THE CINEMATOGRAPH OF REALITY: INFORMATION, MEMORY AND PLAYBACK IN ODTOE

Where all information is stored and how to “view” any reality

(Кинематограф реальности: информация, память и воспроизведение в ODTOE)

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ABSTRACT

Within the framework of the Observer-Dependent Theory of Everything (ODTOE), two interrelated questions are investigated: (1) what is the ontological status of information and where is it “stored”; (2) is it possible to access an arbitrary “frame” of an arbitrary reality. It is shown that the field of potential states $\mathcal{H}$ is not a repository of information in the usual sense but represents a *structure of possibilities* from which the operator $\hat{O}$ actualizes configurations. The world line $W = \{\Psi_n^*\}_{n\in\mathbb{Z}}$ exists in $\mathcal{H}$ as a single inseparable object; the “past” and “future” are not lost or nonexistent frames but cross-sections of W accessible through the projection of $\hat{O}$ onto the corresponding iteration parameter. Kozyrev’s experiments are interpreted as a direct demonstration of access to three temporal cross-sections of a star’s world line. The concept of the *operator window width* Δn is introduced — the number of loop iterations simultaneously accessible to a given operator. An access scale is established: from $\Delta n = 1$ (standard perception of “now”) through $\Delta n \sim 10^2$ (memory, foresight) to $\Delta n \to \infty$ (full access to the world line). The connection with the holographic principle, black holes, and the question of irreversibility is discussed.

Keywords: information, field of potential states, world line, observation operator, temporal cross-section, Kozyrev experiment, operator window width, holographic principle, ODTOE.

АННОТАЦИЯ

В рамках наблюдатель-зависимой теории всего (ODTOE) исследованы два взаимосвязанных вопроса: (1) каков онтологический статус информации и где она «хранится»; (2) возможен ли доступ к произвольному «кадру» произвольной реальности. Показано, что поле потенциальных состояний $\mathcal{H}$

не является хранилищем информации в обычном смысле, а представляет собой *структуру возможностей*, из которой оператор $\hat{O}$ актуализирует конфигурации. Мировая линия $W = \{\Psi_n^*\}_{n\in\mathbb{Z}}$ существует в $\mathcal{H}$ как единый несепарабельный объект; «прошлое» и «будущее» — не утраченные или несуществующие кадры, а сечения W, доступные через проекцию $\hat{O}$ на соответствующий параметр итерации. Козыревские эксперименты интерпретируются как прямая демонстрация доступа к трём временным сечениям мировой линии звезды. Введено понятие *ширины операторного окна* Δn — числа итераций петли, одновременно доступных данному оператору. Установлена шкала доступа: от $\Delta n = 1$ (стандартное восприятие «сейчас») через $\Delta n \sim 10^2$ (память, предвидение) до $\Delta n \to \infty$ (полный доступ к мировой линии). Обсуждается связь с голографическим принципом, чёрными дырами и вопросом необратимости.

Ключевые слова: информация, поле потенциальных состояний, мировая линия, оператор наблюдения, временно́е сечение, козыревский эксперимент, ширина операторного окна, голографический принцип, ODTOE.

I. STATEMENT OF THE PROBLEM

1.1. Two Questions

Any theory claiming completeness in describing reality must answer two fundamental questions about information:

(Q-1) Where is information stored? Standard physics places information in the states of physical systems — particle positions, field values, quantum numbers. But what defines the *set of possible* states? And is information about past configurations preserved after the system has transitioned to a new state? Wheeler's idea of "it from bit" [17] sharpened this question by suggesting that information is more fundamental than matter.

(Q-2) Can one "view" an arbitrary reality? If the multiverse contains $|M| \leq K^{N(1-S)}$ configurations [1, formula P1.2], is there a way to access any of them — to "switch the channel" or "fast-forward the film"?

1.2. The Cinematographic Metaphor

The film reel metaphor turns out to be structurally precise. The projector ($\hat{O}$) illuminates a frame ($\Psi_n \in \mathcal{H}$) and projects an image onto the screen ($R_n \in \mathcal{C}$). The film contains all frames simultaneously; the projector shows one at a time. The "past" consists of frames that have already passed through the projector; the "future" consists of those that have not yet passed. But the film *physically contains* both.

The question is: can one rewind? Switch to a different film? And what is the film itself made of?

