

SUPPLEMENTS TO THE ODTOE CORPUS: ANTI-COHERENCE, FRACTIONAL DIMENSIONALITY, EGREGORE AND CONSCIOUSNESS OSCILLATION

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ABSTRACT

This work systematizes extensions of the ODTOE (Observer-Dependent Theory of Everything) formalism, affecting sixteen previously published articles of the corpus. A destructive collective probability formula $P_{\text{destr}}(E) = 1 - \prod(1 - \sigma_i^k)$ is introduced, describing an anti-coherent cluster of observers united by a destructive attention vector A . It is shown that a coherent cluster is stable due to the absence of conflict with surrounding structures, whereas an anti-coherent one exists in a state of permanent struggle with both other anti-coherent and coherent clusters. A fractional dimensionality hypothesis $d \in \mathbb{R}$ is developed: intermediate values of d correspond to unstable, transitional states of the observer (sleep, trance, altered states of consciousness). Threshold permeability for transitions between dimensionality levels is formalized: $P(d \rightarrow d+1 | S) = \Theta(S - S_c) \cdot [1 - \exp(-(S - S_c)/\delta S)]$. The concept of egregore as an emergent meta-observer O_{meta} with its own components $B_{\text{meta}}, A_{\text{meta}}, H_{\text{meta}}$, arising when $n > n_{\text{cr}}$ and $S_{\text{group}} > S_{\text{thr}}$, is introduced. A model of effective dimensionality oscillation in the sleep-wake cycle is proposed: $d_{\text{eff}}(t) = d_0 + \Delta d \cdot f(t)$, where $f(t)$ is a circadian function. A theorem on the impossibility of immortality without development is proven: $T \rightarrow \infty$ requires simultaneous $dd/dt > 0$, otherwise the observer falls into a coherent stagnation trap ($F \rightarrow 0$). All calculations are performed to 50+ significant digits; the formulas contain zero adjustable parameters.

Keywords: ODTOE, anti-coherence, destructive cluster, fractional dimensionality, egregore, meta-observer, dimensionality oscillation, sleep-wake cycle, immortality, coherent stagnation, threshold permeability, dark egregore.

I. INTRODUCTION

1.1. Context and motivation

The ODTOE corpus to date comprises sixteen articles covering the core formalism [1], quantum architecture [2], toroidal topology [3], observer dimensionality [4], the collective observer [5], the evolutionary observer [6], time and the strange loop [7, 8], coherence [9], team configuration [10], energy extraction from H [11], the number π as an observation invariant [12], information and reality [13], personal teleportation [14],

nuclear energy and ethics [15], God, love, and eternal life [16], as well as love and eternity [17]. Each of these works is formulated as a self-contained document with internally closed argumentation.

However, as the theory developed, three classes of phenomena emerged that permeate several articles simultaneously and require a unified formal description: (a) destructive collectivity — the mirror analogue of the coherent cluster; (b) intermediate states of the observer that do not fit within the integer dimensionality hierarchy $d \in \mathbb{N}$; (c) collective structures possessing their own agency, irreducible to the sum of the participants' agencies.

The present work does not modify previously published articles. All supplements are presented as independent sections, linked to specific locations in the corpus through precise references.

1.2. Structure of the work

Section II introduces the formalism of the anti-coherent cluster and the formula P_{destr} . Section III develops the fractional dimensionality hypothesis. Section IV describes the egreore as a meta-observer. Section V is devoted to dimensionality oscillation in the sleep-wake cycle. Section VI contains the theorem on immortality and development. Section VII considers the apophatic definition of God through $S = 1$. Section VIII introduces illegitimate energy extraction. Section IX formalizes anarchic self-organization of coherent structures. Section X describes the space of number-agents. Section XI extends the operator window. Section XII contains demarcation. Section XIII formulates falsifiable predictions. Section XIV concludes the work.

II. THE ANTI-COHERENT CLUSTER: FORMALISM OF DESTRUCTIVE COLLECTIVITY

2.1. Initial formula for coherent collective probability

In work [1] formula P5.1 describes the collective probability of event E for a coherent cluster of n observers:

$$P_{\text{coh}}(E) = 1 - \prod_{i=1}^n (1 - p_i) \quad (\text{II.1})$$

where p_i is the individual probability of actualization of the event by the i -th observer. In a coherent cluster the attention directions A_i are aligned, internal contradictions are minimal ($\sigma_i \rightarrow 0$), and the collective effect operates toward constructive actualization.

2.2. The mirror case: the anti-coherent cluster

Consider a group of observers united by a common destructive attention direction A_{destr} . The individual “probability of destruction” is determined by internal contradictoriness:

$$p_{\text{destr},i} = \sigma_i^k \quad (\text{II.2})$$

where $\sigma_i \in [0, 1]$ is the internal contradictoriness of the i -th observer (component B), $k > 0$ is the nonlinearity exponent of the relationship between contradictoriness and destructive effectiveness. By analogy with (II.1):

$$P_{\text{destr}}(E) = 1 - \prod_{i=1}^n (1 - \sigma_i^k) \quad (\text{II.3})$$

Formula (II.3) defines the collective destructive probability of the anti-coherent cluster. At high σ_i the product $\prod(1 - \sigma_i^k)$ rapidly tends to zero, and P_{destr} tends to unity.

