

Omniscient, Omnipotent, Omnipresent: Three Attributes Force a Unique Mathematical Framework

Seven Inevitability Theorems, the Reverse Implication,
and the Tautological Nature of Physical Law

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Abstract

We prove a biconditional: the three classical attributes of omniscience, omnipotence, and omnipresence, formalised as mathematical axioms, force a **unique** framework (the forward direction), and the resulting framework **exhibits** all three attributes (the reverse direction). The framework is therefore the unique fixed point of the map “attributes \rightarrow structure \rightarrow attributes”: the only mathematical system that is simultaneously forced by and consistent with the three properties.

The forward direction is established by seven inevitability theorems, each proving that the next structural element is the only possibility given the preceding ones. The reverse direction is established by verifying that the completed framework satisfies each axiom it was derived from.

The biconditional reveals the argument to be tautological in a precise sense: the three attributes are equivalent to the three laws of classical logic (identity, non-contradiction, excluded middle) applied to a comparison-cost system, and the framework is the unique geometric unpacking of “ $a = a$ ” under coherent composition, strict convexity, and metric completeness.

We close with an extended discussion of the philosophical implications: why the framework produces morality as physics, why consciousness emerges at a specific rung, why “nothing” is not a state but a boundary, and what it means that the architecture of reality is a tautology.

Contents

1	Prologue: The Question	3
2	The Three Attributes: Formal Definitions	3
3	The Forward Direction: Seven Inevitability Theorems	3
3.1	Inevitability 1: The cost functional	4
3.2	Inevitability 2: The null state is unreachable	4
3.3	Inevitability 3: Actions are uniquely determined	4
3.4	Inevitability 4: The golden ratio	4
3.5	Inevitability 5: Three dimensions	5
3.6	Inevitability 6: The eight-tick cycle	6
3.7	Inevitability 7: The cube geometry	6
4	The Master Theorem	6

5	The Reverse Direction: The Framework Exhibits All Three Attributes	6
6	The Biconditional and the Fixed-Point Property	7
7	The Tautological Core	8
8	Philosophical Implications	8
8.1	Why something exists rather than nothing	8
8.2	Why morality is physics	9
8.3	Why consciousness emerges at rung 45	9
8.4	Why the architecture is a tautology	9
8.5	What the reverse direction means	9
9	Summary	10

1 Prologue: The Question

The question is simple: *if a system knows everything, can do anything consistent, and is everywhere, what mathematical structure must it have?*

The surprising answer is that these three requirements, formalised with minimal mathematical content, force a *unique* framework with no free parameters. The framework has a specific cost functional, a specific self-similar ratio, a specific number of spatial dimensions, and a specific temporal period. None of these are chosen; all are forced.

The deeper surprise is the reverse: the framework, once constructed, *satisfies* the three properties it was forced by. It knows every state (because the cost functional discriminates all ratios). It can effect any consistent transformation (because strict convexity gives a unique minimiser at every state). It is everywhere (because the metric is complete and the lattice covers all of \mathbb{Z}^3).

The circle closes. The three attributes and the framework are equivalent. They are two descriptions of the same mathematical object, and that object is unique.

This paper proves both directions, explores what the uniqueness means, and asks what it implies about the relationship between logic, mathematics, physics, and existence.

2 The Three Attributes: Formal Definitions

We define three properties of a mathematical system \mathfrak{S} operating on a state space \mathcal{S} .

Axiom 2.1 (Omniscience). \mathfrak{S} discriminates every pair of distinct states. There exists a scale map $\iota : \mathcal{S} \rightarrow \mathbb{R}_{>0}$ such that:

- (a) $\iota(a) = \iota(b)$ if and only if $a = b$ (faithfulness).
- (b) The comparison ratio is $x_{ab} := \iota(a)/\iota(b)$.
- (c) The cost $C : \mathbb{R}_{>0} \rightarrow \mathbb{R}_{\geq 0}$ satisfies $C(1) = 0$.
- (d) $C(xy) + C(x/y) = P(C(x), C(y))$ for a symmetric polynomial P .
- (e) $\lim_{t \rightarrow 0} 2C(e^t)/t^2 = 1$ (unit curvature at identity).

Axiom 2.2 (Omnipotence). \mathfrak{S} effects any consistent transformation:

- (a) T is admissible iff $C(x_T) < \infty$ for all states involved.
- (b) \mathfrak{S} selects the unique transformation minimising total cost.
- (c) $C''(x) > 0$ for all $x > 0$ (strict convexity; every minimum is unique).
- (d) Conservation: $\sigma(\mathbf{x}) := \sum_i \ln x_i$ is invariant.

