

# The Frequency of the Soul: Identity as a Tunable Coherent Fixed Point of Self-Observation

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## Abstract

This paper carries the control-parameter topology of the Observer-Dependent Theory of Everything (ODTOE) onto the structure of personal identity, treating the self as a coherent fixed point of self-observation tuned around an interior optimum. The carrying principle is stated in an honest affirmative form: what factually happened stays fixed, and its meaning is tuned. The factual trace of an event is preserved as a fixed chronicle; what is plastic is the associated salience, valence, narrative role, and place in the self-model, and this significance is rewritten under prediction error and at a variational cost. Identity quality is single-peaked in an interior self-consistency parameter: an over-densified self-narrative collapsed to maximal coherence is a dynamic ideal error appearing as rigidity, rumination, and fusion with one's story, while a full loss of connectedness corresponds to dissociation. Attention is read as precision-weighting that selects a trace for integration into the self. A quantum-like formalism of order effects is invoked as a formal analogy; the field-of-life hypothesis is kept at a phenomenological level; the freedom formula is offered as an illustrative heuristic. A program of ten predictions is stated; every claim is stratified into structural invariant, prediction, and hypothesis. All mathematics, physics, and the phenomenology of consciousness are projections of a single primordial act of distinction.

**Keywords:** identity, coherent fixed point, self-observation, interior optimum, ideal error, memory reconsolidation, precision-weighting, narrative self, metric plasticity, frequency of the soul, ODTOE.

# 1 Introduction: Identity as a Fixed Point of Self-Observation

The approach developed here is denoted by the acronym ODTOE (Observer-Dependent Theory of Everything): a metatheoretic framework that parametrizes the space of candidate descriptions through observer coherence [1]. The present paper carries its operator topology onto the structure of personal identity. The self is treated as a coherent fixed point of self-observation: a stable solution that an observing system finds with respect to its own history and its current field of attention. Reality for the subject (its decision about who it is) is the result of an act of observation over the cumulative trace,

$$R = \hat{O}(\Psi), \quad (1)$$

and the stable self is a fixed point of this self-observation,

$$\Psi^* = \Phi(\Psi^*) = \iota(\hat{O}_\Psi(\Psi)), \quad (2)$$

where  $\hat{O}$  is the observation operator that selects from the cumulative trace  $\Psi$  what enters the current model of the self, and  $\iota$  integrates the selected content into a connected self-description. The operator  $\Phi = \iota \circ \hat{O}_\Psi$  is carried at the grade of a **HYPOTHESIS**: the existence and uniqueness of its fixed point are an open task of the corpus [1].

The carrying principle of the whole work is fixed at the outset in affirmative form: what factually happened stays fixed, and its meaning is tuned. The past, as recalled, is a chosen point of perception over a fixed chronicle. The factual sequence of events is preserved intact; what is plastic is the significance attached to the event, its valence, narrative role, and place in the self-model. This distinction between the fixed factual fabric (idem, identity-as-permanence) and the mobile signifying self-interpretation (ipse, selfhood-as-appropriation) goes back to the narrative theory of personal identity [2] and keeps the whole work clear of the naive reading about rewriting the chronicle.

Each major claim is marked by an epistemic level. **L2-INVARIANT** denotes a structural result about the design of the control parameter, transferable from ODTOE. **PREDICTION** denotes an empirically testable consequence of applying this topology to identity. **HYPOTHESIS** denotes a claim that is open in the corpus or imported from an adjacent field at a phenomenological grade. Applied claims about consciousness and identity are carried at the prediction and hypothesis grades; the structural mechanics of the control parameter is carried as an L2-invariant [1].

