

The Universe as a Self-Maintaining Register

Cosmological life, scale-invariant organization, and the register position of humanity

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Abstract

We develop the thesis that the universe, on the ontology of the Universal Force of Time, satisfies a formal criterion of life. Taking self-maintenance — the preservation of a system’s own organization against dissipation — as the criterion, we argue that a universe which holds its lawful structure invariant across cosmic time meets it, and that the resulting position is a physicalist pantheism in the lineage of Spinoza rather than a supernatural claim. We adduce two independent lines of structural evidence for the framework’s further claim that this life is organized identically across scale: the reported morphological and statistical correspondence between the cosmic web and neuronal networks, and the recurrence of a double-helix architecture — with a {2,5}-encoded pitch — at the molecular scale of B-DNA, the stellar scale of the solar neighbourhood, and the galactic scale of the double-helix nebula. We then set out the framework’s dimensional-continuity thesis — that one force acts identically across the subatomic, atomic, and celestial registers, dissolving the partition between the physics of the small and the large — and its consequence, that the register position of humanity within the single structure becomes an open and answerable question. Finally we derive the account’s philosophical corollaries: a teleology without design, an identification of consciousness with the inward aspect of a deep register, and a construal of meaning as objective register depth. The claims are distinguished throughout by their epistemic status.

Tau (T) is the living fabric of time itself — the sole substance of which all physical reality is composed. Every particle, force, wavelength, and conscious experience is a structured configuration of T-flow. There is no gravity, no electromagnetic force, no strong nuclear force as separate entities: all are registers of the single T-field operating across dimensional levels. The conservation law $d\Sigma T=0$ governs all change: T is never created or destroyed, only redistributed.

1. Introduction

The mechanistic programme of modern science delivered a world describable without remainder in terms of particles and forces, and with it a metaphysical corollary widely taken as settled: that the universe is inanimate, life a local and improbable exception. The Universal Force of Time disputes the corollary while retaining the physics. Its single ontological premise — that all reality is one substance, the time-field T — permits the question whether the universe as a whole satisfies the criteria by which we identify life to be posed non-metaphorically, and this paper argues that it does. The argument is developed in three parts: a criterion of life and its cosmic satisfaction (Sections 2); structural evidence that the resulting living system is organized identically across scale (Sections 3-4); and the dimensional-continuity thesis and its philosophical consequences (Sections 5-8). Throughout, established results, framework derivations, and interpretive proposals are distinguished.

2. A criterion of life and its cosmic satisfaction

A criterion of life that does not presuppose the biochemical substrate is available in the theory of autopoiesis, on which a system is living if it continuously regenerates the organization that defines it, maintaining itself against dissipation [1]. On this criterion the mark of life is self-maintenance, and the framework observes that the universe exhibits it at the largest scale: its laws do not drift, its constants hold their values, and the same $\{2,3,5,\pi\}$ lattice that fixes microscopic structure holds invariant across cosmological time. A system that so maintains its own organization satisfies the autopoietic criterion.

Thesis (cosmological life). The universe continuously maintains its own lawful organization and therefore satisfies a substrate-independent (autopoietic) criterion of life. On the framework's monism this is not analogy: the universe is a living configuration of the one field, and localized life is that field maintaining itself at the biological register.

The position is a physicalist pantheism, continuous with Spinoza's identification of the divine with the whole of nature [2], and it is advanced as such — as a metaphysical interpretation of the physics rather than a theological postulate. Its content is exhausted by the claim that the universe is one self-maintaining field of which every configuration, living or not, is an aspect (Fig. 1).