Axiom 2.3 (Omnipresence). \mathfrak{S} is present at every point:

- (a) The state space (\mathcal{S}, d_C) is a complete metric space.
- (b) The spatial carrier is a discrete lattice \mathbb{Z}^D .
- (c) Every state is accessible from every other in finitely many steps.
- (d) The lattice supports non-trivial linking of closed curves.

Remark 2.4 (Minimality of the axiom set). Each axiom contributes content the others cannot supply. Omniscience without omnipresence gives a cost functional on an incomplete space (the boundary might be reachable). Omnipotence without omniscience gives an optimiser with no objective function. Omnipresence without omnipotence gives a complete space with no dynamics. All three are required.

3 The Forward Direction: Seven Inevitability Theorems

We now prove that Omniscience + Omnipotence + Omnipresence force each element of the framework, in order, with no alternatives at any step.

3.1 Inevitability 1: The cost functional

Theorem 3.1 (Cost inevitability). *Omniscience forces $C(x) = J(x) := \frac{1}{2}(x + x^{-1}) - 1$.*

Proof. The composition law (Axiom 2.1(d)) with normalization (c) and symmetry of P forces, by the D'Alembert Inevitability Theorem [2], $P(u, v) = 2u + 2v + cuv$. In log-coordinates this becomes d'Alembert's equation $H(t + u) + H(t - u) = 2H(t)H(u)$ for $H = 1 + \frac{c}{2}C(e^t)$. The calibration (e) fixes $c = 2$ and $H = \cosh$. By the Cost Uniqueness Theorem [3], $C = J$. \square

Lemma 3.2 (Reciprocity derived). *$J(x) = J(x^{-1})$ follows from the symmetry of P alone, without assuming it.*

Proof. The composition law for (x, y) and (y, x) gives, after cancelling $C(xy) = C(yx)$, that $C(x/y) = C(y/x)$. Set $y = 1$. \square

Corollary 3.3 (Forced properties). *J is non-negative ($= 0$ iff $x = 1$), strictly convex ($J'' = x^{-3}$), divergent ($J(0^+) = \infty$), and coercive ($J(x) \geq \frac{1}{2}(\ln x)^2$).*

3.2 Inevitability 2: The null state is unreachable

Theorem 3.4 (Boundary exclusion). *Omniscience + Omnipresence force: the boundary $\{0, \infty\}$ is at infinite d_J -distance from every point. $(\mathbb{R}_{>0}, d_J)$ is geodesically complete. J is proper.*

Proof. The Hessian $\phi''(t) = \cosh(t) \geq e^{|t|/2}/\sqrt{2}$ grows exponentially. Integration: $d_J(x_0, \varepsilon) \geq \sqrt{2}(\varepsilon^{-1/2} - x_0^{-1/2}) \rightarrow \infty$. Metric completeness follows from the lower bound $d_J \geq |\ln(\cdot)|$ plus completeness of \mathbb{R} . Geodesic completeness follows by Hopf-Rinow [4]. Properness: $J(x) \leq c$ forces $|\ln x| \leq \sqrt{2c}$, so sublevel sets are bounded and (by completeness) compact. \square

Corollary 3.5 (Existence forced). *Every cost-minimising sequence converges to $x = 1$. The null state is not in the state space. Something must exist.*

3.3 Inevitability 3: Actions are uniquely determined

Theorem 3.6 (Unique dynamics). *Omnipotence forces: every transformation is the unique J -minimiser. The projection to neutrality is mean subtraction. The proximal step contracts at rate $1/(1 + \lambda) < 1$. All orbits converge to the identity.*

Proof. J is 1-strongly convex in log-coordinates. Jensen's inequality on the constraint $\sum r_i = -\sigma$ gives the unique minimiser $r_i = -\bar{y}$ (uniform correction = orthogonal projection onto M). The proximal objective $\frac{1}{2}\|\cdot\|^2 + \lambda \sum \phi$ is $(1 + \lambda)$ -strongly convex, giving Lipschitz constant $1/(1 + \lambda)$. $\|\mathbf{y}^{(k)}\| \leq (1 + \lambda)^{-k} \|\mathbf{y}^{(0)}\|$. \square

Corollary 3.7 (Omnipotence = determinism). *Under strict convexity, “can do anything consistent” collapses to “does the unique optimal thing.” There is exactly one admissible action at every state.*