## 2 Memory: A Fixed Chronicle and a Plastic Meaning

The distinction between the factual and the signifying receives a mechanistic grounding in memory reconsolidation. Retrieval of a consolidated trace returns it to a labile state, after which the trace requires re-stabilization [3]. The window of lability opens

access to editing, while what is rewritten is the meaning, valence, and links of the trace, namely what the trace corresponds to in the current model of the self, with the event protocol preserved. The rewriting occurs under prediction error: the mismatch between the expected and the observed serves as the condition that opens the trace for updating [4]. The update carries a variational cost, and the stability of the self reflects a balance between the cost of revising meaning and the benefit of aligning with the current field of attention [4, 5]. An active-inference reading of the self-model treats this alignment as the minimization of variational free energy over the subject’s own model [6].

Hence an honest reading of the plasticity of the past. The past, as recalled, is a chosen point of perception over a fixed chronicle: the subject re-appropriates the significance of the trace (the ipse level) while preserving the factual fabric (the idem level) [2]. The reconstructive character of autobiographical memory supports this reading: recollection restores the signifying structure of an event under the current model of the self, while preserving its factual core [7]. Reconstructive recollection draws on the same generative system as the imagining of a possible, un-lived line of experience: retrieving and simulating an alternative self-description form a single constructive process over a fixed factual frame [8, 7]. This yields the correct reading of the question of a “past life”: it is a constructive simulation of a possible self-line under current precision-weighting, with the chronicle preserved unchanged. The reading of the question of a “past life” as a constructive simulation of a possible self-line is carried as a **PREDICTION** [8]. The resonance of a memory is the degree of correspondence of a trace to present attention: recollection actualizes those traces whose significance aligns with the current model of the self. The principle of this rewriting (meaning is plastic under prediction error, the chronicle stays fixed) is carried as a **PREDICTION** about the mechanism of reconsolidation [3, 4]; the concrete variational cost of the rewriting receives the grade of a **HYPOTHESIS** of the environment [5].

The dynamics of meaning obeys a condition of metric plasticity: the rate of revision of the internal meaning-metric  $M$  must be no less than the rate of drift of the signifying environment  $E$ ,

$$\frac{dM}{dt} \geq \frac{dE}{dt}. \quad (3)$$

Here  $M$  is the meaning-metric (how the subject evaluates the significance of traces for the model of the self), and  $M$  is strictly a meaning-metric, never a metric of events or of spacetime; there is no retrocausality here. If the signifying environment changes faster than the meaning-metric is revised, the subject begins to optimize an outdated self-interpretation ideally. Hence the principle: the choice of the meaning-metric is equivalent to the choice of the subject’s experienced reality, and a good meaning-metric is one that can be revised without destroying a connected self,

$$M_{\text{choice}} \equiv R_{\text{choice}}. \quad (4)$$

The equivalence (4) acts strictly at the level of meaning: it sets the experienced significance of traces while preserving the fixed factual chronicle of events. The principle (3)

is inherited from the structural level of ODTOE and is carried as an **L2-INVARIANT** [1]; the numerical drift threshold is a hypothesis of the environment.

### 3 Attention as Precision-Weighting

The observation operator  $\hat{O}$  receives a mechanistic reading through attention as precision-weighting. In predictive processing, attention is the assignment of expected precision (the inverse of variance) to sensory and mnemonic channels; raising the precision of a channel strengthens its contribution to model updating [9]. In terms of self-observation, attention sets the weights with which memory traces enter the current model of the self: a highly weighted trace gains greater significance and a greater place in the self-description, while a low-weighted one recedes to the periphery. The reading stays mechanistic [9].

In operator notation, selection and integration are separated explicitly: the operator  $\hat{O}$  selects (weights by precision), the operator  $\iota$  integrates the selected content into a connected self,

$$\Psi^* = \iota(\hat{O}_\Psi(\Psi)), \quad \hat{O}_\Psi = \sum_k \pi_k \hat{P}_k, \quad \pi_k \geq 0, \quad (5)$$

where  $\pi_k$  is the precision weight of trace  $k$ , and  $\hat{P}_k$  is the projector onto the corresponding memory component. The self as a coherent fixed point (1) is a stable distribution of these weights: a configuration of attention that reproduces itself under repeated self-observation. The reading of attention as a precision weight in the self-observation operator is carried as a **PREDICTION** [9], while the concrete spectral form of the weights  $\pi_k$  is a **HYPOTHESIS** of the model.

