Primitive Matter Selection in VERSF: Cumulative Executed Theorems on Fact Commitment, Record Retention and Renewal

PMS-1 cumulative paper through PMS-EX57: forty-one executed layers, from the ordered-history matter response to the marked-scalarisation, record-tensor vertex and Fold-polarity extraction problems

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General-reader summary

This paper asks what follows if reality is built from irreversible committed facts, and finds that a large amount of physical structure follows from bookkeeping honesty alone. A world of facts needs to persist them, refresh its working surface, and say which fact comes next, and each need becomes a theorem. Within the declared pre-fact carrier and branch-algebra assumptions, the next-fact law is forced into the Born form rather than inserted as an independent probability rule; the rule for committing a fact has one unique form, readiness discounted by an irreversible price; and the shortcuts are banned as results in themselves, since prices may never be fitted backwards from answers, no ledger of information can double as the state itself, and a tempting numerical near-match with an old frozen scale stays sealed until the construction earns it.

Records get an exact grammar of their own. A boundary shared by two regions holds one fact, not two; a record's afterlife is to be kept, refreshed, copied or erased under fair rules; and history grows like a book gaining pages, never rewriting. The past provably stays, but retention alone does not push: under factorised ledger/work dynamics it is an exact spectator. If yesterday is to influence today, that influence must be its own physical law with its own source.

The machinery for picking a single outcome exists inside the physics already, but its recipe currently depends on background scenery the deep laws are provably too even-handed to choose, so either genuinely new structure or a newly declared equivalence is owed there. A gentler notion of closure is meanwhile licensed: a possibility too improbable for any physical experiment to distinguish from zero is closed in every sense that matters.

The heart of the recent work is memory across renewal, stated at its proved strength. Within an unrenewed working epoch, different histories have been shown to produce different next-terminal probabilities. A state-preserving renewal carries that distinction through exactly, although primitive selection of that renewal remains open; independently,

source-free commitment-field evolution is invertible and cannot itself implement a many-to-one reset. History provably changes the retained HMGBC completion geometry, and that amendment survives auxiliary relaxation; the probability rule carries its own geometry, which has no probability-blind directions on the declared 72-dimensional physical tangent, and the four completion characters are all probability-visible. If the source-native Gaussian weight is the weight entering the EX2A mark, the scalar part of the translation is fixed uniquely, minus one quarter of a definite trace with no free coefficient, and a stiffening past can only lower that scalar setting; but scalar stiffness cannot distinguish orientation or outcome, so the directional part of the translation remains underived.

So the geometry-mediated probability mechanism now rests on one principal missing bridge, the directional half of that translation, alongside the programme's wider ledger of named debts: the survival fraction at the commitment boundary, the prices and the drive behind them, the alignment of phases, the absolute tempo (an exchange rate between fact-clocks, since in a theory where facts make time a second is itself a count of facts), and the proof that renewal respects every physical question. A source-integrity appendix records which source documents arrived incomplete; that material is owed alongside.

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Abstract

This cumulative paper executes Primitive Matter Selection through PMS-EX57, incorporating forty-one executed layers from PMS-EX7 through EX44 and EX55–EX57 (EX45–EX54 ran offline and enter only through later audits; see the source-integrity appendix). It is a single accumulated source-provenance programme: every layer is graded, premised and falsifier-guarded, and no layer replaces an earlier one.

The record layers establish the grammar and the conditional typing. A reversal-odd matter response cannot factor through an order-forgetting final record; within the declared pre-fact carrier and branch-algebra assumptions the next-fact law is forced into the Born form rather than inserted; commitment takes the unique readiness-times-irreversible-price form; and retention is exact but, under factorised ledger/work dynamics, an exact spectator, so any influence of the past must be its own sourced law.

The renewal layers quantify and protect memory. Within an unrenewed epoch, different histories produce different next-terminal probabilities under the record-conditioned law at exponent one, with executed clean-pair separation 0.13344; a state-preserving renewal carries the distinction exactly and it then fades coefficient-free under the frozen Folds; renewal is structurally non-unique (the Φ_λ continuum) while effect-preserving isometric renewal is rigidly the identity, reducing selection to effect preservation plus attachment; and source-free commitment-field evolution is invertible, so no many-to-one reset exists in the field itself.

The bridge layers locate the missing coupling. The current attachment provably drops the polarity direction and propagation never repairs a kernel; one marked source suffices while nothing returned sets its transverse gain; ordinary backgrounds cannot set it, the fluctuation operator being background-independent; marked outcomes exist and file exactly while capacity provably cannot type them; and the curvature-parametrised kernel eliminates the tilt parameter at returned constants.

The geometry layers close the response side. History changes the retained HMGBC completion geometry and the amendment survives auxiliary relaxation; PFDMI's Born probabilities define their own Fisher geometry with no probability-blind directions on the declared 72-dimensional physical tangent (full rank twice, terminal and marked); the four completion characters are live in closed form, $F_{character} = 4pq \cdot \mathrm{diag}(3, 3, 1, 1)$ at $p = 1 - e^{-1}$; and, if the source-native Gaussian weight is the weight entering the EX2A completion mark, the scalar clause of the scalarisation map is fixed uniquely as $Dc_G = -\tfrac{1}{4}\,\mathrm{Tr}(P^{-1}\delta P)$, coefficient-free, while a determinant is exactly blind to the $k = \pm 1$ orientation pair.

The principal missing bridge for the geometry-mediated probability mechanism is therefore the directional half of $D\Lambda_\Omega$, the four marked completion-rate coordinates and the orientation-sensitive component, standing beside the record-tensor vertex, the Fold-polarity extraction, effect-preservation selection, direction typing and the named-number ledger. The cumulative verdict table in the central result grades every layer; premises P1–P44, falsifiers F45–F288 and verification notes 1–238 carry the audit.

Central result

This paper is the cumulative Primitive Matter Selection paper through PMS-EX57. It preserves the complete EX7 ordered-history and same-action response analysis and carries that argument forward through forty-one executed layers to the current frontier: the marked and orientation-sensitive components of the completion scalarisation, the record-tensor vertex, and the Fold-polarity extraction. It is not a replacement paper for any single

execution: PMS-EX57 is the newest gate in a single accumulated source-provenance programme.