II. TWO SPACES: WHERE EVERYTHING RESIDES

2.1. $\mathcal{C}$ — the Screen

The configuration space $\mathcal{C}$ is a Riemannian manifold of all possible states of reality [1, formula 4.1]. A specific configuration $R \in \mathcal{C}$ is what the observer perceives as "the world right now." This is the *screen*: it displays one frame. The screen does not store previous frames — it shows the current one.

Information in $\mathcal{C}$ is *ephemeral*: a configuration R_n exists as long as it is sustained by coherence S (postulate P3: $T(C) = T_0/(1-S)^n$ [1]). At $S < 1$ the configuration has a finite lifetime and is replaced by the next one.

2.2. $\mathcal{H}$ — the Film

The field of potential states $\mathcal{H}$ is an infinite-dimensional Hilbert space (formalizable as a rigged Hilbert space in the sense of Gelfand [2]), containing *all possible* configurations as potential (non-actualized) states. By assumption D-Rich [1]: $\mathcal{H}$ contains projections onto subspaces of arbitrary type.

$\mathcal{H}$ is the *film*, but not an ordinary one: it contains not a single sequence of frames but *all possible sequences* — all films that could ever have been made.

2.3. $\hat{O}$ — the Projector

The observation operator $\hat{O} : \mathcal{H} \to \mathcal{C}$ [1, formula A.1] is the projection mechanism. It selects a specific element Ψ from $\mathcal{H}$ and actualizes it as $R = \hat{O}(\Psi)$. The "selection" is determined by the observer's state $O = (B, A, H, d)$ [1, formula 4.2]:

$$R = \hat{O}_{(B,A,H,d)}(\Psi) \tag{II.1}$$

The attention focus archetype A determines *which* region of $\mathcal{H}$ is projected; belief B determines with what probability; history H determines from which region of $\mathcal{H}$ the next frame is sought; dimensionality d determines to what depth of recursion the projection is accessible.

III. THE WORLD LINE AS AN OBJECT IN $\mathcal{H}$

3.1. Definition

The sequence of strange loop iterations generates the world line:

$$W = \{\Psi_n^*\}_{n \in \mathbb{Z}}\,, \qquad \Psi_{n+1}^* = \Phi(\Psi_n^*) + \delta\Psi_n \tag{III.1}$$

where $\Phi = \iota \circ \hat{O}$ is the self-observation map [1, formula U4.1], $\delta\Psi_n$ is the spiral gap (transcendence of π, [3]). The index n is not time in the usual sense but the *iteration number* of the loop.

Each world line W exists in $\mathcal{H}$ as a single object — not a "set of consecutive frames" but a connected curve in an infinite-dimensional space. The "past" ($n < n_0$), "present" ($n = n_0$), and "future" ($n > n_0$) are cross-sections of one and the same object W at different values of the parameter n.

3.2. Kozyrev's Proof

In the experiments of Kozyrev and Nasonov [4, 5], a telescope with a closed objective detected three positions of a star: the visible position (past, $n < n_0$), the calculated true position (present, $n = n_0$), and the symmetric future position ($n > n_0$). Analogous results were obtained by Lavrentiev et al. [18].

ODTOE interpretation [6, 15]: the operator $\hat{O}_{\text{astron}}$ directed at the world line W_{star} in $\mathcal{H}$ projects *the entire curve*, not a single point. The three signals are three cross-sections of a single object W.

This is direct experimental evidence that W exists *in its entirety*: information about the star's "past" and "future" is neither lost nor nonexistent — it is *actual* in $\mathcal{H}$, although it is usually projected into $\mathcal{C}$ as only one "frame."

3.3. Why We See One Frame

Standard perception = one frame (R_{n_0}). Why? The answer lies in the structure of the operator $\hat{O}$.

Let us introduce the concept of the *operator window width*:

$$\Delta n(\hat{O}) = \text{number of iterations } n, \text{ simultaneously projected by the operator} \quad \text{(III.2)}$$

For the standard human observer:

$$\Delta n_{\text{human}} \approx 1 \quad \text{(III.3)}$$

The operator projects one "frame" — the current configuration. This is not a fundamental limitation but a property of a specific operator, determined by the archetype A and dimensionality d.

IV. INFORMATION: NOT STORAGE, BUT STRUCTURE

4.1. Answer to Question Q-1

Information in ODTOE is *not stored* — it *is* the structure of $\mathcal{H}$.