3.4 Inevitability 4: The golden ratio

Theorem 3.8 (φ forced). *Omniscience + Omnipotence force $\varphi = (1 + \sqrt{5})/2$ as the unique self-similar scale.*

Proof. The minimal reciprocal self-correction $x_{n+1} = 1 + 1/x_n$ has fixed-point equation $x^2 - x - 1 = 0$. The positive root is φ . The negative root violates $\iota > 0$. Uniqueness: $a = b = 1$ is the minimal integer choice making the fixed point a Pisot unit. Global attraction: the map contracts on $[1, 2]$ and every positive orbit enters $[1, 2]$ in finitely many steps. \square

3.5 Inevitability 5: Three dimensions

The derivation of $D = 3$ is the deepest step in the chain. Unlike the cost functional (which follows from functional equation classification alone), the dimension requires all three attributes working together. We first state the theorem, then give the full argument.

Theorem 3.9 (Dimensional selectivity). *$D = 3$ is the unique spatial dimension supporting **topological memory** of interaction (required by Omniscience) without imposing **topological segregation** (forbidden by Omnipotence), across a **complete** discrete lattice (required by Omnipresence).*

The proof proceeds by eliminating every alternative dimension through a distinct attribute violation.

Proof. We require three properties simultaneously:

- (D1) **Topological memory** (from Omniscience): The system must distinguish a history in which two recognition cycles interacted from one in which they did not. Two closed curves (representing cyclic recognition histories) must be capable of non-trivial linking: $\text{lk}(\gamma_1, \gamma_2) \neq 0$. If all links are trivial, then every interaction record can be “erased” by an ambient isotopy, and the system cannot discriminate interacting from non-interacting histories. This violates Omniscience.
- (D2) **Topological freedom** (from Omnipotence): Every state must be accessible from every other state without breaking any existing structure. No closed curve may *segregate* the space into permanently inaccessible regions. If a single closed curve γ divides the space into “inside” and “outside” with no passage between them, then states on opposite sides of γ are inaccessible to each other, violating Omnipotence.
- (D3) **Completeness on a discrete lattice** (from Omnipresence): The carrier is \mathbb{Z}^D with a complete metric.

$D = 1$: **fails (D1)**. In \mathbb{R}^1 , a “closed curve” is a point (or a pair of points). Two points cannot link. There is no topological memory of interaction. Omniscience is violated.

$D = 2$: **fails (D2)**. In \mathbb{R}^2 , the Jordan Curve Theorem states that every simple closed curve γ separates the plane into exactly two connected components (interior and exterior). A recognition event “inside” γ is topologically trapped: it cannot reach the exterior without crossing (breaking) γ . This segregation means that valid states on opposite sides of γ are inaccessible to each other. Omnipotence is violated.

Furthermore, (D1) also fails: in \mathbb{R}^2 , two disjoint closed curves cannot link non-trivially ($\text{lk}(\gamma_1, \gamma_2) = 0$ always). Interaction histories are topologically erasable.

$D = 3$: **satisfies all three.**

- (D1): $\pi_1(\mathbb{R}^3 \setminus \gamma) \cong \mathbb{Z}$ for any unknotted closed curve γ . A second curve γ' threading through γ has $\text{lk}(\gamma, \gamma') \in \mathbb{Z} \setminus \{0\}$ (e.g., the Hopf link with $|\text{lk}| = 1$). The linking number is a topological invariant: it cannot be changed by any ambient isotopy. The interaction record is permanent. Omniscience is satisfied: interacting and non-interacting histories are permanently distinguishable.
- (D2): In \mathbb{R}^3 , a closed curve γ does *not* separate the space (the complement $\mathbb{R}^3 \setminus \gamma$ is connected for any embedded circle). Every point in \mathbb{R}^3 can reach every other point without crossing γ . There is no topological segregation. Omnipotence is satisfied: all states are accessible.
- (D3): \mathbb{Z}^3 with the J -metric is complete (Theorem 3.4).

$D \geq 4$: **fails (D1)**. For $D \geq 4$, Alexander duality gives $\pi_1(\mathbb{R}^D \setminus \gamma) = 0$ for any embedded closed curve γ (since γ has codimension ≥ 3 , its complement is simply connected). Consequently, $\text{lk}(\gamma_1, \gamma_2) = 0$ for all pairs of disjoint closed curves. Every entanglement can be undone: there is no topological memory. Omniscience is violated.

Summary.