The chain has forty-one distinct layers which must not be collapsed into one another.

First, PMS-EX7 established a genuine ordered-history matter-response architecture. A reversal-odd matter carrier cannot factor through the order-forgetting final record; it must retain ordered-history information. The half-lazy factor is a projector/quotient normalisation rather than a free hierarchy dial. The strongest local matter response remains

$$B_q = \tfrac{1}{2} D^{T} M^{-1} b_m,$$

and, under maintenance conjugacy,

$$B_q = g_\chi^{T} H^{-1} g_\chi > 0.$$

But EX7 also proved that this scalar closure-space matter response is not the same typed object as the PFDMI marked-source relaxation law. The PFDMI response is a same-action Schur reduction

$$Z = D - C B^{+} C\dagger,$$

and the shorthand $Z_A = d_A - r_A$ is valid only after the required parent-block identity has been derived. The conditional relaxation triplet (5, 4, 80) could therefore not be promoted merely because it appears downstream.

Second, PMS-EX8 attacked the missing physical bath law rather than the triplet itself. It returned an exact source-facing topology for the four completion-transfer channels: the six matter addresses split into two connected components,

$$\mathbf{\{Q, u, d\} \sqcup \{L, e, N\}},$$

so quark and lepton relaxation are separately typed unless a source law independently supplies an inter-sector coupling. The reduced one-bit Gaussian/Schur reconstruction is consistent with

$$q' \mid q \sim \mathcal{N}(e^{(-a_t A_Q)} q, A_Q^{+} [I - e^{(-2 a_t A_Q)}]),$$

and

$$W_{prim} = W_{core} - C\dagger A_Q^{+} C,$$

with $\operatorname{ran} C \subseteq \operatorname{ran} A_Q$ and $W_{prim} \succeq 0$. That is a real bath-architecture pass. It is not the full physical 72-dimensional return: the source still did not uniquely supply the complete A_Q, C, B, Z package, $\eta_{physical}$, the endpoint/current frame, or the candidate (5, 4, 80) as a unique numerical law.

Third, PMS-EX9 separated physical score **support** from numerical score **stiffness**. The 836 post-gauge endpoint-flat tangent directions can be quotiented by the unique minimum-Euclidean-norm representation-current solution at fixed Wilson-physical link direction.

The quotient satisfies the current residual at 9.86×10^{-16}. Five unrelated endpoint witnesses alter the raw score Gram by as much as 1.4185, yet the polar-quotiented output-support projectors agree to 1.81×10^{-11}; four independent tangent/clock prescriptions agree to 1.49×10^{-7}. Across regulator levels n = 3, 4, 5, 6, the physical probability-score rank remains exactly 72, Gram drift is zero, and the field-derivative spectrum drifts by at most 9.1×10^{-16}. Thus the rank-72 physical support is source-clean and regulator-stable even though the numerical metric is not.

Fourth, PMS-EX10 executed the numerical-metric and attachment gate. The endpoint-dependent Born–Fisher metric remains non-identifiable: all endpoint witnesses give positive rank-72 metrics, but their numerical shapes differ by 1.521423, or 1.139704 after trace normalisation. An endpoint-independent innovation-count metric does exist and returns exactly two candidate ledgers,

(5, 3, 60), (5, 4, 80),

with the direct trace ledger

(6, 13/2, 378)

reproduced independently. Within each branch the relative record amplitudes are fixed by the exact square-root law

a_i = √(c_i) / √(Σ_j c_j).

The four blind completion routes are more successful: their two commuting binary characters form a $\mathbb{Z}_2 \times \mathbb{Z}_2$ system whose character basis selects the completion coordinates and diagonalises the primitive Hessian exactly,

H_comp^prim = g · diag(3, 3, 1, 1).

This closes the completion attachment structurally. It simultaneously proves that the older HFB completion spectrum $\{3 - \sqrt{7}, 1, 1, 3 + \sqrt{7}\}$ is not a scalar renormalisation of the primitive return.

Fifth, PMS-EX11 tests whether the remaining ambiguity can be removed by selecting one primitive endpoint/current equilibrium measure and one terminal roster. It cannot. The history-neutral process has three closed record orbits, so its stationary measures form a two-dimensional simplex. Exact key-permutation symmetry selects the barycentre (1/3, 1/3, 1/3), but this measure is an absorbing terminal-record mixture with zero asymptotic neutral score. Worse, the five endpoint witnesses have identical central species weights

(1/50)(3, 3, 6, 2, 9, 9, 18)

and identical invariant twirl I_50/50, yet retain the inequivalent Fisher shapes already exposed by EX10. Central invariant information is therefore mathematically insufficient to select the missing noncentral endpoint coherences.

The two innovation branches are also physically distinct. Their H_CMR metrics differ by 0.246211, or 0.097484 after trace normalisation, despite sharing the same direct ledger.

They may not be identified by notation or selected by downstream phenomenological success. The supplied finite-history workaround also fails as provenance: its Fisher rank collapses from 210 at finite episode to 24 in the long-history rate description, the asymptotic neutral block vanishes, and inequivalent lifts reproduce the same rank-96 parent Hessian.

Sixth, PMS-EX12 executes the preregistered renewal test and returns a split verdict. The reopening kernel family $R(\kappa) = \kappa I_3 + ((1 - \kappa)/2)(J_3 - I_3)$ is the most general nonnegative S_3-equivariant three-key renewal, the ledger-append map is an exact rank-84 isometry, and the stationary law is closed in exact form: $\mu_A = \mu_S = r/(2r + p)$, $\mu_C = p/(2r + p)$, with all continuing event rates equal to $\Gamma = pr/(2r + p) > 0$ for every $r > 0$. The structure

immutable completed record ⊕ renewed active carrier

is therefore mathematically realised on the existing carrier, the operational generator is cone-positive, and the renewed process carries physical Fisher rank 588 against the required 96, so the EX11 absorbing and rank obstructions are both removed. But the same execution proves that nothing currently derived selects the renewal: r and κ remain continuous, the score metric is insensitive to key memory at 8.17×10^{-11} while the memory itself swings from ln 3 to zero, two disjoint typed defect-to-mark lifts reproduce the same parent Hessian while differing by 1.736586, and the neutral-extended branch is admissible but not forced. Renewal exists; EX12 leaves the physical renewal unselected.

