apocalyptic amplification exist within each tradition. However, their institutional leverage varies significantly. The Catholic Church and mainstream Protestant denominations retain substantial institutional infrastructure but have limited influence over the specific CUI-aligned constituency driving Christian Zionism. Quietist Shia traditions are systematically marginalized by the Iranian state apparatus. Jewish anti-messianist voices, while theologically significant, are politically marginal within the current Israeli governing coalition. Historically, high- $\kappa$  voices have gained influence within low- $\kappa$  movements when institutional structures rewarded deliberation over loyalty—conditions that are currently absent or weakened across all three basins. Strengthening these voices, as the conclusion argues, requires not only rhetorical support but attention to the institutional conditions that allow corrective permeability to operate.

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## **7. Falsifiability Conditions**

To avoid becoming a sealed attractor itself, this framework specifies refutation conditions with defined measurement instruments:

### **Definitions:**

- **“Major interstate war”** means sustained military hostilities between the regular armed forces of Israel and Iran, resulting in at least 1,000 battle-related deaths within a 12-month period, as documented by the Uppsala Conflict Data Program (UCDP) or equivalent.
- **“Measurably declined apocalyptic rhetoric”** means a sustained reduction in the frequency of official state or movement-leader statements explicitly invoking end-times prophecy (e.g., references to Gog/Magog, Armageddon, Mahdi’s return) as measured by content analysis of publicly available transcripts and official media. The specific threshold—a provisional reduction in the range of 25–40% relative to baseline—is offered as an illustrative benchmark rather than a fixed criterion. The direction and persistence of the trend are more important than the exact percentage.
- **Baseline period:** To avoid biasing the measurement toward a period of exceptional escalatory rhetoric, the baseline for rhetoric measurement spans 2015–2026, encompassing both pre- and post-October 7 conditions.

### **Conditions:**

- **Strong refutation:** If by December 31, 2036, no major interstate war between Israel and Iran has occurred—regardless of rhetoric levels—the thesis is substantially weakened.
- **Corroborating weakening:** If, additionally, apocalyptic rhetoric from all three movements has measurably declined, the thesis is further weakened and may be treated as disconfirmed.
- **Corroboration:** If a major interstate war occurs, *and* there is specific evidence that apocalyptic framing causally contributed to the conflict—for example, documentation that de-escalation opportunities were refused on eschatological grounds, or that

apocalyptic rhetoric measurably increased domestic support for escalatory decisions—the thesis is corroborated. We acknowledge that such evidence may not be publicly available within the 2036 timeframe; declassified records, memoirs, or investigative journalism may supply post-hoc verification. Mere co-occurrence of war and pre-existing rhetoric does not constitute corroboration.

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## **8. Conclusion: Reducing the Amplifier, Resolving the Conflicts**

Three Abrahamic apocalyptic attractors have become coupled through positive feedback that amplifies underlying secular conflicts and elevates the risk of catastrophic war. The assessment of corrective permeability across the movements is qualitatively consistent but methodologically preliminary; the  $k$  indicators are applied as a framework, not a definitive measurement. The historical record shows that when sealed apocalyptic basins are coupled to state military power and locked in mutual feedback with designated enemies, mass death has repeatedly resulted; it also shows that such outcomes are not inevitable when state-coupling is absent. High- $k$  voices within each tradition offer alternative paths, though their institutional leverage is currently limited.

If the apocalyptic layer is an amplifier, not the primary cause, then the prescription must match the diagnosis. Reducing the amplifier—increasing corrective permeability across the movements, strengthening high- $k$  voices, and disrupting the positive feedback loop—is strategically necessary but not sufficient. Co-equal secular de-escalation pathways are required: territorial negotiations, sanctions architectures, deterrence structures, and great-power

diplomacy that address the underlying drivers of the conflict. Neither the amplifier nor the underlying fire can be ignored. The framework does not predict inevitability; it identifies structural tendencies and specifies the conditions under which it would be refuted. The only reliable ground is shared reality.