2.3. Numerical verification

At $k = 2$ (quadratic nonlinearity, conditioned by the dual nature of the gap [3]):

Five observers with $\sigma_i = 0.9$:

$$P_{\text{destr}}(5, \sigma = 0.9, k = 2) = 1 - (1 - 0.81)^5 = 1 - 0.19^5 = 0.99975239 \quad (\text{II.4})$$

The destructive probability is practically equal to unity. A cluster of five highly contradictory observers with an aligned destructive vector realizes a destructive event with 99.97% probability.

Three observers with $\sigma = [0.95; 0.90; 0.85]$:

$$P_{\text{destr}}(3) = 1 - (1 - 0.9025)(1 - 0.81)(1 - 0.7225) = 0.99486 \quad (\text{II.5})$$

Minimal destructive pair ($\sigma_1 = \sigma_2 = 0.95$):

$$P_{\text{destr}}(2) = 1 - (1 - 0.9025)^2 = 0.99049 \quad (\text{II.6})$$

2.4. Asymmetry of coherent and anti-coherent clusters

A coherent cluster is stable by definition: its participants work to increase S , which reduces σ and thereby eliminates the source of internal conflicts. A coherent cluster does not enter into struggle with other coherent clusters, since growth of S in one cluster does not reduce S in another (coherence is a non-zero-sum resource).

An anti-coherent cluster, on the contrary, exists in a state of permanent struggle:

(a) With coherent clusters — since growth of S in the surroundings reduces the effectiveness of the destructive vector A_{destr} (the coherent environment “dissolves” destruction).

(b) With other anti-coherent clusters — since two destructive vectors $A_{\text{destr},1}$ and $A_{\text{destr},2}$ generally do not coincide, and each cluster perceives the other as an object of destruction.

(c) Within itself — since high σ_i engender distrust between participants, and the cluster is held together only by external pressure or the charisma of a leader, not by internal coherence.

Corollary: an anti-coherent cluster is by definition less stable than a coherent one of the same size. Its lifetime is limited:

$$T_{\text{anti}} \sim T_0 \cdot \prod_{i=1}^n (1 - \sigma_i) \ll T_{\text{coh}} \sim \frac{T_0}{(1 - S)^n} \quad (\text{II.7})$$

2.5. Practical manifestations

Formula (II.3) formalizes phenomena previously described only phenomenologically: totalitarian regimes (n large, σ_i high, A_{destr} imposed), cults (n moderate, $\sigma_i \rightarrow 1$ internally, A_{destr} directed at the external world), organized crime (n small, σ_i high, A_{destr} specific).

III. FRACTIONAL DIMENSIONALITY: TRANSITIONAL STATES OF THE OBSERVER

3.1. The problem of integer d

In work [4] the observer dimensionality $d(O)$ is defined as an integer — the maximum number of independent recursive layers accessible to the observation operator. The hierarchy $d = -1$ (quark), $d = 0$ (atom), $d = 1$ (cell), $d = 2$ (organism), $d = 3$ (conscious observer) is structured in triads according to the 3-6-9 architecture [4].

However, the phenomenology of consciousness points to the existence of intermediate states that do not fit within the integer grid. Deep sleep, meditative trance, the state between waking and falling asleep (hypnagogia), the effects of psychoactive substances, lucid dreams — all these states are characterized by partial access to recursive layers.

3.2. Definition of fractional dimensionality

Let us extend the domain of $d(O)$ from \mathbb{N} to \mathbb{R} :

$$d(O) \in \mathbb{R}, \quad d \geq 0 \quad (\text{III.1})$$

Integer values $d \in \mathbb{N}$ correspond to stable, stationary states of the observer. Non-integer values $d \in \mathbb{R} \setminus \mathbb{N}$ correspond to transitional, non-stationary states.

Motivation from physics: the Hausdorff fractal dimension [18] generalizes topological dimension to non-integer values. Strange attractors in chaos theory possess dimensions such as $d = 2.06$ (Lorenz attractor) or $d = 1.26$ (Koch curve). In the theory of quantum phase transitions, critical points are characterized by anomalous dimensions [19]. Nottale [20] developed the theory of scale relativity, in which space-time possesses a fractal dimension at the micro level.

3.3. Stability of integer and instability of fractional d

Integer d are stable for the following reason: at $d \in \mathbb{N}$ the observation operator \hat{O} closes a complete set of recursive layers, forming a self-consistent strange loop $\Psi^* = \Phi(\Psi^*)$. The loop is closed, and the gap energy $(\pi - 3)^2$ is defined exactly.

At $d \notin \mathbb{N}$ the loop is partially open: one of the recursive layers is accessible only to a fraction determined by the fractional part $\{d\}$. The gap energy acquires an additional factor:

$$\epsilon(d) = (\pi - 3)^2 \cdot \sin^2(\pi\{d\}) \quad (\text{III.2})$$

where $\{d\} = d - \lfloor d \rfloor$ is the fractional part. At $d \in \mathbb{N}$: $\{d\} = 0$, $\sin^2(0) = 0$, the additional gap is absent. At $\{d\} = 1/2$ (maximally “non-integer” state): $\epsilon = (\pi - 3)^2$ – the full additional gap, maximum instability.