Seventh, PMS-EX13 executes the renewal-selection gate and closes the dimensionless renewal law. The zero-entropy S_3-neutral return of the reopened carrier admits exactly one invariant ray, $(1, 1, 1)/\sqrt{3}$, whose classical reset shadow is uniform, so the key kernel is derived as $\kappa = 1/3$ rather than chosen; and in fact-indexed time the reopening probability r is exposed as an event-versus-idle-step coordinate freedom, removed from the physical parameter list with canonical representative $r = 1$. The renewed stationary law is exact, first-passage fact selection reproduces the terminal Born weights at 10^{-15}, and the full marked Fisher rank rises to 774 against the required 96. If a nonzero neutral pre-fact distinguishability exists, finite irreversible fact formation forces the neutral-extended branch. After EX13, what remained open was exactly three objects: the absolute hazard scale, the typed distinguishability map Ξ (two exact lifts of the 102-dimensional parent again differ, now by 1.727051), and the neutral pre-fact occupancy theorem.

Eighth, PMS-EX14 executes the occupancy and distinguishability gate and closes two of those three at conditional grade. On the frozen faithful 50-dimensional carrier the twelve faithful gauge generators have common kernel of dimension exactly 3, that kernel lies entirely inside one rank-3 neutral-terminal central projector, and deleting it leaves the charged-minimal carrier with common kernel 0: any nonzero pure, gauge-invariant, S_3-neutral, zero-entropy pre-fact canvas must live in the neutral sector, identified post-freeze as N_R. Under the declared void axioms the neutral-extended roster (5, 4, 80) is therefore selected within the frozen faithful alternatives, as a carrier-role theorem, not a claim of populated neutrinos. The void-relative distinguishability Hessian then closes at full real rank $98 = 94 + 2 + 2$ on $T\mathbb{C}P^{49}$, regulator stable, with the exact frozen-construction identity $\lambda_{min} + \lambda_{max} = 8$. What does not close is the void-to-history intertwiner: the rank-98 void

metric must land in the rank-96 history parent, exact embeddings exist but are physically inequivalent (1.187, 1.025), and exactly two void-tangent directions await a physical theorem. After EX14 the absolute hazard also remained open.

Ninth, PMS-EX15 executes the intertwiner gate and returns a graded no-go that retypes the problem. At the void ray every ordinary first-order channel of the current action into gauge, representation-current and population variables has rank exactly zero (the 98 × 144 gauge-link Jacobian, the current orbit and all seven central populations), while the rank-155 mark/Kraus derivative is confined to the inherited 45-dimensional charged support: response within existing support is not birth of new support. The EX14 split 98 = 94 + 4 is explained as a derivative grading, nonneutral directions born at quadratic order and the four neutral directions first-order visible, so the physical object is a graded support-changing birth functor, not a matrix. A minimal complete birth family $B_\alpha = |v_\alpha\rangle\langle\Omega|$ spanning all 49 complex = 98 real directions exists as a witness (orthogonality residual 10^{-17}) but is not returned by the action. And the 98 − 96 = 2 discrepancy is localised to a neutral rank-2 plane inside two S_3 standard-doublet copies, where symmetry admits a continuous one-parameter family and the FCHI parent reproduces every sampled member at 2.9×10^{-10}: the parent cannot select the plane, so after EX15 it had to be selected by the birth law or proven null.

Tenth, PMS-EX16 executes the birth gate and returns a split of its own: birth support is forced, birth stiffness is not. The joint gauge × S_3 action has no nonzero fixed direction on the 49-complex projective void tangent, so no deterministic first innovation exists and every symmetry-preserving birth law must carry full support on all 49 complex (98 real) directions, upgrading the EX15 witness from sufficient to necessary. The 98-dimensional birth tangent decomposes into twelve inequivalent invariant components, so every admissible birth covariance is $K_{birth} = \Sigma\, k_j P_j$ with eleven free ratios, and four blind invariant full-support laws differ by up to 0.881917 while the maximum-entropy choice $I_{98}/98$ is conditional, not derived. The disputed neutral modes are settled directly: both have strictly positive eigenvalues (9.446193×10^{-6} and 9.321175×10^{-6} at the two regulators, the very numbers of the EX14 spectral pairs), together carrying only four parts in ten million of the trace, which is why the rank-96 parent fit at 0.99999959 while being incomplete by exactly two. Under no-hidden-distinction admission the two-plane is genuine, rank $H_{physical} \geq 98$, and with the six persistent-record nulls the minimum retained carrier is 104: the inherited H_{CMR} must be enlarged or superseded, never fitted to.

Eleventh, PMS-EX17 executes the action-metric gate and collapses the cost ambiguity almost completely. The Fubini–Study metric of the projective carrier is exactly $G_{FS} = 2\, I_{98}$, and it agrees with the void-relative Hessian W_D on all 94 nonneutral directions to 2.2×10^{-17}, so the eleven EX16 ratios reduce to a single neutral-sector choice. The neutral W_D spectrum carries an exact pairwise complementarity {a, b, 8 − b, 8 − a} with trace 16, extending the EX14 identity; no scalar rescaling identifies the two metrics (best scalar 51/49, residual 0.3968), so the surviving family is $G_\theta = (1 - \theta)\, 2\, I_{98} + \theta\, W_D$ on $\theta \in [0, 1]$, a minimal nonuniqueness witness. The corrected carrier is constructed outright: $H_{104}(\theta) = G_\theta \oplus 0_6$, dimension 104, rank 98, nullity 6 exactly, at both regulators, and the rank-96 parent is retired as a target. The Fubini–Study endpoint reproduces the EX16 maximum-

entropy covariance as its normalised inverse, without any ignorance axiom; the W_D endpoint charges cost by realised stiffness; and the action-to-hazard rule is exposed as decisive, since the neutral role carries 2/49 or 4/51 of the weight on direct readings but 0.999607 on the inverse reading. After EX17, neither θ, nor that rule, nor the absolute action unit was selected.