*Author's note: This paper has undergone multiple rounds of critique and revision. Each iteration has incorporated disconfirming feedback and refined its claims—a practice the framework itself identifies as essential corrective permeability.*

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# The MAGA Attractor: Fantasy, Colonization, and the Terminal Phase of a Sealed Basin

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## Abstract

The MAGA movement is a colonizing fantasy attractor exhibiting the structural features the attractor framework predicts: a destabilizing perturbation, a dopamine-rich sealed narrative, near-zero corrective permeability ( $\kappa$ ), active colonization of rival basins, and a terminal phase characterized by attacks on reality-delivery institutions. This paper applies the  $\kappa$  diagnostic—a set of observable indicators measuring a belief

system's willingness to update on contradictory evidence—to MAGA as a case study. We include a minimal comparative sketch applying the same indicators to a left-aligned movement to demonstrate symmetric applicability. We engage disconfirming instances within the MAGA case, define the terminal phase formally, and ground the attractor framework in established dynamical-systems and motivated-reasoning literatures. The paper does not offer predictions. It identifies structural tendencies and leaves empirical validation to future work.

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## **1. Introduction: The Diagnostic Stance**

The attractor framework (Galida, 2026) defines a fantasy attractor as a belief system with low corrective permeability ( $\kappa$ ): it resists updating when confronted with contradictory evidence, reframes error signals to protect its core narrative, and often seeks to colonize or destroy neighboring basins. The framework draws on dynamical-systems theory (Strogatz, 2018; Kelso, 1995), which characterizes attractors as regions in state space toward which trajectories converge and remain unless perturbed. A high- $\kappa$  attractor absorbs perturbation and updates; a low- $\kappa$  attractor resists perturbation and seals. This paper applies that diagnostic to the MAGA movement.

The framework predicts that sealed attractors exist across the political spectrum. A fully symmetric analysis would examine movements of all orientations using the same  $\kappa$  indicators. The present paper is a single-case application, supplemented by a brief comparative sketch in Section 6. It does not imply that MAGA is unique or uniquely sealed. It demonstrates the diagnostic method on a prominent and well-documented case.

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## 2. Operationalizing Corrective Permeability ( $\kappa$ )

Corrective permeability is not a single number. It is a composite of observable indicators. A movement's  $\kappa$  can be estimated—qualitatively, not metrically—by examining its responses to disconfirming events. The indicators below are applicable to any political or social movement.

### $\kappa$ Indicators

Indicator	High $\kappa$ (reality-aligned)	Low $\kappa$ (fantasy attractor)
Electoral loss response	Concedes defeat; analyzes reasons; adapts strategy	Rejects outcome as fraudulent; seeks to overturn result
Legal defeat response	Accepts ruling; appeals within system; adjusts behavior	Delegitimizes courts; portrays defeats as persecution
Internal dissent tolerance	Debates openly; allows factional disagreement	Purges dissenters; enforces narrative loyalty
Media coverage response	Engages with critical reporting; distinguishes bias from fact	Labels all critical media as “enemy”; constructs alternative media ecosystem
Policy failure response	Acknowledges failure; revises approach	Blames enemies; reframes failure as sabotage
Leader criticism response	Evaluates criticism on merits; holds leaders accountable	Treats all criticism as treason; leader is beyond reproach

A movement that scores low across most or all indicators has  $\kappa$  approaching zero. A movement that scores high across most has

κ approaching one. The assignment is comparative and qualitative, not computational.

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### **3. The Initial Perturbation: A Basin Destabilized**

The MAGA movement emerged from a genuine, large-scale perturbation to the personal and social attractors of millions of Americans. For decades, the post-war American basin was stable for its primary beneficiaries: manufacturing jobs provided middle-class security, cultural norms were broadly shared, and the United States enjoyed unchallenged global dominance. Over several decades, that basin was progressively destabilized. Deindustrialization eliminated millions of stable jobs. Globalization shifted economic power away from domestic manufacturing. Cultural norms around race, gender, sexuality, and religion shifted rapidly. Demographic projections showed a future in which the previously dominant group would become a minority. Each of these was a perturbation. Cumulatively, they shattered the old basin.