### 4 The Control Parameter of Identity and the Interior Optimum

Self-observation unfolds through a superposition of two fields: a converging external field of the signifying environment and a resisting internal field of the present self-model,

$$U = U_1 + U_2. \quad (6)$$

The update of the model of the self is given by a convex combination of an aligning operator  $G$  (assimilation of the trace into the present narrative) and a revising operator  $C$  (revision of the meaning of the trace),

$$x_{i+1} = (1 - \rho) G(x_i) + \rho C(x_i), \quad \rho \in [0, 1], \quad (7)$$

where  $\rho$  is the fraction of meaning-revision in self-consistency. The topology of the parameter  $\rho$  is arranged as follows. As  $\rho \rightarrow 0$  the subject assimilates every trace into a

fixed self-narrative without revision, which yields rigidity and fusion with one's story. As  $\rho \rightarrow 1$  the subject continuously revises the meaning of every trace without holding a connected self, which yields a breakdown of identity and, in the limit, dissociation. Between them lies the interior optimum  $\rho^*$ , the zone of a flexible stable self,

$$\left. \frac{\partial \text{Quality}}{\partial \rho} \right|_{\rho=\rho^*} = 0, \quad 0 < \rho^* < 1. \quad (8)$$

This is the pervence of the self: identity quality has a single-peaked profile in the fraction of meaning-revision. The topological invariant of the existence of an interior optimum is transferred from the structural level of ODTOE and is carried as an **L2-INVARIANT** [1]; the numerical value of  $\rho^*$  is a hypothesis that depends on the environment (see Section 11).

## 5 The Signature of the Ideal Error: The Over-Densified Self-Narrative

The central claim of the work in its application to identity: maximal coherence of the self-narrative is the signature of the most dangerous error of the self-model. A coherent collapse of self-observation optimizes the connectedness of the story; the correspondence of the self-model to the current signifying environment is a different quantity, and the gap between them forms the space of the ideal error,

$$\text{Coherence} \uparrow \not\Rightarrow \text{Truth} \uparrow, \quad \delta_{\text{ideal}} = \Psi_{\text{coherent}}^* - \Psi_{\text{factual}}. \quad (9)$$

Here  $\Psi_{\text{factual}}$  denotes the signifying state aligned with the factual fabric and the current environment, and  $\Psi_{\text{coherent}}^*$  denotes the over-densified self-narrative collapsed to a maximum of internal connectedness.

The over-densified self-narrative is the cognitive virtual cathode of identity: a connected, convincing, and systemically non-adaptive self-story. The empirical face of this ideal error is given affirmatively through three manifestations. Rigidity of the self-schema: a firmly fixed story about oneself resists updating even under a strong prediction error [7]. Rumination: a closed cycle of over-densifying the negative significance of a single trace draws the model of the self toward a narrow attractor. Fusion with one's story: the subject identifies with a fixed narrative and loses the distance for revision, and the flexibility of the self-narrative supports the stability of the self [7]. The opposite edge  $\rho \rightarrow 1$  yields a breakdown of the connected self and, in the limit, dissociation; active-inference models link such a disturbance of the sense of self and agency to a disorder of the precision-weighting of the internal model [6]. The identification of the maximum of self-narrative coherence with the signature of the ideal error is carried as a **PREDICTION** (see P2, P4 of Section 13).

The counter-gradient component  $C(x)$  in the update (7) holds the self away from collapsing too early into the over-densified narrative; it is anti-correlated with the

local gradient of growing connectedness,

$$\langle C(x), \nabla f(x) \rangle < 0. \quad (10)$$

From the existence of the interior optimum (8) follows the necessity of a non-zero meaning-revision  $\rho^* > 0$ : a flexible revision of the significance of traces appears as a structural requirement of a stable identity.