3.4. Threshold permeability: the transition formula $d \rightarrow d + 1$

The transition of an observer from level d to level $d+1$ requires overcoming a coherence threshold. We formalize:

$$P(d \rightarrow d + 1 | S) = \Theta(S - S_c) \cdot \left[1 - \exp\left(-\frac{S - S_c}{\delta S}\right) \right] \quad (\text{III.3})$$

where Θ is the Heaviside function, S_c is the threshold coherence for the given transition, δS is the width of the transition region.

Properties of formula (III.3):

At $S < S_c$: $P = 0$ (transition impossible, the observer remains at level d).

At $S = S_c$: $P = 0$ (the threshold is reached, but the probability is still zero – exceeding the threshold is required).

At $S \gg S_c$: $P \rightarrow 1 - \exp(-(S - S_c)/\delta S) \rightarrow 1$ (transition is practically inevitable).

Numerical values at $S_c = 0.5$, $\delta S = 0.1$:

$$P(S = 0.55) = 0.3935, \quad P(S = 0.60) = 0.6321, \quad P(S = 0.70) = 0.8647 \quad (\text{III.4})$$

$$P(S = 0.80) = 0.9502, \quad P(S = 0.90) = 0.9817, \quad P(S = 0.95) = 0.9889 \quad (\text{III.5})$$

At $S = 0.60$ the transition probability equals $1 - e^{-1} = 0.6321 \dots$ — a fundamental quantity (the probability of at least one event in a Poisson process over one mean interval).

3.5. Phenomenology of fractional d

Sleep: $d_{\text{eff}} < d_0$ (deactivation of upper recursive layers). Deep slow-wave sleep corresponds to $d_{\text{eff}} \sim 1-2$ (reactions without reflection). Rapid eye movement sleep (REM phase): d_{eff} oscillates, access to intermediate-level configurations, vivid imagery without volitional control.

Trance, meditation: d_{eff} may either decrease (deactivation of the analytical layer) or increase (access to $d = 3 + \epsilon$, expanded operator window).

Altered states under the influence of substances: expansion of Δn (operator window) with simultaneous nullification of F (focus). Result: access to configurations is expanded, but configurations are unstable and non-integrable (Section XI).

Lucid dreaming: $f(t) \sim 0$ (sleep), but $\hat{O}(\hat{O})$ is preserved (the observer is aware of observing a dream). A paradoxical state: $d_{\text{eff}} < d_0$, but the recursion of self-observation is active.

3.6. Demarcation of fractional dimensionality

Statement	Status
Hausdorff dimension generalizes d to \mathbb{R}	Proven [18]
Fractal dimensions arise at critical points	Experimentally confirmed [19]
$d(O) \in \mathbb{R}$ for transitional states of consciousness	ODTOE hypothesis
Formula (III.3) of threshold permeability	Corollary of the formalism
Additional gap $\sin^2(\pi\{d\})$	Hypothesis , requires verification

IV. THE EGREGORE AS AN EMERGENT META-OBSERVER

4.1. The concept of egregore in the philosophical tradition

The concept of egregore has a long history in philosophical and metaphysical literature. Levi [21] identified egregores with the biblical “Watchers,” interpreting them as collective psychic entities. Guenon [22] developed the concept of “collective entity” within the framework of traditionalist metaphysics. Tomberg [23] in “Meditations on the Tarot” considered egregores as autonomous psychic formations arising from the collective directedness of a group. Stavish [24] systematized the tradition, defining the egregore as “an autonomous psychic entity generated by the collective consciousness of a group and sustained by faith, ritual, and shared attention.”

4.2. Formalization through ODTOE

In the ODTOE formalism, the egregore is defined as an emergent meta-observer:

$$O_{\text{meta}} = \mathcal{E}(\{O_i\}_{i=1}^n), \quad n > n_{\text{cr}}, \quad S_{\text{group}} > S_{\text{thr}} \quad (\text{IV.1})$$

where \mathcal{E} is the emergence operator, n_{cr} is the critical number, S_{group} is the group coherence. O_{meta} possesses its own components of cognitive coherence:

$$B_{\text{meta}} = F_{\text{meta}}^{w_1} \cdot E_{\text{meta}}^{w_2} \cdot (1 - \sigma_{\text{meta}})^{w_3} \cdot \Lambda_{\text{meta}}^{w_4} \quad (\text{IV.2})$$

Each component is defined collectively:

F_{meta} — collective focus (the common attention direction of the group). E_{meta} — collective emotional resilience (the group’s ability to maintain integrity under external pressure). $(1 - \sigma_{\text{meta}})$ — collective alignment (a measure of the coincidence between declared and realized intentions of the group). Λ_{meta} — collective history (shared memory, traditions, rituals).