The attractor framework does not judge the legitimacy of the grievances. It notes that a destabilized attractor seeks a new basin. The question is always: *What basin will replace the old one?*

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### **4. The New Basin: Narrative, Dopamine, and Motivated Reasoning**

The core narrative of the MAGA attractor is well-documented: the adherent is the authentic voice of the nation; their loss is a theft by corrupt elites and internal enemies; the leader

will restore greatness. This narrative is an ontological rescue. It replaces a confusing, painful reality with a simple, morally charged story.

The dopamine dynamics are well-established. Certainty, righteous anger, and tribal belonging activate the mesolimbic reward system (Olds & Milner, 1954). But dopamine alone does not distinguish fantasy attractors from reality-aligned movements—all high-commitment groups generate reward. What distinguishes low- $\kappa$  attractors is the *impermeability* of the reward loop: the system prevents corrective information from entering, so the dopamine cycle never encounters disconfirmation.

The motivated-reasoning literature provides a well-established parallel. Individuals process information in ways that protect identity-congenial beliefs (Kahan, 2013). Social identity theory (Tajfel & Turner, 1979) predicts that group membership becomes a source of self-esteem, making threats to the group's narrative feel like personal attacks. The MAGA attractor operates at the intersection of these dynamics: a highly salient group identity, a narrative of victimhood and restoration, and a reward system that fires on certainty. The basin is psychologically satisfying and neurochemically self-reinforcing.

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## 5. Applying the $\kappa$ Indicators to MAGA

When we apply the six  $\kappa$  indicators to the documented behavior of the MAGA movement, the pattern is clear.

- **Electoral loss response:** The 2020 election was rejected as fraudulent. Over 60 court cases were dismissed, yet the “stolen election” narrative persisted. Electoral officials who certified results have been purged and

replaced.  $\kappa$  is near zero on this indicator.

- **Legal defeat response:** Criminal and civil indictments against the movement's leader are framed as "witch hunts" and "election interference." Courts are delegitimized.  $\kappa$  is near zero.
- **Internal dissent tolerance:** Republicans who criticized the leader have been primaried, censured, or forced from office. Internal debate is treated as disloyalty.  $\kappa$  is near zero.
- **Media coverage response:** Mainstream media are labeled "enemies of the people." A parallel media ecosystem delivers only narrative-congruent information.  $\kappa$  is near zero.
- **Policy failure response:** Trade wars that harmed farmers were reframed as necessary sacrifices, not policy failures. Promised infrastructure and healthcare reforms that did not materialize were blamed on opponents, not acknowledged as unfulfilled.  $\kappa$  is near zero.
- **Leader criticism response:** Criticism of the leader is treated as treason. The leader's statements, even when contradictory or demonstrably false, are accepted by adherents without correction.  $\kappa$  is near zero.

## 5.1 Disconfirming Instances and Complexity

The assignment of  $\kappa \approx 0$  is a pattern judgment, not a uniform claim. Several behaviors complicate a blanket zero- $\kappa$  diagnosis and must be acknowledged.

- Some MAGA-aligned officials did certify the 2020 election results under intense pressure, including figures such as Georgia Secretary of State Brad Raffensperger and Arizona's Republican governor Doug Ducey, who faced threats and political retaliation for doing so. This is evidence of  $\kappa > 0$  among individuals within the movement's orbit.

- The movement's policy agenda did shift in notable ways relative to prior Republican orthodoxy, including trade protectionism, pharmaceutical pricing reform, and infrastructure spending. These represent genuine policy adaptation, even if they served the broader narrative of economic nationalism.
- Internal dissent, while punished, has not been eliminated. Some Republican figures continue to criticize the leader from within the party, and factions with incompatible interests (economic libertarians, Christian nationalists, working-class populists) persist.