Twelfth, PMS-EX18 dissolves the θ ambiguity by typing rather than tuning. The Tick-Race is proven timeless: for proportional hazards λ_A = w_A h(u), the winner law is exactly P(A next) = w_A/Σ w_B, independent of the baseline shape h and of any monotone reparameterisation (five shapes agree at 5.274×10^{-16}; zero order changes in 250,000 races), and invariant under a common hazard rescaling, formally separating fact order from fact-clock calibration. Global phase covariance then forces $J^T G J = G$, which holds inside the EX17 family only at θ = 0, and exhaustive branch additivity independently returns the same metric, so the pre-fact selection geometry is uniquely G_pre = 2 I_98 and the next-fact law is the Born rule $p_A(z) = \|P_A z\|^2/\|z\|^2$, at conditional typing grade within the frozen alternatives. W_D is not falsified but retyped as the post-fact response metric (readout Fisher information is contextual to readout structure and cannot govern pre-record selection), so the completed response object is definitively H_CMR^104 = W_D ⊕ 0_6 and the pairwise-8 structure survives one layer down. After EX18, what remained open was the prepared amplitude z(X) or its measure μ(dz), and the fact-clock calibration (seconds per fact).

Thirteenth, PMS-EX19 executes the preparation gate against the prior VERSF/RAL papers and splits the question exactly. Deterministic selection is excluded outright: a complete refinement-symmetry twirl reduces an arbitrary O(1) void-to-tangent coupling from raw norm 6.150 to 1.36×10^{-16}, $D_7/\mathbb{Z}_7$ holonomy fixes the void ray exactly while transporting existing innovations, and one one-Bit first commitment cannot install a global frame costing $(N - 1) \log_2 q$ bits, so the first readout is local comparison. The pre-fact amplitude is thereby typed as ontic but not a hidden variable. What is uniquely selected is the law: the Haar/Fubini–Study measure on $\mathbb{C}P^{48}$ is the unique unresolved measure invariant under the full refinement bridge, with covariance $I_{49}/49$, giving the EX18 isotropic role weights a law-level derivation. Renewal independence is provably not a symmetry consequence (the exactly-one-of-two exchangeable pair has covariance −1/4); under the newly named Exchangeable Renewal Extendibility condition, de Finetti factorises opportunities as conditionally iid Bernoulli with one ordinal directing parameter, cleanly separating whether a fact occurs (α) from which fact occurs (Born on z). After EX19, the record-conditioned measure μ(dη | ρ), the realised event state z(ρ, α), and the seconds per Bit remained open.

Fourteenth, PMS-EX20 executes the record-conditioning gate and returns a major typing pass without event-level closure. The conditional law has the derived Gibbs–Haar form μ(dη | ρ) = Z(ρ)^{−1} e^(−Φ_ρ(η)) μ_FS(dη): a constant Φ_ρ recovers Haar exactly, and at leading order Φ_ρ lives on the twelve invariant components with a common shift absorbed by normalisation, so exactly 12 − 1 = 11 physical relative tilts exist, matching the returned covariance rank, with witness laws separated by 0.101173, decisively rejecting post-record Haar uniqueness. The form is identified with the earlier likelihood conditioning through Φ_ρ = −ln L(ρ | η), so the two laws are one law; the microscopic functional itself is not

returned. The holonomy question then splits exactly: the unfilled comparison triangle carries one cohomology class over both $\mathbb{Z}_2$ and $\mathbb{Z}_7$ (the filled one none), the conditional occupancy law is exactly $P(\text{odd} \mid \alpha) = \tfrac{1}{2}[1 - (1 - 2\alpha)^3]$, yet identical local marginals and exchangeability admit both zero and unit occupancy, so local comparison alone provably cannot select the class: the directing law $\nu(d\alpha)$ controls the topology, with complement symmetry giving exactly ½ and the uniform $\mathbb{Z}_7$ diagnostic 6/7, both conditional. Any nonzero occupancy tendency becomes almost sure under repeated renewal. The D45″ construction-order problem (one shared record or two, when a face precedes commitment) opens as event-level physics. After EX20, Φ_ρ, ν, the realised state and the seconds per Bit remained open.

Fifteenth, PMS-EX21 executes the commitment-action gate and returns a sharp split. The unique additive local commitment action is $S_A = -\ln w_A + \Delta I_A$, forced by independent composition (readiness multiplies, costs add) under regularity, and its Gibbs–Born unfolding $p_A = w_A e^{(-\Delta I_A)} / \Sigma\, w_B e^{(-\Delta I_B)}$ recovers the EX18 Born law exactly when costs are equal. Three exact refusals then bound what the form can do. Costs can manufacture any strictly positive target distribution ($\Delta I_A = \ln(w_A/q_A) + c$), so inverse fitting is forbidden and the costs must be independently derived. Magnitude information cannot prepare the amplitude: orthogonal rays with identical component magnitudes exist, at Fubini–Study separation exactly $\pi/2$, and a 48-torus of relative phases is invisible to any functional of magnitudes. And record provenance is invisible to Shannon, KL and Fisher information, which quotient correlated copies exactly, so a separately typed stiffness λ_{prov} is required: its zero and positive values correspond exactly to the 16-token one-record quotient and the 20-token record-distinct carrier, the shared face itself carrying only the one-parameter Ising family $\tfrac{1}{4}(1 + J\, s_L\, s_R)$ under its symmetries, with identical marginals admitting one or two effective bits. Both stability graphs are internally consistent with distinct downstream coherence lengths, the near-match of the record-distinct branch with a frozen scale is an audit observation only, and the fork, the costs, the affinity, the phases and $z(\rho, \alpha)$ remain open. After EX21, for the first time since EX13 the next execution arrived locked.