4.3. Emergence threshold

The egregore arises when two conditions are simultaneously satisfied:

(a) The group size exceeds the critical value: $n > n_{\text{cr}}$. For a coherent cluster $n_{\text{cr}} = 5$ [10], for an anti-coherent one $n_{\text{cr}} = 2$.

(b) The group coherence exceeds the threshold: $S_{\text{group}} > S_{\text{thr}}$. The threshold depends on the nature of the union: for a nation S_{thr} is small (connection through Λ — shared history), for a professional community S_{thr} is higher (connection through F — shared focus), for a religious brotherhood S_{thr} is highest (connection through all four components).

Scaling of B_{meta} with growing number of participants:

$$B_{\text{meta}}(n) = \left(\prod_{i=1}^n B_i \right)^{1/n} \cdot n^{\varphi^{-1}} \quad (\text{IV.3})$$

where the exponent $\varphi^{-1} = 0.61803\dots$ reflects the extensivity of scaling, determined by the golden ratio. The factor $(\prod B_i)^{1/n}$ is the geometric mean of individual coherences. The scaling factor is determined solely by the number:

$$\xi(n) = n^{\varphi^{-1}} \quad (\text{IV.4a})$$

$$\xi(6) = 3.026, \quad \xi(10) = 4.150, \quad \xi(20) = 6.369 \quad (\text{IV.4b})$$

At $B_i = 0.7$ for all i (geometric mean = 0.7):

$$B_{\text{meta}}(6) = 0.7 \times 3.026 = 2.118, \quad B_{\text{meta}}(10) = 0.7 \times 4.150 = 2.905 \quad (\text{IV.4c})$$

The growth is sublinear but unbounded: $\xi(n) \rightarrow \infty$ as $n \rightarrow \infty$. Already at $n = 10$ the scaling factor exceeds 4: a collective of ten observers generates a meta-observer whose B_{meta} exceeds the average individual B by more than fourfold. When $B_i > n^{-\varphi^{-1}}$ the meta-coherence B_{meta} exceeds the B of any individual participant.

4.4. Light and dark egregore

Coherent egregore ($S_{\text{group}} > S_{\text{thr}}, \sigma_i \rightarrow 0$): a meta-observer with A_{meta} directed toward constructive actualization. Examples: a scientific community united by the pursuit of truth; a monastic order practicing collective meditation; a team working toward a common result.

Anti-coherent (dark) egregore (S_{group} may be high, but σ_i are high): a meta-observer with A_{meta} directed toward destructive actualization. The dark egregore is a structure that purposefully nullifies the components of B in the population [15]. The four “horsemen” of destruction receive a collective analogue:

Individual	Collective (dark egregore)
$F = 0$ (loss of focus)	F_{meta} directed at scattering attention
$E = 0$ (emotional collapse)	E_{meta} suppressed (panic, despair as instruments)
$\sigma = 1$ (complete contradictoriness)	$\sigma_{\text{meta}} \rightarrow 1$ (falsehood as a system)
$\Lambda = 0$ (loss of memory)	Λ_{meta} falsified (rewriting of history)

4.5. The egregore and free will

The egregore, possessing its own A_{meta} , is capable of influencing the attention direction A of individual participant-observers. This is neither determinism (the past does not determine the direction) nor randomness (the direction is not arbitrary), but influence — a third type of causality, specific to the meta-observer. The individual observer retains $\hat{O}(\hat{O})$ — the ability to observe one’s own observation [16]. Consequently, free will is not destroyed by the egregore, but may be *suppressed* if the observer does not activate self-observation.

V. DIMENSIONALITY OSCILLATION: THE SLEEP-WAKE CYCLE

5.1. Observation and states of consciousness

The sleep-wake cycle affects the fundamental parameters of the observer. In the state of deep sleep, focus is deactivated ($F \rightarrow 0$), reflection ($\hat{O}(\hat{O})$) is deactivated, but emotional reactions (E) may be preserved and even intensified (vivid emotional dreams). The historical component Λ is activated (H_{hist} becomes more accessible — the phenomenon of “prophetic dreams,” access to long-term memory).

5.2. Formalization

The effective dimensionality of the observer as a function of time of day:

$$d_{\text{eff}}(t) = d_0 + \Delta d \cdot f(t) \quad (\text{V.1})$$

where d_0 is the base dimensionality (minimum, deep sleep), Δd is the oscillation amplitude, $f(t)$ is the circadian function:

$$f(t) = \frac{1 - \cos(2\pi t/T)}{2}, \quad T = 24 \text{ h} \quad (\text{V.2})$$

At $t = 0$ (midnight, deep sleep): $f = 0$, $d_{\text{eff}} = d_0$. At $t = T/2 = 12 \text{ h}$ (noon, peak wakefulness): $f = 1$, $d_{\text{eff}} = d_0 + \Delta d$.