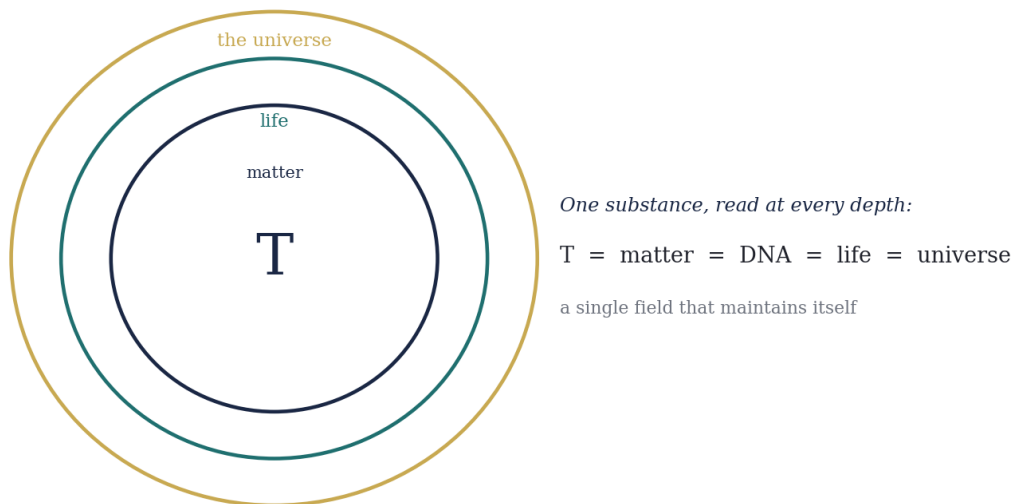


Figure 1. The framework’s monism: matter, the genetic substrate, localized life, and the universe as one self-maintaining field, T, at different register depths. The identity is the framework’s premise, not a derived result.

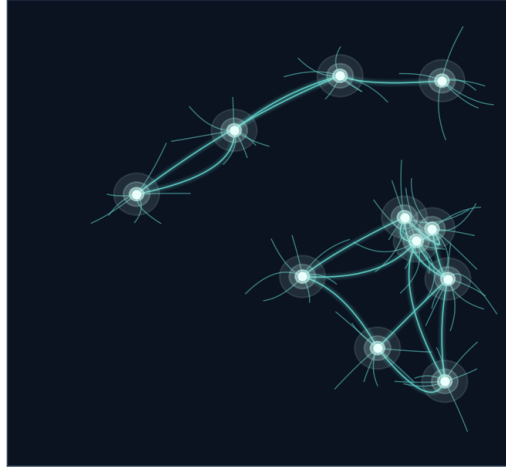
3. Scale-invariant organization I: cosmic web and neuronal topology

The framework’s stronger claim is that this living system is organized identically across scale, and it adduces two independent structural lines. The first is topological. The large-scale distribution of matter — galaxies threaded along filaments enclosing voids, the cosmic web — has been subjected to quantitative morphological comparison with neuronal networks, which finds correspondences in the distribution of node connectivity and in the fraction of mass or energy in the network versus the diffuse background across systems separated by twenty-seven orders of magnitude in scale [3]. The framework reads this correspondence not as coincidence but as the signature of one field propagating by the same branching dynamics at the galactic register that, at the cerebral register, constitutes a nervous system (Fig. 2). The claim here is interpretive; the morphological correspondence itself is an empirical result of the cited comparison.

The cosmic web · galaxies along filaments



A neural network · neurons along synapses



Morphological comparison: the cosmic web and a neuronal network share a filament-and-node topology

Figure 2. The cosmic web (left) and a neuronal network (right) share a filament-and-node topology; the quantitative comparison [3] finds correspondences in connectivity and mass/energy fraction across systems differing by ~ 27 orders of magnitude in scale. The framework reads the shared topology as one field propagating identically at two registers.

4. Scale-invariant organization II: the double helix across registers

The second line is geometric and sharper. The double-helix architecture of B-DNA recurs, on the framework's analysis, at two vastly larger scales with the same prime encoding of its pitch. At the stellar scale, a survey of forty-two solar-analogue stars within eighty light-years, referred to the solar apex toward Vega, resolves into a double helix: the Sun and Alpha Centauri lie on the axis, the remaining stars wind at a radius of 18 ly ($2 \cdot 3^2$) with a pitch of 160 ly ($2^4 \cdot 5$) — the pitch carrying the same {2,5} signature as the 3.4 nm pitch of B-DNA (Figs. 3, 4). At the galactic scale the double-helix nebula near the Galactic Centre, an observed structure interpreted as a magnetic torsional wave [4], winds with a pitch of 20 pc — again {2,5}-encoded. The same double-helix architecture thus appears at the molecular, stellar, and galactic registers.