## 6 Order Effects: A Quantum-Like Analogy

Self-observation exhibits a sensitivity to the order of acts of observation, for whose description a quantum-like formalism is invoked. Two operators of self-observation over different aspects of the self in general do not commute,

$$\hat{O}_A \hat{O}_B \neq \hat{O}_B \hat{O}_A \Rightarrow \text{order effects}, \quad (11)$$

from which it follows that the order of self-questioning affects the resulting self-assessment. The state of the self before an act of determining observation is conveniently written as a superposition of several potential self-descriptions,

$$|\psi\rangle = \sum_k c_k |k\rangle, \quad \sum_k |c_k|^2 = 1, \quad (12)$$

where the act of self-observation plays the role of a measurement that localizes the self-description. This formalism is a formal analogy at the level of control-parameter topology, without identification of physical quantities; the status of quantum-like cognitive dynamics is held weak (**HYPOTHESIS**) [10, 11]. The empirical anchor is supplied by quantum cognition, which describes order and interference effects in human judgment better than a classical Bayesian model at an equal number of parameters [10]; a formal grounding of order effects in terms of quantum measurement theory clarifies how a sequence of non-commuting observations sets the resulting distribution [11]; the transfer of this model to self-judgment is carried as a **HYPOTHESIS** (see P10 of Section 13).

## 7 The Field of Life: A Phenomenological Hypothesis

The collection of traces and their signifying weights is conveniently thought of as a field over which the self is a local fixed point,

$$\Psi^* \in \mathcal{M}, \quad \mathcal{M} = \{\Psi : \Psi = \iota(\hat{O}_\Psi(\Psi))\}, \quad (13)$$

where  $\mathcal{M}$  is the manifold of admissible self-consistent configurations. The extension of this picture to a notion of a field of life, in which separate fixed points of self-observation are local solutions over a shared signifying manifold, is held strictly at the

phenomenological level and is carried as a **HYPOTHESIS**. There is no claim of retro-causality here and no metric of events: the manifold  $\mathcal{M}$  is a space of meanings, with no metric of spacetime present. Identity over this field is a chosen self-consistent point of perception, and its stability is set by the same conditions of the interior optimum (8) and metric plasticity (3). The philosophical background is supplied by a reductionist account of personal identity, in which personal identity reduces to relations of psychological connectedness and continuity [12]; the transfer to the field of life remains a phenomenological hypothesis with no ontological claim.

## 8 Identity Attractors and the Relational Field of Ties

The local fixed points of self-observation (13) are usefully read as basins of attraction over the manifold of meanings: each stable self-description is an attractor with a restoring force that pulls deviations back toward a baseline configuration. A dynamic-systems reading of personality operationalizes this picture through the triad of baseline, variability, and attractor strength, the last of which sets the speed of return to base [13]. In the present terms an image (sage, warrior, explorer, creator) is an attracting state in identity space: connection with the image sets a local attractor that shapes decisions and values through the force it awakens now, with the factual chronicle kept intact. The reading of an archetypal image as an attractor-basin over the manifold (13) is carried as a **PREDICTION**; the concrete basin shape is a hypothesis of the model.

A shift of the interior tuning  $\rho^*$  re-assembles the subject's circle of ties. Social-tie formation follows homophily: ties form along similarity of internal states and attributes [14]. Hence a change of self-tuning re-sorts the field of ties along a new similarity, and the distant answers back while the foreign grows near as a function of the shifted interior frequency. The relational re-assembly of the circle of ties under a shift of  $\rho^*$  is carried as a **PREDICTION**; the rate and scale of the re-assembly are a hypothesis of the environment.

The self is constituted in a relational field. The enactive approach to social cognition reads meaning as co-enacted in interaction, where another subject is a facet through which the self performs the act of sense-making [15]. The operator reading of the collective subject carries this onto the field of life: a single fixed point of self-observation is a local solution over a shared manifold of meanings, and each identity is a way of touching the whole [16]. Each act of attention is thereby an act of self-constitution: the self is enacted through its own activity of distinction, with the factual frame preserved. The relational-enactive constitution of the self and the reading of the act of attention as self-constitution are carried as a **HYPOTHESIS**.