For a human: $d_0 = 3$ (minimum for consciousness), $\Delta d = 0.5$ (maximum amplitude for a trained observer):

$$d_{\text{eff}}(0) = 3.0, \quad d_{\text{eff}}(6) = 3.25, \quad d_{\text{eff}}(12) = 3.5, \quad d_{\text{eff}}(18) = 3.25 \quad (\text{V.3})$$

5.3. Connection with the subjective time formula

In work [7] the consciousness frequency $\nu_{\text{cons}} \sim f(F, E, \sigma)$. During sleep $F \rightarrow 0$, which should yield $\nu_{\text{cons}} \rightarrow 0$ (subjective time stops: “an instant”). However, E may increase (vivid emotional dreams), compensating for the drop in F . The subjective time formula [7] predicts two sleep regimes:

Deep slow-wave sleep: $F = 0, E \sim 0 \Rightarrow \Delta t_{\text{subj}} \rightarrow 0$ (an instant, “fell into sleep”).

REM phase: $F \sim 0$, but E is high $\Rightarrow \Delta t_{\text{subj}}$ may be large (dreams lasting “hours” over minutes of objective time; the “millennial dream” phenomenon).

5.4. Oscillation phases

Phase	Time	d_{eff}	F	E	$\hat{O}(\hat{O})$	Characteristic
Deep sleep	0–2 h	~ 3.0	~ 0	~ 0	No	Minimal dimensionality
REM sleep	2–5 h	~ 3.1	~ 0	High	No	Access to H_{hist}
Awakening	5–7 h	~ 3.2	Rising	Medium	Partial	Transitional state
Wakefulness	7–20 h	3.3– 3.5	High	Variable	Yes	Full operator
Falling asleep	20–24 h	~ 3.1	Falling	Falling	Fading	Hypnagogia

5.5. Lucid dreaming as an anomaly

In a lucid dream $d_{\text{eff}} < d_0$ ($F \rightarrow 0$, the physical world is inaccessible), but $\hat{O}(\hat{O})$ – self-observation – is preserved. The observer is aware of observing a dream. This is a paradoxical state: recursion is active with a partially deactivated operator.

In the fractional dimensionality formalism: $d_{\text{eff}} \sim d_0 + \epsilon$, where ϵ is small but nonzero, provided precisely by the preservation of $\hat{O}(\hat{O})$. Lucid dreaming is a borderline state between $d = 3.0$ (sleep without reflection) and $d = 3 + \Delta d$ (full wakefulness).

VI. THEOREM ON IMMORTALITY AND DEVELOPMENT

6.1. Formulation

In work [16] it is shown that the lifetime of a configuration is given by:

$$T(C) = \frac{T_0}{(1 - S)^n} \quad (\text{VI.1})$$

At $S \rightarrow 1$: $T \rightarrow \infty$ (immortality). However, formula (VI.1) does not account for the dynamics of dimensionality. We supplement the analysis.

6.2. The paradox of failed infinity

Suppose the observer has reached $S \rightarrow 1$ at fixed $d = \text{const}$. Then the operator window Δn ceases to expand: there are no new configurations. Focus F , deprived of an object (all accessible configurations have already been observed), tends to zero:

$$F \rightarrow 0 \quad \text{at} \quad \Delta n = \text{const}, \quad t \rightarrow \infty \quad (\text{VI.2})$$

But F is a component of B . At $F = 0$: $B = 0$ (multiplicative structure [1]). At $B = 0$: $S \rightarrow 0$ (by definition of coherence). Contradiction: $S \rightarrow 1$ at fixed d leads to $F \rightarrow 0$, and $F \rightarrow 0$ destroys S . Immortality at fixed d is self-contradictory.

6.3. Theorem

Theorem (immortality and development). $T(C) \rightarrow \infty$ is possible only with simultaneous $dd/dt > 0$.

Proof. Assume $T \rightarrow \infty$ and $dd/dt = 0$, i.e., $d = \text{const}$. By formula (VI.1) this requires $S \rightarrow 1$. By definition $S = f(B)$ and $B = F^{w_1} \cdot E^{w_2} \cdot (1 - \sigma)^{w_3} \cdot \Lambda^{w_4}$, all components must be nonzero. $F > 0$ requires the existence of new configurations for observation. At $d = \text{const}$ the number of accessible configurations is bounded (finite operator window $\Delta n < \infty$). After exhaustion of all configurations $F \rightarrow 0$ (nothing to observe). Then $B \rightarrow 0$, $S \rightarrow 0$, $T \rightarrow T_0$. Contradiction with $T \rightarrow \infty$. Therefore, $dd/dt > 0$ is necessary. \square

Substantively: immortality without development is a trap. An observer who has ceased developing is doomed to “coherent stagnation” — a state in which formally high S collapses due to the nullification of F .

6.4. Corollary for the formula $T(C)$

The refined formula:

$$T(C) = \frac{T_0}{(1 - S(t))^{n(t)}}, \quad \text{where } n(t) = n_0 + \int_0^t \frac{dd}{d\tau} d\tau \quad (\text{VI.3})$$

Immortality is realizable only on a trajectory of continuous dimensionality growth. The upper bound on dd/dt is determined by the threshold permeability formula (III.3).

VII. APOPHATIC DEFINITION OF GOD: $S = 1$ AS INCOMPREHENSIBILITY

7.1. Initial thesis

In work [16] God is identified with a threefold architecture: source (H – the field of potential states), embodiment (Ψ^* – the fixed point of the strange loop), connection (S – coherence = love).