Analogy: the number π is not "stored" anywhere — it *is* the ratio of the circumference to the diameter. One can write down its approximation (3.14159...) on paper, but the paper is not π. The number π is a structural property of Euclidean geometry [3]. Similarly: a specific configuration R_n is not a "record" of information but a *projection* of the structure of $\mathcal{H}$ onto $\mathcal{C}$.

Formally: $\mathcal{H}$ is defined by axiom (A) as an infinite-dimensional space *generated* by the very act of observation. It does not precede observation (which would lead to the regress "and who created $\mathcal{H}$?") but is *constituted simultaneously* with the observer — through the fixed point $\Psi^* = \Phi(\Psi^*)$ [1, Proposition 4].

4.2. Three Levels of "Information"

(Level 1) Potential information — the structure of $\mathcal{H}$ as a whole. Contains all possible world lines, all possible observers, all possible configurations. Not actualized; exists as a space of possibilities.

(Level 2) Actual information — a specific configuration $R_n = \hat{O}(\Psi_n)$, projected into $\mathcal{C}$ at a given iteration. This is the "current frame" — what the observer perceives. Lifetime: $T(C) = T_0/(1-S)^n$ [1].

(Level 3) Trajectory information — the world line $W = \{\Psi_n^*\}$, defined by a specific operator $\hat{O}$. An intermediate level: this is not the entirety of $\mathcal{H}$ but a specific "film" — the history of one reality. It exists in $\mathcal{H}$ in its entirety; it is accessible through expansion of Δn.

4.3. Indestructibility of Information

In standard physics, the question of information preservation gives rise to the black hole information paradox [7]. In ODTOE the paradox does not arise: information (= the structure of $\mathcal{H}$) cannot be destroyed, since $\mathcal{H}$ is constituted by the very act of observation and exists *prior to* the division into $\mathcal{C}$-configurations.

A black hole in $\mathcal{C}$ is a configuration with extreme inertia ($I(C) \to 1$) and maximal coherence ($S \to 1$), which by P3 gives $T(C) \to \infty$. Information that has "fallen" into a black hole is not destroyed: it remains part of the world line W in $\mathcal{H}$, inaccessible to operators $\hat{O}$ with $d < d_{\text{singularity}}$ (ontological protection [1, D-Prot]).

Hawking radiation [8] in ODTOE terms: the spiral gap $\delta\Psi$ at the boundary of the black hole generates minimal operator action (= radiation), gradually lowering $I(C)$ and S — the configuration slowly decays, releasing information back into $\mathcal{C}$.

V. HOW TO "VIEW THE FILM": EXPANDING THE OPERATOR WINDOW

5.1. Formalization of Access

Access to the world line W is determined by three parameters of the operator $\hat{O}$:

(a) Window width Δn — how many iterations are visible simultaneously.

(b) Offset n_0 — which "frame" is at the center of the window (= "present").

(c) World line address W_α — *which* of the $|M|$ realities is projected.

Standard observer: $\Delta n = 1$, n_0 = current iteration, W_α = own reality.

5.2. Mechanisms for Expanding Δn

Memory ($\Delta n \sim 10^1$–10^2). Human memory is a *partial expansion of the window into the past*. The observer has access not only to R_{n_0} but also to approximate copies $\tilde{R}_{n_0-k}$ for $k = 1, \ldots, \Delta n_{\text{mem}}$. The approximation is a consequence of finite capacity: H (observation history in [1, formula 4.2]) contains *compressed* projections of past configurations, not exact copies.

In ODTOE terms: the component H of the vector $O = (B, A, H, d)$ is a projection of the world line W onto the subspace accessible to the given operator:

$$H = \text{Proj}_{\dim \leq d}(W|_{n<n_0}) \tag{V.1}$$

Foresight ($\Delta n \sim 10^0$–10^1 into the future). Extrapolation is the projection of W onto $n > n_0$ with limited accuracy. By the reconfiguration dynamics formula [1, formula 4.4]:

$$\frac{dC}{dt} = -\frac{\alpha}{I(C) + \varepsilon}\nabla U(C) + \eta(t) \tag{V.2}$$

The stochastic term $\eta(t)$ with variance $D(\eta) = D_0(1-S)$ makes long-term prediction impossible at $S < 1$: noise blurs the trajectory. But at high coherence ($S \to 1$, $D \to 0$) the trajectory becomes deterministic and predictable — the window expands into the future.

