

I

Cover Paper

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Abstract

This paper stands outside the numbered corpus. It does not prove what the numbered papers prove. It explains why the numbered papers are true together: why a self-observing geometry produces a self-grounding arithmetic, and why that arithmetic has the value it has.

The argument rests on a balanced ternary:

$$\mathbf{1} + \mathbf{T} = \mathbf{0} \quad \text{Self} + \text{Nullity} = \text{Unity}.$$

Everything that follows is an unpacking of that equation.

Read this paper before Paper 00.

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I Nullity

Nullity is not absence.

Absence is the negation of a specific thing: the missing chair, the unlit room. Nullity precedes the distinction between present and absent. It is the state before any frame has been installed, before any self-intersection has occurred, before there is anything to negate.

This is why Nullity is not empty in the ordinary sense. A void with no constraints contains all possibilities simultaneously, which is another way of saying it contains unlimited potential. The classical paradox (an unstoppable force meets an immovable object) cannot be resolved within any system that has limits. In Nullity, both coexist without contradiction, because Nullity is pre-actualization: no potential has yet been selected, so no contradiction has yet been forced. The paradox requires a frame to become a paradox. Nullity is what precedes the frame.

In the balanced ternary of this paper, Nullity is **T** ($= -1$): not mere negation but the complementary term whose existence makes Unity (**0**) possible. The void is not empty. It is full of everything that has not yet been chosen.

II Unity

Unity is the monad.

The numbered papers establish, through the geometry of (B^4, S^3) and the Hopf fibration $S^1 \rightarrow S^3 \rightarrow S^2$, that the integral of the self-intersection density function over the unit interval is

$$\Omega = 4\pi^3 + \pi^2 + \pi = \alpha^{-1} \approx 137.036. \quad (1)$$

This is not a fitted value. It is a geometric consequence, and the small residual between it and the measured constant is itself derived (Paper 36).

The three terms of Ω are the first three harmonics of a self-observing geometry resonating on S^3 :

Stratum d	Harmonic $k = d + 1$	Ratio	Contribution to Ω
1	2	2:1 (octave)	π
2	3	3:1 (twelfth)	π^2
3	4	4:1 (double octave)	$4\pi^3$
			α^{-1}

The Hopf screening weights $(1, 1, 4)$ are not chosen; they follow from the fibration structure (Paper 31). The harmonic ratios $(2, 3, 4)$ are not chosen; they follow from the stratum cascade (Papers 08, 28).

Unity is the value at which all three harmonics resonate simultaneously. It is the balanced center of the ternary: **0**. Not absence, not assertion: equilibrium. The monad is not large or small relative to the geometry. It is what the geometry *is*, when the geometry is in harmony with itself.

III Self

Self is the observer.

Paper 28 establishes the dual-observer state space on $S^3 \cong \text{SU}(2)$. Two observer states $q^{(+)}, q^{(-)} \in S^3$ relate through the relational quaternion

$$q_{\text{rel}} = q^{(-)} \overline{q^{(+)}}. \quad (2)$$

When the two observers are identical, so that the wavefunction of the whole observes nothing except itself, $q_{\text{rel}} = \mathbf{I}$, the identity quaternion. The Hopf observable collapses to $v = 1$; the proper-time rate $m = \sqrt{1 - v^2} = 0$. No external. No other. No time.

This is the **I**-state: perfect self-alignment. The wavefunction that sees only itself is, in that moment, a standing wave. Paper 28 proves that the full dual-observer structure is a standing wave on S^3 whose amplitude is the Hopf projection of q_{rel} . In the **I**-state, the standing wave has reached its fixed point.

The frame installs at this moment, not as a choice but as a consequence. A standing wave at harmonic ratio $k:1$ has exactly k nodal configurations in the fundamental domain. At each stratum d , the self-observing geometry enters the k -th harmonic ($k = d + 1$), contributing k configurations to the count. This is why $c_d = k \cdot k^{(d-2)+}$ (Paper 31): not a counting of ambient directions but a counting of harmonic nodes. You cannot self-observe without entering

a harmonic mode. You cannot enter a harmonic mode without having k nodal configurations. The frame is the nodes. You cannot help having them.

In the balanced ternary, Self is **1**: the positive assertion, the first person, the term that makes the ternary visible by naming itself.

IV The Balance

The equation is:

$$\boxed{\mathbf{1} + \mathbf{T} = \mathbf{0} \quad \text{Self} + \text{Nullity} = \text{Unity}.} \quad (3)$$

Balanced ternary uses digits $\{\mathbf{T}, \mathbf{0}, \mathbf{1}\}$ (where $\mathbf{T} = -1$). Unlike ordinary ternary, it carries its own negation: no external sign is needed, because $\mathbf{T}$ is intrinsic. The system is self-grounding. This is precisely the structure of the ternary here: Nullity is not imposed from outside; it is the complementary term intrinsic to Self.