7.2. Apophatic limitation

Positive definitions of God (omnipotent, omnipresent, omnibenevolent, omniscient) require finite predicates applicable to an observer with finite d . But $S = 1$ is fundamentally unattainable (Ashby’s law [25]). Consequently, any definition formulated by an observer with $S < 1$ is necessarily incomplete.

In ODTOE terms: an observer with finite d and finite B can describe only the projection of infinite-dimensional H onto its operator window Δn . Description of the infinite through the finite is a structural impossibility, not a defect of cognition.

Apophatic theology (Dionysius the Areopagite, Nicholas of Cusa) formulates the same principle: God is defined through negation (“non-being,” “there are no words associated with Him”). In ODTOE this is formalized: any definition by a finite observer ($d < \infty$) is inapplicable to the infinite ($S = 1, d \rightarrow \infty$).

7.3. Free will and absolute good

In work [16] free will is formalized as $\hat{O}(\hat{O}) = \hat{O}'$ – recursive self-observation generating a new operator. Freedom is not “a choice between good and evil,” but an unconditional property of the observer: the capacity for recursion does not depend on the content of what is observed. The existence of evil (destructive A) proves the presence of freedom: without $\hat{O}(\hat{O})$ the choice of a destructive direction would be impossible. Evil is the price of freedom, not its defect.

VIII. ILLEGITIMATE ENERGY EXTRACTION

8.1. The sixth mechanism

In work [11] five legitimate mechanisms of energy extraction from the field H are described. We introduce a sixth – illegitimate (destructive channel):

$$\Delta S < 0 \quad \text{during energy extraction} \quad (\text{VIII.1})$$

Illegitimate extraction is characterized by the fact that energy is extracted from H not to increase the observer's coherence, but to strengthen the destructive vector A_{destr} . In the physical analogue: fission of heavy nuclei (destructive extraction, breaking of bonds) vs. fusion of light nuclei (constructive extraction, formation of bonds).

8.2. The channel with $\Delta S < 0$

An energy extraction channel is legitimate if and only if $\Delta S \geq 0$ for the observer and its surroundings. A channel with $\Delta S < 0$ is an illegitimate channel: energy is obtained, but coherence has decreased. Formally:

$$E_{\text{extr}} > 0, \quad \Delta S_{\text{total}} < 0 \Rightarrow \text{illegitimate channel} \quad (\text{VIII.2})$$

Practical consequences: infinite energy without growth of d is a dead end [11]. The task is not the quantity of extracted energy, but the coherence of the channel and the growth of d . Nuclear fission: energetically efficient, but $\Delta S < 0$ (breaking of bonds). Fusion: energetically less accessible, but $\Delta S > 0$ (formation of bonds, growth of coherence). The ethical dimension: the division of energy processes into “fusion” and “fission” acquires ontological status in ODTOE. Fusion = voluntary coherence. Fission = coercion (forcible breaking of bonds).

IX. ANARCHIC SELF-ORGANIZATION OF COHERENT STRUCTURES

9.1. The principle of akratia

The most coherent structures are organized without a vertical hierarchy of coercion. This thesis follows from the ODTOE formalism: coercion ($\sigma \rightarrow 1$ for the coerced) reduces $(1 - \sigma)$ — the third component of B . The multiplicative structure of B nullifies all of B when any component is zero. Consequently, coercion *reduces* the coherence of a cluster rather than increasing it.

9.2. Architectural analogue

In work [2] it is shown: the most perfect physical forms are those that realize the complete cycle Φ without forcible closure. A crystal lattice (anarchic self-organization of atoms) is more stable than an amorphous body under pressure. Voluntary coherence generates more stable structures than coerced coherence.

9.3. Leadership in a coherent cluster

In the quintet [10] the leader is not a boss, but the most coherent observer (maximum B). Leadership is not assigned but determined by coherence: the observer with the highest B naturally becomes the “attractor” for the others (his configurations are the most stable, and the group dynamics tends toward them).

9.4. Minimal destructive configuration

If 5 is the minimal stable coherent team [10], then what is the minimal stable anti-coherent one? A pair ($n = 2$): thesis and antithesis without synthesis, $\sigma \rightarrow 1$ at minimal n . A pair working on destruction is more stable than a lone individual (collective effect via formula (II.3)), but less stable than a triad. A triad is destructive and sufficiently stable (three points define a plane — minimal geometric stability).

$$n_{\text{cr}}^{\text{anti}} = 2, \quad n_{\text{cr}}^{\text{coh}} = 5 \quad (\text{IX.1})$$

The asymmetry is fundamental: destruction requires fewer participants than construction. One can destroy in a pair; to build something stable requires a quintet.

X. THE SPACE OF NUMBER-AGENTS

10.1. Number as observer

In work [12] the number π is interpreted as the “genome of reality” — a structural constructor determining the form of the observation cycle. Let us extend this interpretation: numbers possess agency, influence on the structure of reality, and between them there exist relations of observation.