These instances suggest that the movement is not a perfectly uniform basin. Some members and subgroups exhibit higher  $\kappa$  than others. However, the overall pattern—sustained across multiple years, multiple domains, and the movement's dominant institutional responses—remains one of extremely low corrective permeability. The dissenting officials were purged, not elevated. The policy shifts occurred within a sealed narrative that did not acknowledge prior error. Internal critics were marginalized. The diagnostic is a structural assessment of the attractor's dominant dynamics, not a claim about every individual within it.

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## **6. Comparative Sketch: A Left-Aligned Case**

The framework's symmetry requirement demands that the same  $\kappa$  indicators be applied to movements of other political orientations. A full comparative analysis is beyond the scope of this paper, but a brief sketch demonstrates the method's applicability.

Consider the progressive wing of the Democratic Party's response to the 2016 election loss. On the  $\kappa$  indicators:

- **Electoral loss response:** The loss was accepted, though accompanied by narratives of Russian interference and Electoral College illegitimacy. The outcome was not rejected as fraudulent, but external factors were invoked to explain defeat—a partial but not complete  $\kappa$  signal.
- **Legal defeat response:** Progressive legal setbacks (e.g., on immigration policy, voting rights) have generally been accepted within the system, with strategy adjustments rather than court delegitimization.  $\kappa$  is moderate-high.
- **Internal dissent tolerance:** The progressive coalition contains vigorous internal debate between moderates and left factions. Primary challenges are common and openly contested.  $\kappa$  is high on this indicator.
- **Media coverage response:** Progressives engage with mainstream media but also criticize it for bias. An alternative media ecosystem exists but has not fully sealed; cross-pollination with mainstream outlets is common.  $\kappa$  is moderate.
- **Policy failure response:** Failed progressive initiatives (e.g., certain criminal-justice reform measures, housing policies) have generated internal debate and strategy revisions, though blame-shifting also occurs.  $\kappa$  is moderate.
- **Leader criticism response:** Progressive leaders face significant internal criticism. Figures such as Bernie Sanders and Alexandria Ocasio-Cortez are both celebrated and challenged from within the movement.  $\kappa$  is high.

This sketch suggests a moderate-to-high  $\kappa$  for this movement, with some indicators showing partial sealing. The exercise demonstrates that the  $\kappa$  indicators do not automatically

classify one's political opponents as fantasy attractors and one's allies as reality-aligned. The diagnostic discriminates based on behavior, not affiliation.

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## **7. Colonization: “You Must Join or Be Destroyed”**

A fantasy attractor does not peacefully coexist. It colonizes. The MAGA movement demands that other basins submit to its narrative or be treated as enemies. This operates at interpersonal, institutional, and electoral levels. Families are fractured by loyalty demands. The judiciary, civil service, and military are to be purged of “disloyal” elements. Election administration is being restructured to place loyalists in positions of authority over vote counting and certification. Colonization is a structural necessity: a sealed attractor cannot tolerate rival basins that might deliver a fatal perturbation.

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## **8. Beam and Sliver: Internal Contradictions as Diagnostic Features**

All political coalitions contain tensions between stated values and enacted policy. The diagnostic question is not whether contradictions exist, but whether the attractor can acknowledge and address them. High-k movements can name their own tensions. Low-k movements cannot.

The MAGA attractor exhibits several severe, structurally unresolvable contradictions:

- **Liberty vs. Authoritarianism:** The movement claims to

defend freedom while supporting a leader who attacks the free press, demands personal loyalty, and threatens to use state power against opponents.

- **Law and Order vs. Criminality:** The movement claims to uphold law and order while its leader faces multiple felony convictions and indictments.
- **Populism vs. Plutocracy:** The movement claims to be a working-class revolt while its policy agenda primarily benefits the wealthy.
- **Christianity vs. Cruelty:** The movement claims Christian values while supporting policies that separate migrant families and mock the vulnerable.

What makes these contradictions diagnostically severe is not their existence—all coalitions contain tensions—but their structural unresolvability within the current basin. The movement's dependence on a single leader whose personal legal exposure is inextricably linked to its narrative makes acknowledgment of criminality equivalent to basin collapse. The contradiction cannot be resolved; it can only be suppressed by attacking the legal system itself. This dynamic is distinct from the ordinary policy tensions of a political coalition, where compromise, leadership change, or platform evolution can absorb and resolve contradictions over time. In the MAGA basin, the leader cannot be replaced without dissolving the attractor, and the criminal charges cannot be acknowledged without invalidating the narrative of persecution. The beam is locked in place.