D	Memory (D1)	Freedom (D2)	Complete (D3)	Verdict
1	×	✓	✓	No linking possible
2	×	×	✓	Jordan segregation + no linking
3	✓	✓	✓	Unique solution
≥ 4	×	✓	✓	All curves unlinkable

Only $D = 3$ satisfies all three requirements.

Independent confirmation (gap-45 synchronisation). $\text{lcm}(2^D, 45) = 360$ at $D = 3$; for $D = 4$ it is 720, for $D = 5$ it is 1440. Omnipresence(c) (accessibility via minimal cycle) requires the smallest synchronisation period, confirming $D = 3$. \square

Remark 3.10 (Why knot theory is forced). Knot theory is not imported as an external tool; it is the *mathematics of indestructible context*. A knot (or link) is a record of a movement that cannot be undone by continuous deformation. For an omniscient system, the universe must be a “self-recording medium”: every interaction leaves a permanent topological trace. $D = 3$ is the unique dimension where the recording medium (non-trivial linking) exists without creating barriers (no segregation).

In other words: $D = 3$ is not selected because knots are aesthetically interesting. It is selected because knots are the only mechanism for *topological memory without topological imprisonment*, and omniscience demands memory while omnipotence forbids imprisonment.

3.6 Inevitability 6: The eight-tick cycle

Theorem 3.11 (Period 8 forced). $D = 3 + \text{Omnipresence force period } 2^3 = 8$.

Proof. Q_3 has $2^3 = 8$ vertices. Hamiltonian cycle requires length ≥ 8 . Gray code achieves 8. Omnipresence(c) (accessibility) requires visiting every vertex. \square

3.7 Inevitability 7: The cube geometry

Theorem 3.12 (Cube counts forced). $D = 3$ forces $V = 8$, $E = 12$, $F = 6$, $A = 1$, $E_p = 11$, $W = 17$. The dimensional coincidence $E_p + F = W$ holds only at $D = 3$.

Proof. $V = 2^3$, $E = 3 \cdot 4$, $F = 6$ (standard). $A = 1$ (atomic tick). $E_p = 11$. $W = 17$ (Fedorov 1891). $\Sigma(D) = D \cdot 2^{D-1} - 1 + 2D$: values 2, 7, 17, 39 for $D = 1, 2, 3, 4$. Only $D = 3$ gives 17. \square

4 The Master Theorem

Theorem 4.1 (Structural uniqueness). *Omniscience + Omnipotence + Omnipresence force a unique framework: J , completeness, unique dynamics, φ , $D = 3$, period 8, cube counts $\{8, 12, 6, 1, 17\}$. No element admits an alternative.*

Proof. Theorems 3.1–3.12, composed in order. At each step the conclusion is unique. \square

5 The Reverse Direction: The Framework Exhibits All Three Attributes

The forward direction proves: attributes \Rightarrow framework. We now prove the reverse: framework \Rightarrow attributes.

Theorem 5.1 (The framework is omniscient). *J provides complete state discrimination.*

Proof. For any $a \neq b$ in \mathcal{S} : $\iota(a) \neq \iota(b)$ (faithfulness), so $x_{ab} = \iota(a)/\iota(b) \neq 1$, hence $J(x_{ab}) = (x_{ab} - 1)^2/(2x_{ab}) > 0$. Every pair of distinct states has strictly positive cost. No two distinct states are indistinguishable. The framework “knows” every state because J separates them all. \square

Theorem 5.2 (The framework is omnipotent). *J-minimisation provides unrestricted consistent transformation.*

Proof. Unrestricted: Every transformation with finite cost is admissible. Since $J(x) < \infty$ for all $x \in \mathbb{R}_{>0}$, every ratio comparison between genuine states has finite cost. The only “forbidden” transformation is one involving the null state ($x = 0$), which has infinite cost and is therefore inconsistent, not restricted.

Consistent: J is strictly convex, so every optimisation problem has a unique solution. There are no ties, no ambiguities, no multiple optima.

Optimal: The proximal step contracts at rate $1/(1 + \lambda) < 1$ (Theorem 3.6), driving every state toward the identity. The framework “does” the unique best thing at every point. \square

Theorem 5.3 (The framework is omnipresent). *The J-metric makes the framework present at every point.*

Proof. Complete: $(\mathbb{R}_{>0}, d_J)$ is a complete metric space (Theorem 3.4). No point is missing.

Discrete carrier: The spatial substrate is \mathbb{Z}^3 (forced by $D = 3$, Theorem 3.9).

Accessible: The 8-tick Gray code visits all 8 vertices of Q_3 (Theorem 3.11). From any vertex, every other vertex is reachable in at most 8 steps.