Sixteenth, PMS-EX22 executes that lock and returns a correction. Under the declared strong closure-frame transport model, the two sides of a shared face are one relational fact: the closure relation $g \in D_7$ read from the opposite side is exactly g^{-1}, the pair map has 14 images rather than 196, and $H(g^{-1} \mid g) = 0$ identically, so two-sided counting would be exact double-counting. The four shared faces therefore contribute incidence rank 4 rather than 8, and the primitive Tick-Race has exactly 16 logical fact channels: the 16-versus-20 fork was never a fact-count fork. The 20-token carrier remains exactly consistent as 16 logical facts plus a four-dimensional provenance kernel (joint entropy 16 bits against a naïve marginal sum of 20, one redundant bit per face), each duplicated record forming a [2, 1, 2] repetition code that detects single corruptions but corrects none. λ_{prov} is retyped as copy-maintenance stiffness: it moves only the four syndrome directions, leaves every logical weight and Tick-Race probability unchanged, and is therefore permanently invisible to fact-level data. Of the locked returns, fact multiplicity closed at one, conditionally; record localisation, λ_{prov}, the physical costs and the affinity rolled forward, with the Route-M scale still sealed as a target.

Seventeenth, PMS-EX23 closes the localisation fork conditionally, in the economical direction. The single shared-interface token is readable from both cells, and the joint two-sided readout has rank 4, not 8, because the second side is the deterministic $g \mapsto g^{-1}$ relabelling of the first: bilateral locality never required duplicate records. The two-token carrier factorises exactly as $T_{20} = \Pi\_copy \circ W_{16}$, one primitive write followed by copying, at residual zero, and a single macrorecord already admits many-to-one encoding through two eight-state basins, so neither locality nor robustness forces a second token. Under the GSJB-16 premises and the minimum-distinction/structure-economy principle the primitive record-token count is therefore 1, the 16-token carrier is the primitive glue-before-commit carrier, and λ_prov^primitive = 0 exactly, since no copy-disagreement directions exist before copying; provenance becomes physical only after an actual copy operation. The selection was made blind, before either length was evaluated, and the counterfactual comparison then reassociates the old coherence-scale agreement with the copied 20-token regime rather than the primitive branch, opening a cross-corpus reconciliation. Record lifetime (availability is not stability), post-copy stiffness, and the entire D44′ preparation line remained open after EX23, and D45″ is conditionally closed.

Eighteenth, PMS-EX24 supplies the exact post-commitment structural contract and refuses everything it cannot derive. The record's futures, retention, renewal, copying, proliferation, erasure, are typed as a disjoint atomic alphabet and resolved by the exact first-entry law $E\_a = \Sigma\_n\ (\mathcal{T}\dagger)^n(\mathcal{R}\_a\dagger(\mathbb{1}))$ with $\Sigma\_a\ E\_a + E\_\infty = \mathbb{1}$; eventual resolution is state-uniform iff $r(\mathcal{T}) < 1$ and inevitable copying iff $r(\mathcal{T}\_nc) < 1$, so a stable no-copy sector ($r(\mathcal{T}\_nc) = 1$) is physically allowed and proliferation is not ontological. The corpus's copy isometries and factorisations prove capability, not performance: the physical copy decision is not derivable at present, and the causal-split rule stays a sharply falsifiable candidate. Copy timing closes in opportunity counts (survival $S(n) = tr[\mathcal{T}\_nc^n(\rho)]$, mean $\Sigma\ S(n)$) and awaits the fact-clock calibration for seconds. The stiffness matures into an operator: the maintenance Hessian splits into code and syndrome blocks, clean maintenance is $H\_cs = 0$, the response is H_ss with a possibly signed spectrum, a scalar λ_prov exists only under isotropy, and RCMO cannot be identified with it without a forward map. Persistence is disciplined by the exact fixed-point criterion and the $(1 - \varepsilon)^n$ metastable bound, static basins prove availability only, the maintenance barrier's eight prerequisites are named and unreturned, and copy costs are exactly non-identifiable from the reduced channel, separating four cost types and excluding per-bit insertion. The 16-channel primitive fact law is untouched.

Nineteenth, PMS-EX25 executes the first constitutive bridge and reframes the contest. Within the inherited F2F/PFDMI append-only architecture, the seven self-history marks form a transient unresolved map (spectral radius strictly below one, never-resolved defect zero), record-preserving renewal occurs with probability one from every history start with a fixed dimensionless mean waiting count, and the resolved atomic disposition is (keep, renew, copies, overwrite) = (1, 1, 0, 0): the committed fact is retained, the active carrier reopens, and no foundational duplication, erasure or overwrite occurs, so history grows by ordered extension. XI-4's mathematically exact copier is retyped as a fixed representation-level dilation, applied identically to every source mark with zero mutual information and a rank-zero propensity Jacobian, so there was never a foundational copy operation to select:

the committed fact is retained once, later records are manifestations, and the primitive question becomes retention invariance under the full post-commitment instrument. The rank-five selector Gram is positive and regulator-convergent but strongly anisotropic and provably not the retention-syndrome Hessian; individual manifestation stability, agreement stiffness (λ_{syn} beyond κ_{self}) and syndrome damping (γ_{syn}, vanishing under common bath coupling) are separately typed; and history-to-carrier backreaction is separated from ledger persistence and left open. All of it is architecture-conditional: the master action has not yet been proved to select append-only retention.

Twentieth, PMS-EX26 makes the retention exact and separates it from influence. The declared PFDMI renewal isometry satisfies $V^\dagger V = \mathbb{1}$ exactly, stores the completed edge/type label in an orthogonal ledger sector with $V^\dagger(L_e \otimes \mathbb{1})V = D_e$, so a committed fact is retained with probability one and overwritten with probability zero, and pulls the reopened-sector projector back to the full identity, $V^\dagger(\mathbb{1} \otimes \Pi_{active})V = \mathbb{1}$, so ledger writing removes no declared working direction. Under factorised later dynamics every history projector is exactly conserved and dynamically spectator: persistence, accessibility and backreaction are three separated propositions, the first two passing and the third not derived, so any influence of the stored past on present continuations must be an additional ledger-dependent generator, channel, kernel, constraint or source-derived map, with Fact-Momentum/history-memory constructions the named candidates. The identities are scoped to the declared PFDMI working carrier: full reopening cannot be promoted to the 12-dimensional HX1 record-phase carrier or any independently typed carrier without a derived intertwiner, which was the named next direction.