The sliver is projected outward with equal force: every fault is hung on the opponent. The movement cannot name its own contradictions, so it names everyone else's—real or invented—with relentless intensity.

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## 9. The Terminal Phase: Formal Definition and Observable Signs

Within the attractor framework, a **terminal phase** is reached when a sealed attractor, facing sustained and credible existential threats, shifts its primary behavior from narrative self-maintenance and colonization to the active dismantling of the external correction mechanisms that could deliver a fatal perturbation.

**Transition conditions include:**

1. **Loss of institutional control:** The movement no longer reliably controls the executive or legislative branches through normal electoral means.
2. **Credible legal jeopardy:** Leadership faces prosecution, incarceration, or removal from ballots.
3. **Narrowing coalition:** The movement's demographic base cannot reliably produce majorities in national elections.
4. **Elite messaging shift:** The movement's leadership explicitly frames institutional destruction as the only path to survival.

When these conditions are met, the attractor is no longer merely sealed. It is actively destroying the sources of perturbation.

**Observable signs of a terminal-phase political attractor:**

1. **Rejection of electoral outcomes** as illegitimate unless the movement wins.
2. **Purge of dissenting officials** from election administration and party structures.
3. **Preparation for institutional override** through legal theories that would allow loyalist bodies to override

popular vote counts.

4. **Normalization of violence** as patriotic self-defense.
5. **Attacks on truth-delivery systems**—media, science, intelligence, courts—to neutralize their corrective function.

The MAGA movement currently exhibits all five signs. The transition conditions are partially met (credible legal jeopardy is present; electoral losses have occurred; the coalition faces demographic challenges) and partially contested (the movement retains significant institutional power through the courts and state legislatures). The terminal phase is not an all-or-nothing category; it is a trajectory along which the movement has demonstrably moved.

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## **10. Trajectory: Structural Tendencies, Not Predictions**

The attractor framework identifies structural tendencies, not certainties. Three trajectories are possible for a terminal-phase fantasy attractor, and they are not mutually exclusive.

**Escalation.** If the leader faces incarceration, removal from ballots, or definitive electoral defeat, the movement may escalate. Violence is the final defense of a sealed basin that cannot tolerate reality. Escalation risk is elevated when institutional pressure intensifies.

**Fracture.** The movement contains factions with incompatible interests. If the central figure becomes unavailable, the attractor may fracture into competing sub-basins, each claiming legitimacy. This is a common post-charismatic trajectory.

**Slow Fade.** Some fantasy attractors fade as the promised restoration never arrives, adherents age, and younger generations find the narrative less compelling. This trajectory requires sustained institutional resilience and an absence of triggering crises.

The current structural conditions—ongoing legal pressure, sustained institutional attacks, and the centrality of a single figure—make escalation and fracture the highest-concern scenarios. The slow fade remains a possibility only if institutions hold and no major crisis intervenes. No probability is assigned. The framework names the tendencies and leaves empirical validation to events.

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## **11. Conclusion**

The  $\kappa$  indicators, applied qualitatively, suggest that the MAGA movement exhibits near-zero corrective permeability across multiple domains. The movement colonizes rival basins, cannot acknowledge its internal contradictions, and exhibits the observable signs of a terminal-phase attractor. Disconfirming instances complicate but do not overturn the overall pattern. Symmetric application of the  $\kappa$  diagnostic to movements of other political orientations is methodologically required and has been briefly sketched; full comparative validation remains necessary. The framework provides structural tendencies, not predictions. The methodological limitations are acknowledged. The analysis is offered as a diagnostic contribution, not a final determination.

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# The Sperm and the Dome: An Ancient Pattern

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You have seen the diagram.

It appears in biblical studies textbooks, online articles about ancient Near Eastern cosmology, and even on apologetics websites trying to explain away the plain meaning of Genesis.