Kozyrev regime ($\Delta n \gg 1$). The Kozyrev telescope is a technological extension of $\hat{O}$. The closed objective blocks the photonic channel ($\mathcal{C}$-path), leaving only the $\mathcal{H}$-connection. The operator "sees" the world line W_{star} in its entirety:

$$\Delta n_{\text{Kozyrev}} \geq 3 \;\; \text{(past, present, future)} \tag{V.3}$$

In the limit: as $\Delta n \to \infty$ the operator has access to the *entire* world line — "viewing the whole film."

5.3. Switching "Channels": Access to Another's World Line

By postulate P1 [1]: $|M| \leq K^{N(1-S)}$. The set of world lines:

$$\{W_\alpha\}_{\alpha=1}^{|M|} \tag{V.4}$$

Access to another's world line requires changing the archetype A and/or coherence S with the target reality. Formally: observer O_1 with archetype A_1 projects world line W_{α_1}; to access W_{α_2} one needs:

$$A_1 \to A_2 \ : \ \hat{O}_{(B,A_2,H,d)}(\Psi) = R^{(\alpha_2)} \tag{V.5}$$

Mechanism: changing the attention focus A reconfigures the operator to a different region of $\mathcal{H}$. In the limiting case — changing A while preserving B, H, d — the observer "switches the channel."

Limitation: switching is limited by the coherence S between the current and target reality. At $S_{12} \to 0$ the realities are completely separated; at $S_{12} > S_{\text{threshold}}$ [1, section P5] they overlap. Access is possible only to realities with nonzero overlap.

VI. THE ACCESS SCALE

Δn	**Mechanism**	**Subject**	**Status**
1	Standard perception	Human	Everyday experience
$\sim 10^1$	Short-term memory	Human	Neurophysiology
$\sim 10^2$	Long-term memory	Human	Psychology
$\sim 10^3$	Historical reconstruction	Collective	Science, archaeology
$3+$	Kozyrev regime	$\hat{O}_{\text{technol}}$	Experiment [4, 5, 18]
$\sim 10^{10}$	Cosmological observation	$\hat{O}_{\text{telescope}}$	Relic radiation
$\to \infty$	Full world line	$\hat{O}_{S\to 1}$	Theoretical limit

Cosmological observation ($\Delta n \sim 10^{10}$): the Webb telescope sees galaxies in the state $n_0 - 10^{10}$ years — literally a "film rewound backward." A photon is a frame from the distant past of a world line that has arrived via the $\mathcal{C}$-channel. The Kozyrev regime is the same access to the past, but via the $\mathcal{H}$-channel (without photons).

VII. THE HOLOGRAPHIC PRINCIPLE AND ODTOE

7.1. Standard Formulation

The holographic principle ('t Hooft [9], Susskind [10]): all information contained in a volume V can be encoded on its boundary ∂V with a density of no more than 1 bit per

4 Planck areas:

$$S_{\max} = \frac{A}{4l_P^2} \tag{VII.1}$$

7.2. Interpretation Through ODTOE

$\mathcal{C}$ is the "volume." $\partial\mathcal{C}$ is the boundary = the interface between $\mathcal{C}$ and $\mathcal{H}$. The holographic principle asserts that all information about the volume is encoded on the boundary. In ODTOE terms: all information about configurations *inside* $\mathcal{C}$ is determined by the structure of the operator $\hat{O}$ *at the boundary* $\mathcal{H} \to \mathcal{C}$.

The operator $\hat{O}$ is the "hologram": a two-dimensional (in the sense of "boundary") object encoding a three-dimensional (in the sense of "bulk") reality. The Planck limit l_P sets the minimal scale at which the operator $\hat{O}$ still resolves distinct projections — below this scale $\hat{O}$ has no projections ($d < d_{\min}$), and information is not actualized.

7.3. Maximum Information Capacity of Reality

The number of distinguishable configurations in volume V:

$$N_{\text{conf}} \leq \exp\left(\frac{A}{4l_P^2}\right) \tag{VII.2}$$

By postulate P1 [1]: $|M| \leq K^{N(1-S)}$. Identification:

$$K^{N(1-S)} \sim \exp\left(\frac{A}{4l_P^2}\right) \tag{VII.3}$$

whence:

$$N(1-S) \sim \frac{A}{4l_P^2 \ln K} \tag{VII.4}$$

This formula relates the *number of observers* N, *coherence* S, and *horizon area* A. At $S \to 1$: the left-hand side $\to 0$, which is consistent with $A \to 0$ (collapse to a single configuration). At $S \to 0$: maximum diversity, bounded by the area.