Twenty-first, PMS-EX27 builds that bridge and finds an exact separation, not an identification. On the frozen 24-dimensional directed nonself-history carrier over the seven-vertex wheel, the CGI renewal-response and HX1 phase carriers are each twelve-dimensional, their intersection is exactly the rank-six incidence cut space (rank $B = 7 - 1 = 6$), and their principal angles are $\{0^6, (\pi/2)^6\}$: half shared exactly, half orthogonal exactly. HX1 splits into six coboundary (cut) and six circulation (cycle) directions; the physically selected uniform-rim mode is divergence-free ($B^T w = 0$), lies entirely in the cycle sector, and has machine-zero overlap with everything canonical renewal can regenerate. No fixed linear map from the fourteen incidence labels can reconstruct the signed edge phases (oddness plus the wheel's triangles force a pure gradient), the minimal renewal's one free phase is exactly gauge ($P_{HX1}\, T_{renewal} = 0$), and the retained discrete label is the wrong type for a continuous phase. Since the HX1 phase is a genuine master-action tangent, locking it carries the exact unit-branch stiffness excess $\Delta k = k_{full} - k_{relaxed}$, physical normalization pending. The audited entropy papers supply an admitted candidate coupling mechanism but no HX1-specific derivation. The question is thereby localized: fresh regeneration is excluded, and the sole ordinary-minimal residual is the commitment-boundary survival fraction $s = \|Q_{post}\, w\|^2 \in [0, 1]$, with permanent excess $(1 - s)\, \Delta k$; the conditional chain runs "if commitment locks the cycle tangent, the lock survives renewal permanently," and whether commitment locks it is not yet derived.

Twenty-second, PMS-EX28 closes the selector-capacity gate. The 84 frame-invariant physical effects on the 50-dimensional carrier have scalar commutant (imported K7-QRC: a simple-spectrum Hermitian member plus full connectivity), so by bicommutant closure

their unital $*$-algebra is the entire $M_{50}(\mathbb{C})$: every rank-one projector on the physical carrier is a finite noncommutative polynomial in the physical effects, and fifty of them are constructed explicitly by Lagrange spectral calculus from one simple-spectrum physical operator, all frame-invariant, none suffering the fine-atom objection. The Boolean rank floor at the 12/84/319 grains is retained and is compatible: a Boolean floor is not an algebraic floor, and a finer carrier is not forced by rank resolution. What remains refused is selection: the diagnostic operator's coefficients are generic, its eigenprojectors select nothing, the rank-one family is the full $\mathbb{C}P^{49}$ (98 real dimensions), and the problem sharpens to the source-derived history map $\mathbf{h} \mapsto H(\mathbf{h})$ whose isolated spectral projector would be the commitment cut, with the ordered effect word $M(\mathbf{h}) = W(\mathbf{h})\dagger W(\mathbf{h})$ admitted as the natural order-sensitive candidate architecture and the continuation-faithfulness pullback still mandatory. One of three selector gates closes, at capacity level, exactly.

Twenty-third, PMS-EX29 adjudicates that candidate's two coefficient-free extremal readings on the frozen EX2E matrices, and both fail, by an exact trade-off. All 3486 distinct record pairs noncommute and every reversed pair word gives a different positive operator, yet reversal is exactly isospectral ($W_{ji} = W_{ij}\dagger$), so order lives only in eigenvectors and every eigenvalue-only history law is order blind. The largest-eigenvalue projector is rank one for all pairs and order-sensitive for 3354 of 3486, but of its 41,832 thirteen-channel Kraus pullbacks exactly 300 are rank one, and those sit precisely on the 132 order-blind same-terminal-type pairs ($2 \times C(12, 2)$): rank-one hard pullback occurs exactly where order is forgotten, and rank is 13 wherever order is carried. The smallest-positive projector is order-sensitive on all 3486 pairs and its pullback is rank 13 in every single instance. So neither extremal rule supplies order sensitivity and the rank-one hard cut together; the exclusion is scoped to the two extremal readings of pair words on the frozen execution, the ordered-word grammar and the non-Boolean route stay open, and the direction-by-direction pullback identity still waits on the unreturned map between the History-Measure trap carrier and the PFDMI physical carrier.

Twenty-fourth, PMS-EX30 adjudicates the history-odd commutator $C_{ij} = i[E_i, E_j]$ on the same frozen source, and the refusal is cleaner still. Reversal is built in exactly ($C_{ji} = -C_{ij}$), every one of the 3486 pairs has a nonzero Hermitian commutator with both extremal eigenvalues simple, and since distinct eigenvalues of a Hermitian operator have orthogonal eigenvectors, history reversal maps the selected extremal ray to an exactly orthogonal ray in every case: perfect history-sign transmission, no order-blind pairs at all. Yet in 83,664 source-native pullback tests (both extrema, all pairs, all twelve next-edge instruments), the thirteen-channel Kraus pullback has rank 13 every single time, with Gram spectra bounded away from collapse: zero rank-one hard cuts, strictly worse on the physical side than EX29's 300. The two simplest canonical spectral rules are thereby both eliminated, and the selector problem is retyped: order sensitivity is easy, rank-one availability is easy (EX28), and the difficult object is a history-sensitive ray lying on the source-native rank-one Kraus-pullback manifold, the special alignment subset carved out by the instrument geometry. The missing carrier identification is confirmed non-load-bearing for these necessary-condition rejections.