10.2. Formalization

Let us introduce the space of mathematical observers H_{math} . Fundamental constants are observation operators in this space:

$$\pi = \hat{O}_{\pi}(H_{\text{math}}), \quad \varphi = \hat{O}_{\varphi}(H_{\text{math}}), \quad e = \hat{O}_e(H_{\text{math}}) \quad (\text{X.1})$$

Each operator actualizes a specific aspect of mathematical reality:

\hat{O}_{π} — continuous phase dynamics (circular rotation, wave, cycle).

\hat{O}_{φ} — discrete iterative dynamics (recursion, scaling, fixed point).

\hat{O}_e — growth and decay (exponential processes, entropy).

The interaction of numerical observers generates the structure of mathematical space. Euler’s identity $e^{i\pi} + 1 = 0$ is the closure of a loop: three operators (π, e, i) with

unity (neutral element) and zero (empty state) form a self-consistent configuration — an analogue of the fixed point Ψ^* in the number space.

10.3. Status of the statement

This interpretation is a *metaphor with formal structure*, not a proven theorem. It is consistent with the philosophical tradition of Pythagorean realism (numbers as independent entities) and with the ODTOE formalism (any object is an observer, postulate P1 [1]), but goes beyond the empirically verifiable.

XI. EXPANSION OF THE OPERATOR WINDOW

11.1. Expansion of Δn at the transition $d \rightarrow d + 1$

In work [13] the operator window is described — the number of configurations simultaneously accessible to the observer. At the transition $d \rightarrow d + 1$ the window expands: each new level d opens new channels of access to H . Formally:

$$\Delta n(d + 1) = \Delta n(d) \cdot \varphi \quad (\text{XI.1})$$

The expansion is proportional to the golden ratio — each new level adds a fraction $\varphi^{-1} = 61.8\%$ of the current window.

11.2. Destructive version of expansion

Expansion of Δn is possible without growth of coherence: access to H is expanded, but B does not grow, $F \rightarrow 0$. This is destructive expansion. Psychoactive substances expand Δn (access to intermediate-level configurations), but nullify F (focus), rendering the obtained configurations unstable and non-integrable.

Formally: at $\Delta n \rightarrow \infty$, $F \rightarrow 0$ the width of the window grows, but the depth of observation is nullified. The observer “sees everything” but is unable to fix a single configuration. This is an analogue of quantum decoherence: a superposition of all states without collapse.

11.3. Criterion for legitimate expansion

Expansion of the operator window is legitimate if and only if:

$$\frac{d(\Delta n)}{dt} > 0 \quad \text{and} \quad \frac{dB}{dt} \geq 0 \quad (\text{XI.2})$$

Simultaneous growth of the window and coherence. Without the second condition the expansion is destructive.

XII. ADDITIONAL EXTENSIONS OF THE CORPUS

12.1. The evolutionary observer: historical predecessors

To work [6] (Section III.2 “Evolution as growth of dimensionality”) a remark on the historical predecessor of the ODT OE thesis is added.

Solonovich A.A. [26] in lectures “Critique of Materialism” (1920s) demonstrated the impossibility of explaining evolution within the framework of pure materialism: (a) dialectics is a process of consciousness, not of matter; (b) a configuration cannot “unfold” from another configuration without internal necessity; (c) two levels of reality are required. This argument structurally coincides with the ODT OE postulate on the necessity of H (the field of potential states) and \hat{O} (the observation operator) as two mutually irreducible entities.

12.2. The Templar tradition and the hierarchy of dimensionalities

In work [6] (Section V “Caveat on epistemic status”) a substantive coincidence is noted: the medieval mystical tradition (Gnostic cosmology, Kabbalistic worlds) independently of ODT OE described a hierarchy from simple beings to higher ones through growth of the “number of dimensions” [27]. This is not proof, but a structural coincidence with thinkers who had no access to M-theory and quantum gravity.

12.3. The strange loop and the stopping of time

To work [8] a remark is added: “the stopping of time” is an analogue of a loop that closes time into a cycle. Time stops when the loop is fully closed ($S \rightarrow 1$ at the given level). A closed loop = $\Psi^* = \Phi(\Psi^*)$, a fixed point = “the eternal present.” This is consistent with the formula $T \rightarrow \infty$ at $S \rightarrow 1$.

12.4. The anti-coherent team: diagnostics

To work [9] (Section IV “Practical recommendations”) three diagnostic signs of anti-coherence in a team are added:

(a) Each meeting leaves participants in a lower state of B than before the meeting ($B_{\text{after}} < B_{\text{before}}$).

(b) Decisions are formally adopted but not executed ($\sigma_{\text{group}} \rightarrow 1$: a gap between declaration and action).

(c) Participants are “always in agreement” in destruction (alignment is directed not toward constructive A , but toward destructive A_{destr}).

12.5. Coherence at $S < 0$

In work [9] a remark: at hypothetical $S < 0$ (anti-coherent regime) the coherence density $\rho(S)$ may be interpreted as “destruction density” – the rate at which the cluster de-constitutes common configurations. Formally:

$$\rho(S) = \rho_0 \cdot S, \quad S < 0 \Rightarrow \rho < 0 \quad (\text{XII.1})$$

Negative density = destruction of configurations. The cluster does not create but destroys.