VIII. PRACTICAL IMPLICATIONS: HOW TO EXPAND THE WINDOW

8.1. Individual Methods

From the formula $\Delta n = f(A, B, S, d)$ it follows that expanding the window requires modification of the components of the vector $O = (B, A, H, d)$.

Attention focus A**:** meditative practices aimed at expanding the "field of attention" (from point-like to panoramic) formally correspond to enlarging the region of $\mathcal{H}$ covered by the operator $\hat{O}$. Neurophysiological correlate: activation of the default mode network (DMN), associated with autobiographical memory and predictive modeling [11].

Coherence S**:** growth of internal coherence ($F \to 1$, $E \to 1$, $\sigma \to 0$, $\Lambda \to 1$ in formula D1.1 [1]) expands Δn in both directions. Mechanism: as $S \to 1$ the stochastic term $D(\eta) = D_0(1 - S) \to 0$, the trajectory becomes deterministic, and extrapolation (into the future) and reconstruction (into the past) become more accurate.

8.2. Technological Methods

Telescope: expands Δn into the past via the $\mathcal{C}$-channel (photons). Limit: the age of the Universe ($\sim 1.38 \times 10^{10}$ years).

Kozyrev detector: expands Δn via the $\mathcal{H}$-channel. Fundamental difference: access to the "present" and "future" of the star, inaccessible via the $\mathcal{C}$-channel.

CRC [6]: the coherent conductivity resonator raises S in a material. If CRC treatment is applied to the detector, its coherence S_{det} increases, which expands Δn_{det} and enhances sensitivity to $\mathcal{H}$-signals. Prediction: a CRC-enhanced Kozyrev detector should produce more pronounced signals at all three star positions.

Quantum computer: operates with superposition — simultaneous access to multiple configurations. In ODTOE terms: a quantum computer realizes $\Delta n \gg 1$ *across multiple world lines simultaneously*. Quantum parallelism = projection of multiple W_α in a single act of observation.

8.3. Collective Methods

By postulate P5 [1]: $P_{\text{coll}} = 1 - \prod(1 - B_i^k)$. A group of n observers with a coordinated focus A expands the operator window:

$$\Delta n_{\text{coll}} = g(n, S_{\text{group}}) \cdot \Delta n_{\text{ind}} \tag{VIII.1}$$

The specific form of g is not determined from first principles, but a lower bound follows from P5: as $n \to \infty$ and $S \to 1$ the collective operator $\hat{O}_{\text{coll}}$ has access to the maximum volume of $\mathcal{H}$.

Historical analogy: the collective memory of civilization (libraries, archives, databases) is a technology for expanding Δn into the past through aggregation of individual H_i. Collective forecasting (prediction markets, scientific planning) is expansion into the future.

IX. "OTHER FILMS": ACCESS TO ALTERNATIVE REALITIES

9.1. The Multiverse as a Library

By P1 [1]: at $S \to 0$ the number of configurations $|M| \to \infty$. The set of world lines $\{W_\alpha\}$ is a *library of all possible films*. Each observer "watches" one film (W_α), determined by their archetype A.

9.2. Conditions for "Switching Channels"

From (V.5): switching requires $A_1 \to A_2$. This is possible under:

(a) Quantum branching. At the moment of a quantum measurement the world line branches: $W_\alpha \to \{W_{\alpha_1}, W_{\alpha_2}, \ldots\}$. Each branch is a separate "film." By Everett's interpretation [12]: all branches are realized; by ODTOE: the archetype A of the observer determines which branch they "enter."

(b) Phase transition. At critical coherence ($S = S_{\text{crit}}$) the system can discontinuously jump from one world line to another — an analogue of a phase transition in statistical physics [13]. Subjectively: a "sudden insight," a "paradigm shift" (in the sense of Kuhn [14]).

(c) Dreaming. During sleep the standard constraints on A are relaxed: sensory input is disconnected, and the operator $\hat{O}_{\text{dream}}$ can project nonstandard regions of $\mathcal{H}$. Formally: $A_{\text{dream}} \neq A_{\text{waking}}$, and the accessible world lines differ. This is not an "alternative reality" in the full sense (coherence S is low, configurations are unstable), but *partial* access to alternative W_α.