A flat disc earth.

A solid dome (*rāqīa'*) above.

A cosmic ocean below.

The sun, moon, and stars move inside the dome.

Rain enters through literal windows in the sky.

It looks primitive.

Like a child's drawing of a snow globe.

But look again. Squint. Rotate the image ninety degrees.

What do you see?

**A sperm.**

A single, potent, ordered structure swimming through an infinite ocean.

- The **head** is the dome – the firmament containing the celestial lights.
- The **midpiece** is the flat disc of the earth – the solid ground where life emerges.

- The **tail** is the cosmic ocean below – the chaotic, fertile waters from which everything springs.

And the whole thing is adrift in an infinite, dark, supportive medium – the same infinite ocean that appears in Genesis as the *tehom* (the deep), the primordial waters over which the Spirit of God hovers.

This is not a coincidence.

It is a **pattern**.

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## The Attractor Framework: A Lens

In my attractor framework, **persistence under perturbation** is the fundamental mark of reality.

Two classes of attractors exist:

- **Conservative attractors** – the eternal skeleton: electrons, protons, neutrinos, photons. They are time-symmetric, unchanging, and provide the invariant rhythms of the universe (the “metronome”).
- **Dissipative attractors** – the transient dance: life, mind, society, and everything that requires energy flow, exports entropy, and eventually runs down.

A sperm is a **low-entropy conservative structure** – a packet of highly ordered information (DNA) that is relatively stable and fuel-efficient.

It swims through a **high-entropy dissipative environment** – the chaotic, nutrient-rich ocean of potential.

Its journey is a perturbation.

Fertilisation, when it succeeds, is a **phase transition**: the emergence of a new, more complex attractor (the zygote) from

the coupling of two initial basins (sperm and egg).

The subsequent explosion of growth – cell division, differentiation, morphogenesis – is the **transient dance** of life.

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## The Ancient Mind Saw the Same Pattern

The biblical authors had no microscopes. They could not see a sperm cell.

But they observed the world around them, and they projected the **microcosmic pattern of fertilisation** onto the **macrocosmic canvas of the sky**.

- The **infinite ocean** is the primordial *tehom* – the raw, undifferentiated potential before creation.
- The **sperm** is the *rāqīa'* – the solid dome that separates and organises the waters above from the waters below.
- The **fertilised egg** is the cosmos itself – the flat disc of the earth, the lights in the dome, the living creatures on the land.

The ancient author of Genesis was not a scientist.

But he was a **pattern-recogniser**.

He intuited that the universe begins as a single, ordered perturbation in an infinite, chaotic sea.

That is not primitive superstition.

That is **dynamical intuition**.

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# The Cosmic Conception Hypothesis

Modern science has its own version of this same pattern.

The “cosmic conception hypothesis” (found in some theoretical papers) compares the fertilisation of a galaxy by a supermassive black hole to the fertilisation of an egg by a sperm.

The black hole is the seed; the galaxy is the developing organism.

The same archetype recurs because it is **structurally necessary**: any self-organising system that emerges from a homogeneous background must be born as a localised, ordered perturbation.

The Genesis diagram is not a mistake.

It is a **map**.

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## The Sperm in the Infinite Ocean

When you look at that ancient Near Eastern cosmology diagram – the flat earth, the solid dome, the cosmic ocean – you are looking at a **sperm in an infinite ocean**.

The author could not have known this consciously.

But the attractor of reality – the deep structure of persistence under perturbation – guided his hand.

- The infinite ocean is the potential.
- The sperm is the first perturbation.
- The fertilised egg (the cosmos) is the new attractor basin.
- And the dance of life – stars, planets, minds, civilisations – is the transient, dissipative dance that follows.

The diagram is not a coincidence.

It is a **necessary projection of a universal dynamic.**

The sperm and the dome are the same pattern, separated by millennia and scale.

You are free to see it or not.

But once you see it, you cannot unsee it.

The mountain does not negotiate.

Neither does the Hebrew text.

Neither does the sperm.

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