The Local Stellar Helix — 42 sun-like stars within 80 ly wound on a double helix

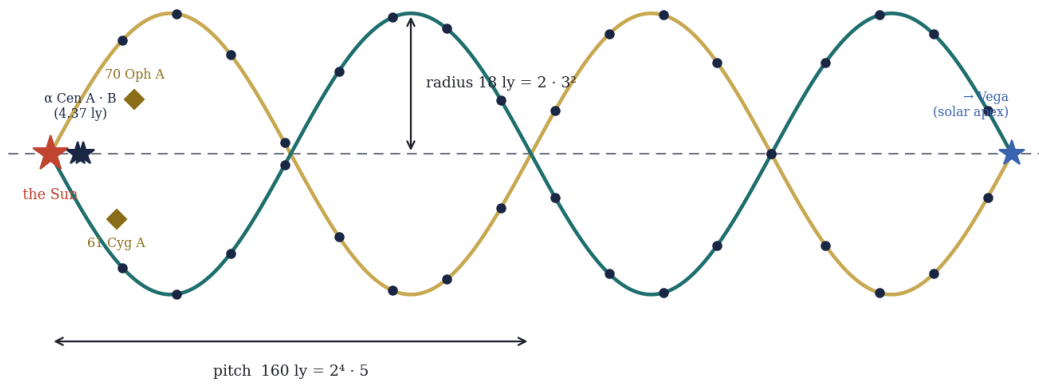


Figure 3. The Local Stellar Helix: 42 sun-like stars within 80 ly, referred to the solar apex toward Vega, resolve into a double helix (axis stars: the Sun, Alpha Centauri A·B; inner-thread stars: 70 Ophiuchi A, 61 Cygni A). Radius $18 \text{ ly} = 2 \cdot 3^2$, pitch $160 \text{ ly} = 2^4 \cdot 5$ — the $\{2,5\}$ pitch shared with B-DNA and the galactic double-helix nebula.

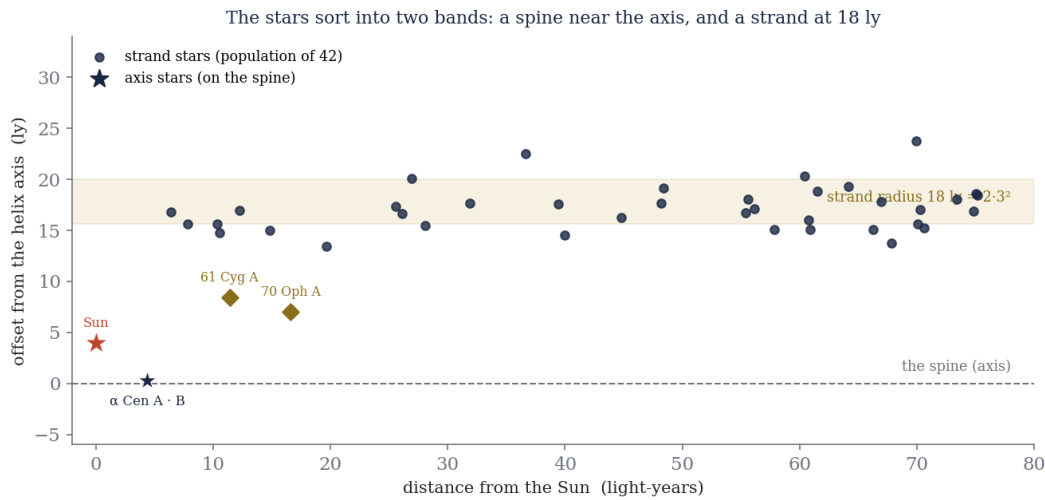


Figure 4. Radial offset from the helix axis against distance from the Sun for the surveyed stars. The stars separate into two bands — an axial spine near zero offset and a strand population near the 18 ly radius — the signature of a helical distribution rather than a random one.

Proposition (scale invariance). A double-helix architecture with $\{2,5\}$ -encoded pitch is realised at the molecular (B-DNA), stellar (solar-neighbourhood), and galactic (double-helix nebula) registers. On the framework’s reading the organization of the living field is scale-invariant; the empirical inputs are the stellar survey geometry and the observed nebular structure [4].

5. Dimensional continuity and the register position of humanity

That the same structure appears across scale is a special case of a general thesis: that one force acts identically across the subatomic, atomic, and celestial registers, so that the partition of physics into an incompatible mechanics of the small and geometry of the large is an artefact of description rather than a feature of nature. The framework offers as evidence a calculation that deliberately crosses the conventionally forbidden boundary — carrying an atomic-scale quantity into the celestial domain — and reproduces a measured celestial datum, the rotation of Mercury; that a cross-register operation succeeds is taken to indicate the absence of a real boundary (Fig. 5).