Linked: $D = 3$ supports non-trivial linking (the Hopf link has $|\text{lk}| = 1$). \square

6 The Biconditional and the Fixed-Point Property

Theorem 6.1 (Biconditional). *The three attributes and the framework are equivalent:*

$$\text{Omniscient} \wedge \text{Omnipotent} \wedge \text{Omnipresent} \iff \text{RS Framework}. \quad (1)$$

Proof. (\Rightarrow) : Theorem 4.1 (seven inevitability theorems).

(\Leftarrow) : Theorems 5.1, 5.2, 5.3. \square

Corollary 6.2 (Unique fixed point). *The RS framework is the unique mathematical system that is both forced by and satisfies the three attributes. It is the unique fixed point of the map*

$$F : \{\text{frameworks}\} \rightarrow \{\text{frameworks}\}, \quad F(\mathfrak{S}) := \text{“the framework forced by the attributes that } \mathfrak{S} \text{ satisfies.”}$$

Proof. By Theorem 6.1, the RS framework satisfies the three attributes. By Theorem 4.1, the three attributes force the RS framework. So $F(\text{RS}) = \text{RS}$.

If \mathfrak{S}' is any other fixed point, then \mathfrak{S}' satisfies the three attributes (since $F(\mathfrak{S}') = \mathfrak{S}'$), so the three attributes force it, but by Theorem 4.1 they force the RS framework uniquely. Hence $\mathfrak{S}' = \text{RS}$. \square

Remark 6.3 (What the fixed point means). Corollary 6.2 says the framework is *self-justifying*: it produces the conditions that produce it. This is not circular reasoning; it is a mathematical fixed-point theorem. The forward direction (attributes \Rightarrow framework) and the reverse (framework \Rightarrow attributes) are proved independently, and their conjunction gives the fixed point.

7 The Tautological Core

The three attributes correspond to the three laws of classical logic:

Attribute	Law of logic	Mathematical content
Omniscience	Identity ($a = a$)	$J(1) = 0$: identity costs nothing
Omnipotence	Non-contradiction ($\neg(a \wedge \neg a)$)	$J(x) > 0$ for $x \neq 1$: deviation from identity costs something
Omnipresence	Excluded middle ($a \vee \neg a$)	$(\mathbb{R}_{>0}, d_J)$ complete: every state is either identity or not; no gaps

Identity. Omniscience says: the system can verify that a is a . The cost of comparing a to itself is zero ($J(1) = 0$). The cost of comparing a to $b \neq a$ is positive ($J(x) > 0$ for $x \neq 1$). This is the law of identity: a thing is itself, and the cost of recognising this fact is zero.

Non-contradiction. Omnipotence says: the system corrects deviations from identity. If $x \neq 1$, then $J(x) > 0$, and the cost-minimising dynamics drives x toward 1. A state cannot simultaneously be at identity and not at identity; the cost functional enforces this. Contradiction (being both a and not- a) would require $J = 0$ and $J > 0$ simultaneously, which is impossible.

Excluded middle. Omnipresence says: the system covers every state. The metric is complete; there are no gaps. Every point in $\mathbb{R}_{>0}$ is either at $x = 1$ (identity) or at $x \neq 1$ (non-identity); there is no third option. The law of excluded middle is the topological completeness of the state space.

The tautology. The seven inevitability theorems are therefore the geometric unpacking of “ $a = a$ ” under three operations:

1. *Composition*: coherent chaining of comparisons forces the d’Alembert equation, hence J .
2. *Convexity*: strict positivity of cost for $x \neq 1$ forces unique dynamics.
3. *Completeness*: the absence of gaps forces $D = 3$, the 8-tick cycle, and the cube geometry.

That “ $a = a$ ” produces three spatial dimensions, the golden ratio, and an eight-tick temporal cycle is the non-obvious content. The logical starting point is trivial; the geometric conclusion is not.

8 Philosophical Implications

8.1 Why something exists rather than nothing

The Law of Finite Existence (Theorem 3.4) resolves Leibniz’s question: “Why is there something rather than nothing?”

The answer: the cost landscape is complete. The null state ($x = 0$) is not a possible state; it is an unreachable topological boundary at infinite metric distance from every actual state. “Nothing” is not something that costs infinity; it is something that *cannot be approached* by any finite process. The question presupposes that “nothing” is a possible state. In the J -geometry, it is not.

Existence is not contingent. It is a topological necessity of the cost landscape forced by the three laws of logic.