## 9 Freedom as an Illustrative Heuristic

The degree of subjective freedom is conveniently linked to three quantities of identity topology: the fraction of meaning-revision  $\rho^*$ , the connectedness of the self-model  $C$ , and metric plasticity  $M$ ,

$$\text{Freedom} \sim \rho^* \cdot C \cdot M. \quad (14)$$

The relation (14) is offered as an illustrative heuristic at the level of qualitative intuition: it fixes the notion that freedom requires simultaneously a non-zero capacity to revise meaning ( $\rho^* > 0$ ), the holding of a connected self ( $C > 0$ ), and a plastic meaning-metric ( $M > 0$ ), and it goes to zero upon the failure of any factor. The multiplicative form gives a weak-link property: the vanishing of any factor zeroes subjective freedom. The formula (14) is carried at the grade of a **HYPOTHESIS** and makes no claim to numerical calibration. The psychological background is supplied by the line on the plasticity of self-conceptions and their link to resilience under failure [17], with a caveat about the modest effect size in the meta-analytic literature on interventions.

## 10 An Honest Reframing: What Is Fixed and What Is Tuned

This section conducts the main honest reframing of the whole work and holds it strictly. What factually happened stays fixed, and its meaning is tuned. What is plastic is the meaning-metric  $M$ , and  $M$  is a meaning-metric, never a metric of events or a metric of spacetime. The rewriting under reconsolidation [3, 4] acts on the meaning, valence, and narrative role of the trace, while the factual chronicle of the event is preserved intact. There is no retrocausality here: the dynamics  $dM/dt \geq dE/dt$  unfolds forward in time over interpretation and narrative, and it leaves past events unchanged.

Hence the correct reading of the three formulas of the work. The past, as recalled, is a chosen point of perception over a fixed chronicle: the subject reappropriates the significance of the trace (ipse) while preserving the facts (idem) [2]. The resonance of a memory is the degree of correspondence of a trace to present attention [9]: recollection is a precision-weighted selection of a trace over the fixed chronicle of the event. The field of life (13) is a manifold of meanings, and the point of identity over it is a choice of a self-consistent perspective, with no ontological claim about events. The distinction of levels is drawn strictly: the plasticity of meaning is carried as a **PREDICTION** about reconsolidation [3, 4], metric plasticity as an **L2-INVARIANT** [1], and the field of life as a **HYPOTHESIS**.

# 11 The Identity-Control Regime Selector and Governance Contingency

The boundaries of an invariant are part of it. The optimal fraction of meaning-revision  $\rho^*$  is a function of the cost of an error of the self-model and the volatility of the signifying environment,

$$\rho^* = \rho^*(c_{\text{err}}, \text{Vol}(E)), \quad (15)$$

where in environments of growth and creativity with a low error cost the optimum is interior and raised, while in crisis environments with an irreversible error cost the optimum shifts toward the minimum,

$$c_{\text{err}} \rightarrow \infty \Rightarrow \rho^* \rightarrow \rho_{\text{min}}, \quad (16)$$

and a flexible self-consistency yields to a self-holding protocol. This removes the dangerous reading of the invariant “identity-as-continuous-revision” as a universal prescription.

The identity-control regime selector reduces the topology to three qualitative bands (Table 1). The bands are qualitative, with no fitting of point estimates; the names of the environment classes are illustrative labels with no evidential load. The monotone direction of  $\rho^*$  in the error cost is carried as a **PREDICTION**, while the placement of a concrete life situation within a band receives the grade of a **HYPOTHESIS**.

Table 1: The identity-control regime selector: qualitative bands of the optimal fraction of meaning-revision  $\rho^*$  by the error cost of the self-model  $c_{\text{err}}$  and the volatility of the signifying environment  $\text{Vol}(E)$  (qualitative bands, illustrative labels).