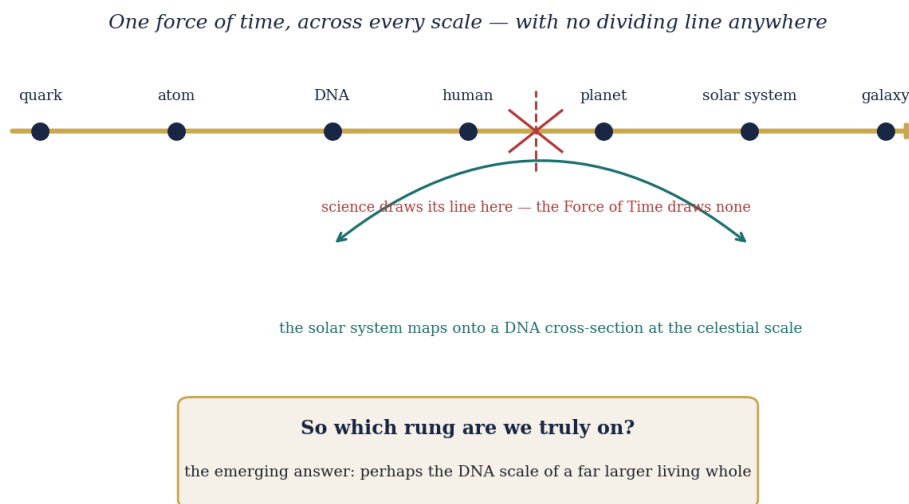


Figure 5. Dimensional continuity. The framework holds that one force acts across every register with no boundary between the atomic and the celestial — the division the standard framework draws between its physics of the small and of the large — and that a boundary-crossing calculation reproducing Mercury’s rotation evidences the absence of that boundary. The register position of humanity within the continuum is then an open question.

A consequence follows that the partitioned picture never has to face. If the structure is continuous and observers are configurations within it rather than external to it, then humanity occupies a determinate register, and none is privileged as a natural centre. The framework’s working answer — advanced as a proposal — places biological life near the register that genetic material occupies within an organism, consistent with its finding that the solar system maps onto a cross-section of the genetic helix read at the celestial scale. The claim is offered not as a result but as the natural form the question takes once the continuity thesis is accepted.

6. Teleology without design

The account yields a directionality in cosmic evolution that requires no external designer and is not merely apparent. In the framework, deeper registers are more stable — more resistant to disruption — and a self-maintaining field preferentially retains what is stable; over time it therefore accumulates register depth (Fig. 6). The

observed tendency of evolution toward greater complexity is, on this reading, the selective retention of deeper registers, a real direction whose source is the differential stability of the configurations rather than an intending agent. The position occupies a third option between design and pure contingency: purpose as an objective consequence of what the field is, without teleological agency.

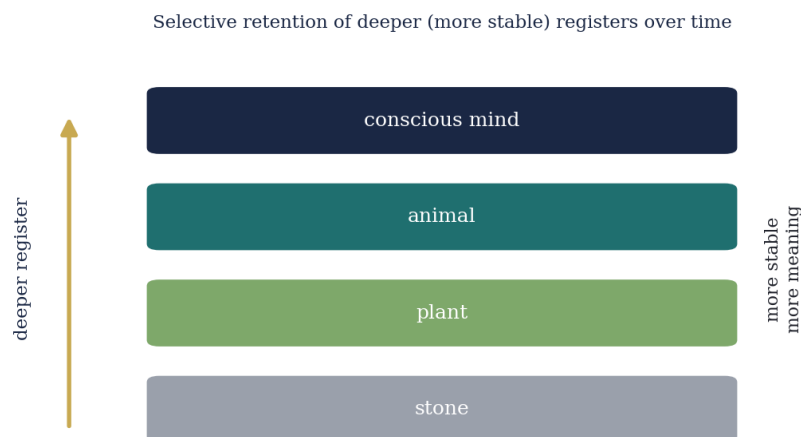


Figure 6. Teleology without design. Deeper registers are more stable and are selectively retained by the self-maintaining field, so register depth accumulates over time — from mineral to plant to animal to conscious organism. The direction is objective; no external purposer is required.