Twenty-fifth, PMS-EX31, in its audited R2 form, solves the rank-one problem background-relatively and then discovers the background dependence. For each candidate continuation

edge and each admitted endpoint witness, the stacked twelve nontrivial current channels of the frozen EX2E instrument have rank exactly 12, so the rank-one pullback locus $\mathcal{K}$_e has dimension 50 − 12 = 38 and is the complete solution set: on it the trivial positive-root channel acts as the exact identity and the pullback of every ray projector equals that projector, Φ_e†(P) = P. The locus is frame-invariant at fixed witness and is no smuggled common reduction: every one of the 84 physical effects leaks amplitude out of it, so the source's reduction no-go stands. At fixed background the restricted history-odd rule passes everything: nonzero with simple orthogonal extrema in all 41,832 combinations, exact reversal swap, rank-one pullbacks in all 83,664 tests, zero failures, no fitted coefficient. The audit then adds the decisive qualification: the EX2E endpoint/current configuration is a deterministic genericity witness, one of five equally admitted; the locus dimension is 38 at all five, but the five 38-planes differ substantially, and the common kernel of all five witnesses is trivial on every edge, so no ray is a rank-one hard cut for every admitted background. The construction is background-relative and canonical: before it can be physical, the endpoint/current background must be primitively selected or explicitly quotiented, and only then the trap attachment (through the differently-typed History-Measure descent, with the Fold-to-MASD trap-functional relation still underived) and the primitive selection of the extremal rule.

Twenty-sixth, PMS-EX32 audits the quotient branch and closes it for everything the theory currently declares. All five witnesses satisfy the representation-current residual exactly and all ten pairwise differences are flat, consistent with EX2F's flat-moduli theorem (nullity exceeding the 84-dimensional gauge orbit; the action too flat to select a frame by any gradient, spectral or variational principle). But the differences are dominantly outside the declared gauge orbit, four of them linearly independent, and the certificate is invariant: the seven representation projectors commute exactly with the twelve faithful gauge generators, so current-sector populations are gauge invariants, and they differ substantially between witnesses, certifying non-gauge inequivalence; even the endpoint-Gram-equivalent rephasing (p53_quadratic_shifted, vertex-phase dressing) changes the invariant populations once the edge currents are formed. The EX31 planes keep projective dimension 37 at every witness while their five-fold intersection is trivial on every edge, so no witness-independent ray exists and the search for one is formally closed. The residue is a fork the source itself has posed: a primitive frame-selection structure the current action provably cannot supply, or a genuinely new redundancy, the source's own open moduli debt; and the typing firewall holds, nothing here attaching the History-Measure trap to any internal ray.

Twenty-seventh, PMS-EX33 changes the question and licenses a second meaning of closed. On the frozen D36 rim law both orientations are strictly positive forever, but the disfavoured monotone orientation's normalized share falls exponentially, $r^n/(1 + r^n)$ with the single-step orientation ratio fixed by the surviving 12.81% (the squared ratio reproducing PSAC's two-step forward/reversed ratio), reaching one part in ten thousand by five steps; the imported distinguishability framework (operational equivalence below a total-variation threshold ε) then makes effective closure a licensed notion, with a computable depth n(ε) for every resolution, eleven steps at 10^{-9}. The no-go is equally exact: D36 is first-order Markov (imported PSAC theorem), so the next-step orientation

probabilities are identical for all histories ending at the same present state, the cumulative suppression being a product of history-blind factors, the next backward share 12.81% every time, and the current tilt is orders of magnitude too coarse for any next-step closure at any stated resolution. The target is thereby retyped once more, and for the better: not a projector that deletes a future but a source-native history-conditioned tilt p(direction | **h**), the probabilistic face of the history-coupling generator, with concrete thresholds to beat, complementary to and retracting nothing of the support-level results.

Twenty-eighth, PMS-EX34 finds that tilt inside the corpus and fences its status exactly. The HCMR record-conditioned law updates the future directing law by the ordered mark likelihood with exponent exactly one, fixed by probability-chain consistency, no adjustable history coefficient, and executed on the actual mark instrument (XI-2, RSU chain structure). On the frozen 49-dimensional preparation carrier with twelve components the steering takes the succession form $q(k \mid \mathbf{h}) = (d_k + n_k)/(49 + n)$ (my reconstruction, fixed uniquely by the exact surviving table), so a retained fact raises its component and uniformly shrinks the rest, nothing ever zero; two equal-length histories concentrated in different components differ by exactly $n/(49 + n)$ in total variation, two percent at one record, half at fifty; and a never-realised component falls below resolution ε at the computable depth $n \geq d_k/\varepsilon - 49$, making closure resolution-relative and history-deepening with no sharp transition. The firewall is equally exact: by PSAC-EX5AA the published action's ledger-to-future derivative is exactly zero at the regulators on both branches, the causal face of EX33's Markov blindness, so the steering is a conditional preparation law, not yet the next-transition law, and its identification with the D36 orientation is untyped. The missing mechanism is thereby made precise: not manufacture a zero, but promote the already-derived update into the actual transition law.

Twenty-ninth, PMS-EX35 finds that promotion already half-enacted and localizes what blocks the other half. On the frozen PFDMI/EX2E matrices at the physical terminal grain (the thirteen current-generator outcomes summed out, the seven terminal projectors applied after each completed step), matched history pairs with identical start, identical penultimate node and identical final transition nonetheless hand different probabilities to the next physical terminal outcome: in the executed census of 879 such pairs, all 879 retain a nonzero difference, the history carried by the internal PFDMI state the dynamics already propagates, with no memory coefficient and no future ever at zero, while within each pair the coarse D36 next-node law is exactly identical, reproducing rather than contradicting the PSAC coarse blindness. So causal history steering is established within the working epoch. Across renewal it dies: by the imported PSAC post-renewal test the reopened working channel is independent of the retained ledger, ledger-to-R4 gain zero, since the published architecture wipes the working carrier and files the fact where the new state never reads. The Kraus-normalized record-likelihood update is the clean, coefficient-free candidate for the post-renewal law, with HCMR-P1 supplying its structure, but its insertion is forbidden without a source derivation, PFHBA's Doob descent being graded conditional and PSAC's F101/F102 prohibiting installed history control. The promotion residual is thereby localized to the renewal boundary, with two admissible doors: internal-state carry-through, or derived ledger feedback.