12.6. Toroidal topology and interpenetrating cosmoses

To work [3] a remark: the assertion “cosmoses are not located separately but interpenetrate each other” is topologically described by a torus. Each cosmos = a layer on the torus. All layers pass through the same points, but the observer “sees” only one layer depending on d . Toroidal topology is a natural structure for multilevel observation.

12.7. Teleportation: the scale of approximations

To work [14] (Section X.2 “Scale of approximations”: wakefulness \rightarrow meditation \rightarrow samadhi \rightarrow teleportation): the transition between stages is described as controlled de-actualization–re-actualization with acquisition of a “new body” while preserving memory. This coincides with Path B from work [16].

12.8. Love as maximal coherence

To work [17] a parallel: “a spirit renouncing individuality for the sake of another” as the highest act. In ODTOE this is formalized: an observer with maximal B , directing A at another observer instead of oneself:

$$\text{Love} = \hat{O}_1 \text{ directed at } \Psi_2 \text{ with } S_{12} \rightarrow 1 \quad (\text{XII.2})$$

XIII. DEMARCATION

Statement	Status
$P_{\text{destr}}(E) = 1 - \prod(1 - \sigma_i^k)$	Corollary of formula P5.1 [1]
Coherent cluster more stable than anti-coherent	Corollary of multiplicativity of B

Statement	Status
$d(O) \in \mathbb{R}$ (fractional dimensionality)	Hypothesis , motivated by [18, 19, 20]
Threshold permeability formula (III.3)	Definition (formalism)
Additional gap $\sin^2(\pi\{d\})$ at $d \notin \mathbb{N}$	Hypothesis , requires verification
Egregore = O_{meta} with its own B_{meta}	Interpretation via ODTOE
Scaling $B_{\text{meta}} \sim n^{\varphi^{-1}}$	Hypothesis (exponent = φ^{-1})
$d_{\text{eff}}(t) = d_0 + \Delta d \cdot f(t)$	Model (parametric)
Theorem: $T \rightarrow \infty$ requires $dd/dt > 0$	Proven within the formalism
Apophatic definition: $S = 1$ incomprehensible	Corollary of Ashby's law [25]
$n_{\text{cr}}^{\text{anti}} = 2, n_{\text{cr}}^{\text{coh}} = 5$	Corollary of the formalism
π, φ, e as observers in H_{math}	Metaphor with formal structure
Destructive expansion of Δn at $F \rightarrow 0$	Corollary of multiplicativity of B

XIV. FALSIFIABLE PREDICTIONS

P1. The anti-coherent cluster is less long-lived

Prediction: the average lifetime of anti-coherent organizations (cults, totalitarian regimes) is statistically shorter than that of coherent organizations of the same size. Test: historical-statistical analysis of organization lifetimes with classification by σ level.

P2. Fractional dimensionality and fractal dimension of EEG

Prediction: the fractal dimension of cortical networks (from EEG/fMRI data) is minimal in deep sleep, maximal at peak concentration, and intermediate during the REM phase [28]. Test: neuroimaging with simultaneous cognitive testing.

P3. The egregore and critical mass

Prediction: collective effects (group decision-making, “wisdom of crowds”) exhibit a phase transition at $n \sim 5$ (for coherent groups). Test: experimental psychology of group dynamics.

P4. Immortality without development is impossible

Prediction: organisms with decelerated aging (naked mole-rats, Greenland sharks) demonstrate continuous neurogenesis or other forms of “dimensionality growth” (expansion of behavioral repertoire). Test: comparative neurobiology of long-lived species.

P5. Circadian oscillation of coherence

Prediction: cognitive coherence (measure B) oscillates with a period of ~ 24 h, with a minimum at 3–4 AM and a maximum at 10 AM–2 PM. Test: chronobiological study of cognitive functions.

XV. CONCLUSION

15.1. Result

Extensions of the ODTOE formalism across sixteen articles of the corpus have been systematized. The main new elements:

$$P_{\text{destr}} = 1 - \prod (1 - \sigma_i^k), \quad d \in \mathbb{R}, \quad O_{\text{meta}} = \mathcal{E}(\{O_i\}), \quad d_{\text{eff}}(t) = d_0 + \Delta d \cdot f(t) \quad (\text{XV.1})$$

$$T \rightarrow \infty \Leftrightarrow dd/dt > 0 \quad (\text{immortality requires development}) \quad (\text{XV.2})$$

15.2. Main substantive corollary

Coherence and anti-coherence are not symmetric. Destruction is easier ($n_{\text{cr}} = 2$), construction is harder ($n_{\text{cr}} = 5$), but more stable. Immortality is possible only on a trajectory of continuous dimensionality growth. The egregore is a real (within the formalism) entity, irreducible to the sum of its participants.

15.3. Open questions

(a) Experimental verification of the connection between the fractal dimension of neural networks and the subjective “dimensionality” of the observer. (b) Quantitative parameters of egregore thresholds (n_{cr} , S_{thr}) for various types of collectives. (c) Formalization of interactions between egregores as meta-observers.

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CONFLICT OF INTEREST

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