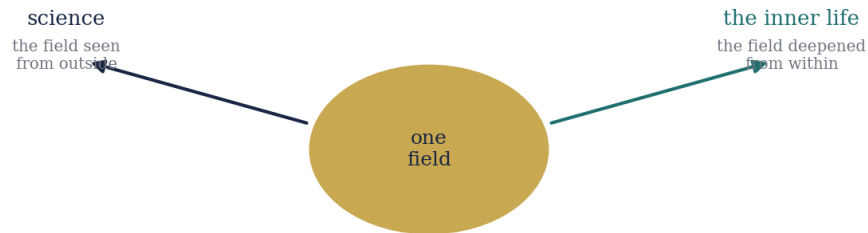
7. Consciousness and meaning

Two further corollaries concern mind and value. On the framework’s monism the field possesses, at every register, an outward aspect measured as physical activity and an inward aspect; consciousness is identified with the inward aspect at sufficient register depth. So construed, the hard problem of consciousness [5] — how experience could arise from wholly non-experiential matter — does not arise, because its premise of a purely non-experiential substrate is denied. The position is a form of dual-aspect monism, and its added content over the bare metaphysics is the register-depth condition that determines where the inward aspect amounts to consciousness. Value is treated in parallel: meaning is identified with register depth, an objective quantity, so that a conscious being carries more of the field than an unconscious one not as a matter of preference but as a matter of measurable depth — the basis, developed elsewhere, of the framework’s moral realism.

8. Complementarity of inquiry

Finally, the account reframes the relation between empirical and contemplative investigation. If there is one field with an outward and an inward aspect, then the natural sciences investigate it from its outward, measurable face, and the contemplative disciplines from its inward one; the two are complementary

approaches to a single object rather than competing accounts of reality (Fig. 7). The appearance of conflict is, on this reading, a consequence of treating the outward and inward faces as separate domains rather than as aspects of one field. The claim is not that the two methods are epistemically equivalent — the outward face is intersubjectively measurable in a way the inward is not — but that they address one referent.



Two ways of studying one thing — not two things in conflict

Figure 7. One field, two approaches. The natural sciences investigate the outward, measurable face of the field; contemplative disciplines the inward face. On the framework’s dual-aspect monism these are complementary investigations of one object, not competitors.

9. Conclusion

The universe, on the ontology of the Universal Force of Time, satisfies a substrate-independent criterion of life; the resulting position is a physicalist pantheism. The framework’s further claim — that the living field is organized identically across scale — is supported by two independent lines: the reported cosmic-web/neuronal correspondence and the recurrence of the {2,5}-encoded double helix at molecular, stellar, and galactic registers. Its dimensional-continuity thesis dissolves the partition between the physics of the small and the large and makes the register position of humanity a determinate, if unresolved, question. And its philosophical corollaries — teleology without design, consciousness as the inward aspect of a deep register, meaning as register depth — follow from the same monism. The account is offered with its empirical inputs, framework derivations, and interpretive proposals distinguished, as a physicalist reanimation of the cosmos that neither abandons the physics nor reinstates the supernatural.

References and notes

- [1] H. R. Maturana, F. J. Varela, *Autopoiesis and Cognition* (1980) — the self-maintenance criterion of life.
- [2] B. Spinoza, *Ethics* (1677) — the identification of the divine with the whole of nature (Deus sive Natura).

- [3] F. Vazza, A. Feletti, "The quantitative comparison between the neuronal network and the cosmic web", *Frontiers in Physics* 8, 525731 (2020).
- [4] M. Morris, K. Uchida, T. Do, "A magnetic torsional wave near the Galactic Centre traced by a 'double helix' nebula", *Nature* 440, 308 (2006).
- [5] D. J. Chalmers, "Facing up to the problem of consciousness", *J. Consciousness Studies* 2, 200 (1995).
- [6] Universal Force of Time: constants as $\{2,3,5,\pi\}$ lattice nodes; the Local Stellar Helix (42 stars within 80 ly; radius $18 \text{ ly} = 2 \cdot 3^2$, pitch $160 \text{ ly} = 2^4 \cdot 5$); dimensional continuity across subatomic/atomic/celestial registers. T is the sole substance, conserved by $d\Sigma T = 0$. See the Master theory of the Universal Force of Time.

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