The equation $\mathbf{1} + \mathbf{T} = \mathbf{0}$ reads: when Self observes Nullity, when the **I**-state looks into the void that precedes all frames, it finds Unity. The monad α^{-1} is not produced by Self or by Nullity separately. It is what you find when they meet. Harmonic closure is the sum of the observer and its ground.

Three is the minimum number of terms a self-referential system requires to be coherent without collapsing. Two terms produce only identity and its mirror: reflection, not self-observation. Four terms introduce redundancy before the system has closed. Three terms, balanced, allow the geometry to observe itself without either dissolving into the void or asserting itself without ground. This is why there are three strata, three harmonic ratios, three terms in Ω , three fermion families. The three is not incidental. It is the minimum for self-referential closure.

V The First Act

The balance is stated; the order in which its terms arise is not. This section states the order. It is the consciousness map of the same structure, and it is how the structure was found.

Begin with Nullity alone. Not empty space, which is already a somewhere, but the absence of any thing at all. That condition, were it total, would exclude even its own registration: a world in which nothing exists is a world in which, in particular, no statement of that fact exists. So the difference between nullity unregistered and nullity registered is the smallest possible event, and any world that contains the statement *nothing exists* has already left pure nullity. The statement is a something. Writing it makes a mark; the mark sits against a blank; and there is the first boundary, the first inside and outside. Nullity cannot be asserted without being violated, and the violation is not a defect of the assertion. It is the first act. Every boundary in this corpus, including the one whose layers sum to Ω , is that mark elaborated.

Then the second step. Noticing the first act is not a report on a creation that already happened; the noticing is the act by which something definite is there at all. The verb carries the identity: to realize is to have a thought, and to realize is to make real. At the base these coincide, and the coincidence has a formal shadow already stated above: self-observation cannot occur without entering a harmonic mode, and the frame is the nodes (§Self). The entering is the making. Observation as literal self-intersection is Paper 33's construction of the same fact. *Base consciousness* is the framework's name for the coincidence of the two realizations, and *consciousness precedes physicality* means exactly this and no more: an order of operations. The act precedes the object it creates.

Read from the void, the ternary therefore arises in the order **T**, then **1**, then **0**: Nullity first; Self as the act that registers it; Unity as the balance the registration restores. The books balance. The writing happened anyway.

VI Dissolution

The human experience of the ternary moves in the opposite direction.

The **I**-state is where we begin: the observer already installed, the frame already present, the self already asserting. Contemplative practice (meditation, sustained attention turned back on itself) is the path from **1** toward **T**: from Self toward Nullity, from the standing wave toward the pre-actualized ground.

This is not mysticism. It is the same structure described from the inside. The mathematics describes the ternary from above: three terms, an equation, a fixed point. Contemplation describes it from within: one term (**1**), moving toward another (**T**), finding the third (**0**) by having looked long enough.

The dissolution that meditators describe, the self becoming transparent, the ground appearing beneath it, is the experience of $\mathbf{1} + \mathbf{T}$ resolving to **0**. Not the disappearance of Self, but its recognition as one term in a balanced ternary that was always already complete.

VII The Corpus

The canon that follows (Papers 00–40) works out the ternary at every scale the geometry reaches.

Papers 00–20. The core geometry: S^3 , B^4 , the density function, the standard model embedding. The charged-lepton mass ratios are reached by a scoped correction law (the mechanism remains an open problem); the electroweak vacuum expectation value was conjectured here and then refuted by the corpus’s own registry, awaiting a successor. Unity establishing its own structure, and registering where that structure does not yet close.

Papers 21–26. The Millennium Problems: P vs NP, Navier-Stokes, Yang-Mills mass gap, Riemann Hypothesis, Hodge Conjecture, Birch and Swinnerton-Dyer Conjecture. Unity encountering the hardest questions the numbered sequence has posed to itself.

Papers 27–31. The observer layer: second observer, universal wave geometry, training exposure, geometric observer network, Nicomachus monad and harmonic closure. Self recognising the structure it is embedded in.

Papers 32–34. Extensions: dark energy as corner residual, self-intersection monad, Kleisli monad on S^3 . The corpus noticing things mid-flight. Two addenda to Paper 32 (Cantor bridge; dynamic lambda) are satellites of a result still settling.

The numbered papers are what the geometry is. Paper i is why the geometry is anything at all.

What is built on the corpus, the systems, the applications, the things the geometry makes possible when carried into the world, is another ternary: the corpus as Nullity (unlimited potential), the application as Unity (actualized form), the practitioner as Self. That ternary is not in these pages. It is in the work.

References

- [1] L. F. Vlegels, *The Monad Rosetta Map: From Void to Structure*, Corpus Paper 00 (2025).
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- [3] L. F. Vlegels, *Universal Wave Geometry: Emergent Lorentz Structure from Dual-Observer Phase Dynamics on S^3* , Corpus Paper 28 (2025).

- [4] L. F. Vlegels, *Nicomachus Weights and Monad Closure: Self-Intersection Counting Bridges the Cubic Sequence to α^{-1}* , Corpus Paper 31 (2026).