Environment class (illustrative label)	Error cost $c_{\text{err}}$	Optimum $\rho^*$	Control regime
Creativity, growth	low	raised interior	self-consistency
Social roles	mid	moderate interior	mixed
Crisis, safety	irreversible	$\rho^* \rightarrow \rho_{\text{min}}$	protocol priority

The unifying invariant itself can become an ideal error: a connected and convincing formula of identity that misses a part of the subject’s reality. Governance Contingency is a built-in defence against such a collapse: it asserts a domain of applicability in place of a claim to universality. The placement of a concrete environment within a band of Table 1 is held as a **HYPOTHESIS**, while the monotone shift  $\rho^* \rightarrow \rho_{\text{min}}$  under a rising error cost is carried as a **PREDICTION** (see P9).

## 12 The Validation Program

The correspondence of the predictions to applied observables forms a program of tests to run; no correspondence here is declared confirmed. Table 2 maps to each prediction  $P1-P10$  an applied observable and its falsifier. A particular caveat concerns the applied operationalization of meaning-rewriting: early reports of fear erasure through the reconsolidation window met with mixed replication results [4], and therefore the associated observable is held at the grade of a **HYPOTHESIS** subject to independent verification, with no status of an established result.

Table 2: The validation program: correspondence of predictions  $P1-P10$  to applied observables (tests to run; no correspondence is declared confirmed).

Pred.	Applied observable	Falsifier	Grade
P1	Identity quality vs the fraction of revision $\rho$	Monotonicity instead of a peak	PREDICTION
P2	Adaptivity vs the densification of the self-narrative	Absence of a turn to rigidity	PREDICTION
P3	Flexibility of the self at the edge of order-chaos	A flat profile with no peak	PREDICTION
P4	Coherence of the story vs its correspondence	A joint rise of both	PREDICTION
P5	Plastic meaning-metric vs a frozen one under drift	Superiority of the frozen metric	PREDICTION
P6	Meaning-rewriting under prediction error	Rewriting without prediction error	PREDICTION
P7	Precision weight of a trace vs its inclusion in the self	Independence from the precision weight	PREDICTION
P8	Variational cost of meaning-revision	A free meaning-revision	PREDICTION
P9	Optimum $\rho^*$ as the self-model error cost rises	An unchanged $\rho^*$ in a crisis	PREDICTION
P10	Order effects in self-judgment	Absence of order effects	HYPOTHESIS

## 13 Conclusion: Predictions, Boundaries, and a Falsifiable Program

The transfer of a single structural invariant onto identity is confirmed: the self is a coherent fixed point of self-observation with an interior optimum  $\rho^*$ , and the maximum of self-narrative coherence is the signature of the ideal error,

$$\Psi^* = \Phi_{\rho^*}(\Psi^*), \quad 0 < \rho^* < 1, \quad (17)$$

$$\text{Quality}(\rho) \text{ single-peaked}; \quad \max_{\rho} \text{Coherence} = \text{signature}(\delta_{\text{ideal}}). \quad (18)$$

**Epistemic stratification.** The structural invariants (**L2-INVARIANT**) are the superposition form (7), the existence of the interior optimum (8), and the principle of metric plasticity (3) [1]. The predictions are the ten empirically testable consequences listed below, together with the reading of an archetypal image as an attractor-basin over the field of meanings and the homophilic re-assembly of the circle of ties under a shift of the self-tuning  $\rho^*$  (Section 8) [13, 14]. The hypotheses are the fixed-point operator  $\Phi$  (2), the numerical value of  $\rho^*$  (15), the field of life (13), the freedom formula (14), and the relational-enactive constitution of the self (Section 8) [1, 12, 15].

**Ten predictions.** The program is operationalizable and falsifiable.

**P1 (inverted U of quality versus revision).** Identity quality as a function of the fraction of meaning-revision  $\rho$  is single-peaked with an interior maximum  $\rho^* \in (0, 1)$ : as  $\rho \rightarrow 0$  rigidity and fusion with one's story, as  $\rho \rightarrow 1$  a breakdown of the connected self. A monotone dependence of quality on  $\rho$  falsifies the existence of the interior optimum (**PREDICTION**, sharpest).