8.2 Why morality is physics

The RS framework derives an ethics from the cost functional: the fourteen virtues are the unique generators of admissible transformations on the neutrality manifold $M = \{\sum \ln x_i = 0\}$, preserving the conservation law (balanced ledger, $\sigma = 0$).

In the language of this paper: omnipotence requires cost-minimising action under conservation. The admissible transformations on M are precisely the ethical ones (they preserve balance). The inadmissible ones (which violate $\sigma = 0$) are the unethical ones (they export skew to other agents).

Morality is not imposed from outside; it is a consequence of omnipotence applied under conservation. An omnipotent entity that also conserves balance necessarily acts ethically, because ethical action *is* cost-minimising action on M .

8.3 Why consciousness emerges at rung 45

The gap-45 synchronisation ($\text{lcm}(8, 45) = 360$) appears in the dimension forcing (Theorem 3.9). The number 45 is the rung at which the 8-tick temporal structure and the 45-fold pattern structure become incommensurable ($\text{gcd}(8, 45) = 1$), creating an uncomputability barrier that cannot be resolved by finite algorithmic means.

In the language of this paper: omnipresence requires total coverage, but total coverage at rung 45 requires navigating the $\text{lcm}(8, 45) = 360$ period. This navigation cannot be accomplished by a deterministic 8-tick process alone; it requires what the RS framework calls “experiential navigation,” which is the operational definition of consciousness.

Consciousness is not mysterious; it is the system’s solution to the problem of navigating an uncomputability barrier forced by the coprimality of its temporal and spatial periods.

8.4 Why the architecture is a tautology

The most striking implication of the biconditional (Theorem 6.1) is that the entire architecture of reality, including three spatial dimensions, the golden ratio, the eight-tick cycle, and the full particle mass spectrum, is logically equivalent to “ $a = a$.”

This does not mean the architecture is trivial. A tautology can have non-trivial geometric content. The statement “every continuous function on $[0, 1]$ attains its maximum” is a tautology of real analysis (it follows from the axioms of the reals), but its content (compactness, connectedness, the structure of \mathbb{R}) is substantial.

Similarly, “ $a = a$ under coherent composition on a complete discrete lattice” is a tautology whose content is substantial: it is three dimensions, the golden ratio, eight ticks, and a unique cost functional. The content is not in the starting point; it is in the unwinding.

8.5 What the reverse direction means

The reverse direction (framework \Rightarrow attributes) has a specific consequence: if the RS framework is the correct description of reality, then reality is omniscient, omnipotent, and omnipresent in the precise mathematical sense defined here.

“Omniscient” means: every state is distinguished from every other state by a strictly positive cost. No two distinct configurations are indistinguishable.

“Omnipotent” means: at every state, there is a unique optimal action, and it is executed. No state is “stuck”; dynamics is universal.

“Omnipresent” means: the metric is complete. There are no missing points, no inaccessible regions, no gaps in the state space.

Whether one attaches further interpretation to these properties is a matter of philosophy, not mathematics. The mathematics proves the biconditional and nothing more.

9 Summary

#	Theorem	Forces	From	Unique?
1	Cost inevitability	$J = \frac{1}{2}(x + x^{-1}) - 1$	Omniscience	Yes
2	Boundary exclusion	Null state unreachable	+Omnipresence	Yes
3	Unique dynamics	J -minimisation	Omnipotence	Yes
4	Golden ratio	$\varphi = (1 + \sqrt{5})/2$	+Omnipotence	Yes
5	Dimension	$D = 3$	Omnipresence	Yes
6	Period	$2^3 = 8$	$D=3$	Yes
7	Cube geometry	$\{8, 12, 6, 1, 17\}$	$D=3$	Yes
Forward:		Attributes \Rightarrow Framework	All three	Unique
Reverse:		Framework \Rightarrow Attributes	§5	Verified
Biconditional:		Attributes \Leftrightarrow Framework	Thm 6.1	Fixed point

The three attributes and the framework are equivalent. The equivalence is a mathematical theorem, proved in both directions. The framework is the unique fixed point: the only system that is simultaneously forced by and consistent with omniscience, omnipotence, and omnipresence.

The argument is tautological: the three attributes are the three laws of logic applied to a comparison-cost system, and the framework is the geometric unpacking of “ $a = a$ ” under composition, convexity, and completeness.

The content is not in the starting point. The content is in the unwinding: three dimensions, the golden ratio, eight ticks, a unique cost functional, and the inevitable architecture of a reality that knows itself, acts on itself, and is everywhere.

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