9.3. Fundamental Limitations

Full access to an arbitrary W_α requires: (a) coherence $S_{1\alpha} > S_{\text{threshold}}$ with the target reality; (b) dimensionality $d \geq d_{\text{req}}$ for the target configurations; (c) $B > 0$ for the target outcome ($P(E|0) = 0$). The boundaries of the constitutive capacity of the observer are investigated in [16].

At $S_{1\alpha} = 0$ the realities are completely separated — "switching channels" is impossible. This is not a prohibition "in principle" but a *structural condition*: access requires at least minimal overlap.

X. IRREVERSIBILITY AND THE ARROW OF TIME

10.1. The Paradox

If the world line W exists in $\mathcal{H}$ in its entirety, why do we perceive time as directed? Why can one not rewind "backward" as easily as "forward"?

10.2. ODTOE's Answer

The arrow of time is a property of the *operator*, not the *film*. The map $\Phi = \iota \circ \hat{O}$ generates a directed sequence: $\Psi_n^* \to \Psi_{n+1}^*$. The spiral gap $\delta\Psi$ is unidirectional (the transcendence of π gives $\delta\Psi > 0$, not $\delta\Psi \lesseqgtr 0$). The direction of the gap *defines* the arrow of time.

"Rewinding backward" = reversing the sign of $\delta\Psi$. This requires inverting the operator: $\hat{O}^{-1}$. But $\hat{O}$ is a projection from $\mathcal{H}$ to $\mathcal{C}$, and a projection is *irreversible* (information is lost when projecting from infinite-dimensional to finite-dimensional):

$$\dim \mathcal{H} = \infty\,, \quad \dim \mathcal{C} < \infty \implies \hat{O}^{-1} \text{ is not uniquely defined} \tag{X.1}$$

The set of $\Psi \in \mathcal{H}$ that project to one and the same $R \in \mathcal{C}$ has nonzero measure. "Rewinding" using $\mathcal{C}$-data is ambiguous — the past is reconstructed *approximately* (through H), but not exactly.

However, *via the $\mathcal{H}$-channel* reversal is possible: the world line W contains all frames, and access to $n < n_0$ does not require inverting $\hat{O}$ — it only requires expanding Δn. The Kozyrev detector demonstrates precisely this: access to the star's past *without* time reversal.

XI. DISCUSSION AND LIMITATIONS

11.1. Explanatory Power

The proposed interpretation provides a unified answer to questions Q-1 and Q-2: information is the structure of $\mathcal{H}$; "viewing the film" is the expansion of the operator window Δn. Kozyrev's experiments, memory, foresight, telescopic observation, and quantum parallelism all appear as different regimes of a single mechanism — projection by $\hat{O}$ with different Δn.

11.2. Limitations

(a) The operator window width Δn is introduced phenomenologically; its connection to the ODTOE formalism is not derived from first principles.

(b) The function $g(n, S)$ in (VIII.1) is not specified.

(c) The relation (VII.3)–(VII.4) between the holographic principle and ODTOE is a structural analogy, not a deductive derivation.

(d) The interpretation of black holes and Hawking radiation through $I(C)$ and $\delta\Psi$ is qualitative.

(e) The identification of memory with the projection (V.1) requires neurophysiological verification.

XII. CONCLUSION

Information in ODTOE is not stored "somewhere" — it *is* the structure of the infinite-dimensional field $\mathcal{H}$, generated by the act of self-observation ($\Psi^* = \Phi(\Psi^*)$). The world line $W = \{\Psi_n^*\}$ exists in $\mathcal{H}$ as a single object containing "all frames" simultaneously. Standard perception of "a single moment" is a consequence of the narrowness of the operator window ($\Delta n = 1$), not a fundamental property of reality.

"Viewing the film" is the expansion of Δn through: memory ($\Delta n \sim 10^2$ into the past), foresight ($\Delta n \sim 10^0$–10^1 into the future at high S), technological enhancement ($\Delta n \geq 3$ in the Kozyrev regime; $\Delta n \sim 10^{10}$ for cosmological observation). Switching between realities requires changing the archetype A and coherence $S_{1\alpha} > S_{\text{threshold}}$.

The arrow of time is a property of the operator ($\delta\Psi > 0$), not the film. Irreversibility is a consequence of the ambiguity of $\hat{O}^{-1}$ when $\dim \mathcal{H} = \infty > \dim \mathcal{C}$. But via the $\mathcal{H}$-channel the past is accessible without time reversal, as confirmed by Kozyrev's experiments.

CONFLICT OF INTEREST

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