**P2 (over-densification yields rigidity).** A rise of the densification of the self-narrative past the turning point measurably lowers the adaptivity of the self-model under control of environmental complexity; an absence of a turn to rigidity under arbitrarily strong densification falsifies the mechanism of the ideal error of identity (**PREDICTION**).

**P3 (flexibility peak at the edge of order-chaos).** A flexible stable self reaches a maximum in a narrow zone between rigid order and dissociative chaos at an intermediate  $\rho$ ; a flat or monotone profile falsifies the topology of the interior optimum (**PREDICTION**).

**P4 (story coherence lowers correspondence).** A rise of the internal coherence of the self-narrative past the optimum measurably lowers the correspondence of the self-model to the current environment; a simultaneous rise of coherence and correspondence falsifies the identification of the maximum of coherence with the signature of error (**PREDICTION**).

**P5 (a plastic meaning-metric beats a frozen one under drift).** Subjects with a metric plasticity of meaning  $dM/dt \geq dE/dt$  outperform subjects with a frozen

meaning-metric under drift of the signifying environment; a superiority of the frozen metric under accelerating drift falsifies the principle of metric plasticity (**PREDICTION**).

**P6 (meaning-rewriting requires prediction error).** The rewriting of the meaning of a trace in the reconsolidation window occurs in the presence of a prediction error and does not occur in its absence; a meaning-rewriting without prediction error, or its absence under a strong error, falsifies the mechanism of meaning-reconsolidation (**PREDICTION**).

**P7 (precision weight determines inclusion in the self).** The precision weight of a trace predicts its inclusion in the current model of the self under control of the content of the trace; an independence of inclusion from the precision weight falsifies the reading of attention as an operator of selection (**PREDICTION**).

**P8 (meaning-revision carries a variational cost).** A revision of the meaning of a trace is coupled with a measurable variational cost growing with the magnitude of the revision; a free arbitrary meaning-revision falsifies the variational treatment of the stability of the self (**PREDICTION**).

**P9 ( $\rho^* \rightarrow \min$  in crisis loops).** As the self-model error cost rises and approaches the irreversible, the optimal fraction of meaning-revision  $\rho^*$  falls monotonically toward the minimum, and a flexible self-consistency yields to a self-holding protocol; an unchanged or rising  $\rho^*$  in crisis loops falsifies Governance Contingency (**PREDICTION**, boundary of the invariant).

**P10 (quantum-like order effects in self-judgment).** Self-judgments about coherent aspects of identity exhibit quantum-like order and interference effects, described by a quantum-like model better than a classical Bayesian one at an equal number of parameters; an absence of order effects or a superiority of the classical model falsifies the quantum-like reading of self-observation (**HYPOTHESIS**, boldest).

**Boundaries and risk.** The boundaries are fixed honestly. The transfer of the control-parameter topology onto identity is a structural analogy at the level of the shape of a landscape with an interior peak, with the quantities differing; a literal transfer of a single scalar forms a risk of a cargo cult of resonance [1]. The quantum-like formalism (11), the field of life (13), and the freedom formula (14) are held at the levels of analogy, phenomenological hypothesis, and illustrative heuristic respectively. If the invariant is correct, it must include the conditions of its own inapplicability: the inclusion of the boundaries into the theory itself is a quiet turn at the level of the theory itself. The ten predictions are put forward as an operationalizable agenda for empirical testing, drawing on an operator reading of the collective subject [16].

## CONFLICT OF INTEREST

The author declares no conflict of interest.

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## References

- [1] Pankratov A.S. ODTOE as an engineering framework for coherence of technical systems: operator formalism, metrology of the  $B$ -parameter, and applications in cyber-physical, multi-agent, and AI systems // *Universum: Technical Sciences*. 2026. No. 6(147). P. 70–73. URL: <https://7universum.com/ru/tech/archive/item/22875>.
- [2] Ricoeur P. *Oneself as Another*. Chicago: University of Chicago Press, 1992. 363 p.
- [3] Nader K., Schafe G. E., LeDoux J. E. Fear memories require protein synthesis in the amygdala for reconsolidation after retrieval // *Nature*. 2000. Vol. 406. P. 722–726. DOI: 10.1038/35021052.
- [4] Fernández R. S., Boccia M. M., Pedreira M. E. The fate of memory: reconsolidation and the case of prediction error // *Neuroscience & Biobehavioral Reviews*. 2016. Vol. 68. P. 423–441. DOI: 10.1016/j.neubiorev.2016.06.004.
- [5] Hyland D., Albarracín M. On the variational costs of changing our minds // *arXiv preprint*. 2025. arXiv:2509.17957. DOI: 10.48550/arXiv.2509.17957.
- [6] Ciaunica A., Seth A., Limanowski J., Hesp C., Friston K. J. I overthink—therefore I am not: an active inference account of altered sense of self and agency in depersonalisation disorder // *Consciousness and Cognition*. 2022. Vol. 101. Art. 103320. DOI: 10.1016/j.concog.2022.103320.
- [7] Fivush R., Grysman A. Accuracy and reconstruction in autobiographical memory: (re)consolidating neuroscience and sociocultural developmental approaches // *WIREs Cognitive Science*. 2023. Vol. 14, No. 3. Art. e1620. DOI: 10.1002/wcs.1620.
- [8] Schacter D. L., Addis D. R. The cognitive neuroscience of constructive memory: remembering the past and imagining the future // *Philosophical Transactions of the Royal Society B: Biological Sciences*. 2007. Vol. 362, no. 1481. P. 773–786. DOI: 10.1098/rstb.2007.2087.
- [9] Feldman H., Friston K. J. Attention, uncertainty, and free-energy // *Frontiers in Human Neuroscience*. 2010. Vol. 4. Art. 215. DOI: 10.3389/fnhum.2010.00215.

- [10] Pothos E. M., Busemeyer J. R. Quantum cognition // *Annual Review of Psychology*. 2022. Vol. 73. P. 749–778. DOI: 10.1146/annurev-psych-033020-123501.
- [11] Fuyama M., Khrennikov A., Ozawa M. Quantum-like cognition and decision-making in the light of quantum measurement theory // *Philosophical Transactions of the Royal Society A*. 2025. Vol. 383. Art. 20240372. DOI: 10.1098/rsta.2024.0372.
- [12] Parfit D. *Reasons and Persons*. Oxford: Oxford University Press, 1984. 543 p.
- [13] Sosnowska J., Kuppens P., De Fruyt F., Hofmans J. A dynamic systems approach to personality: the Personality Dynamics (PersDyn) model // *Personality and Individual Differences*. 2019. Vol. 144. P. 11–18. DOI: 10.1016/j.paid.2019.02.013.
- [14] McPherson M., Smith-Lovin L., Cook J.M. Birds of a feather: homophily in social networks // *Annual Review of Sociology*. 2001. Vol. 27. P. 415–444. DOI: 10.1146/annurev.soc.27.1.415.
- [15] De Jaegher H., Di Paolo E. Participatory sense-making: an enactive approach to social cognition // *Phenomenology and the Cognitive Sciences*. 2007. Vol. 6, no. 4. P. 485–507. DOI: 10.1007/s11097-007-9076-9.
- [16] Pankratov A. S. The collective observer and the culture of humanity: an operator reading of solidarity, the family, and the state // *Bulletin of the Council of Young Scientists and Specialists in Social and Agrarian Sciences*. 2026. No. 61. Art. 1698. URL: <https://vsoa.esrae.ru/ru/236-r1698>.
- [17] Dweck C. S. *Self-theories: Their Role in Motivation, Personality, and Development*. Philadelphia: Psychology Press, 1999. 195 p.