Thirtieth, PMS-EX36 tests the carry-through door and finds it mathematically open. The HCMR conditioned-state return already copies only the classical mark (exact copy isometry, system state untouched), so the minimal renewal that carries the conditioned present state forward while filing the record is well defined; executed on the EX35 witness pair, it preserves the within-epoch bias exactly across the renewal, internal trace distance and next-terminal separation unchanged at 0.13344, while the complete reset annihilates both, so the epoch-mortality of EX35 is a property of the reset assumption, not of renewal or retention, and state-preservation coexists with the exact no-overwrite preservation of the old ledger (imported PSAC theorem). Under the subsequent ordinary frozen Folds the carried bias relaxes with no memory force and no fitted coefficient, 0.13344 at zero Folds to 0.00584 at one hundred, memory with natural relaxation rather than permanent closure, crossing any finite operational resolution at a computable age (diagnostic only; no universal ε selected). The open object is thereby retyped a final degree: the corpus's presently chosen renewal is the reset, under which automatic history backreaction is graded negative with later active dynamics left open, and what is owed is the primitive derivation selecting the renewal map, carry-forward against reset, with steering, fading and operational closure already executed downstream of that one choice.

Thirty-first, PMS-EX37 measures that choice exactly and splits it. The covariant family $\Phi_\lambda(\rho) = \lambda\rho + (1 - \lambda)\,\mathrm{tr}(\rho)\, I_{50}/50$, tensored with the ledger identity, is completely positive, trace-preserving, unital, U(50)-covariant, target-free, same-carrier and exactly no-overwrite at every $\lambda \in [0, 1]$, with λ not source-returned; on the EX35 witness pair the internal trace distance (0.42047171701340447, filling the value stripped from the EX35 transfer) and the next-terminal total variation (0.13343664226134488) both scale exactly linearly in λ, executed at seven dial settings; the S_3-equivariant κ family of EX12 already showed symmetry cannot choose, and PSAC-EX5AE shows distinguishability conservation cannot either, a local reset being allowed when the lost distinction is exported. So structural conditions admit the full continuum: an exact non-uniqueness theorem. Against it, an exact rigidity: the 84 frame-invariant physical effects have real linear span rank only 73 (they are not linearly informationally complete, the twelve edge-completeness relations to one identity accounting exactly for the deficiency) yet generate an irreducible algebra with scalar common commutant, independently witnessed by a target-blind Hermitian pair (minimum gap $1.517309468672 \times 10^{-3}$, full connectivity, $\|[A, B]\|_F = 5.471345179964$); hence any same-carrier isometric renewal preserving all 84 effects is $e^{i\theta} I_{50}$ and fixes every density matrix: pass-through is unique in that class. The issue is thereby retyped from capacity to selection: the entropy papers supply the conditional route, renewal as reversible, cost-free reopening between commitments versus reset as a necessarily new irreversible export, and that reversibility derivation is what remains.

Thirty-second, PMS-EX38 walks the costlessness route and reduces the derivation to two hinges. Renewal is exactly source-free: the κ-field continuity equation carries zero commitment source for it, HCMR types it σ = (1, 1, 0, 0), no new foundational fact is written (EXACT PASS), and the existing K7-CBR renewal is already an explicit isometry filing the fact while reopening the carrier (EXACT CONSTRUCTION PASS, though not primitively derived). But the shortcut fails: source-freedom does not force reversibility, the covariant eraser family being source-free at every λ while scaling the EX35 signal as

0.13343664226134488 λ to complete erasure, and no-new-fact does not imply zero entropy, the corpus (The Theory of Fact Production) explicitly permitting correlation export without stable record formation, so of Commitment Requires Cost only the one-way implication survives: new fact ⇒ cost, never the converse. The genuine route is the pre-factual reversibility theorem: below the commitment threshold no irreversible commitment, no entropy-generating operation and no distinguishability loss are admissible, so sub-threshold dynamics must be reversible and conditionally unitary once the Hilbert-space metric is admitted; and since reversibility alone still admits nontrivial rotations, the exact EX37 identity additionally needs the physical effect algebra preserved. Two hinges, both open: renewal's PAR-sector membership, and primitive effect-preservation selection; their conjunction forces the state-preserving renewal exactly (CONDITIONAL EXACT PASS). The existing renewal already has exactly the wanted form; what remains is to prove the primitive physics forces it there rather than merely allowing it.

Thirty-third, PMS-EX39 executes the first hinge at the field level and closes the reset question there exactly. The uploaded commitment-field equivalence paper supplies the unique admissible scalar action $L = \tfrac{1}{2}(\partial s)^2 - \tfrac{1}{2}m^2 s^2 + s\,\rho\_\text{committed}$, so away from new commitment sources the field obeys the homogeneous Klein-Gordon equation with no intrinsic reset or depolarising term, Fact-Momentum independently conserving the source-free stress-energy. The mode flow $R_\omega(t)$ is exactly invertible with unit determinant and exactly preserves the energy metric $G_\omega = \mathrm{diag}(\omega^2, 1)$, executed at machine precision on the inherited mass $m\xi = \sqrt{(4/3)}$ across the wavenumber/time grid (inverse residual 2.221×10^{-16}; energy residual 3.565×10^{-15}; $|\det R - 1| \le 2.220 \times 10^{-16}$; minimum Euclidean singular value 0.270781580193, pure (q, p)-weighting, the conserved norm being G_ω): distinct Cauchy data never merge at any finite time, so a literal reset, being many-to-one, cannot equal the homogeneous flow, and a source-free continuum history distinction survives globally while free to redistribute and locally attenuate, consistent with the memory-kernel paper. The conditionalities are stated with equal exactness: identifying renewal with this flow awaits the source-native attaching map A embedding the PFDMI conditioned state faithfully in the field phase space (a quotienting map would void the survival), the scalar field is outcome-blind by the controlling PSAC audit so no Fold-mark promotion follows, and reversibility preserves the terminal probabilities only together with EX37's effect preservation, whose conjunction upgrades reversible survival to the unique state-preserving renewal.

Thirty-fourth, PMS-EX40 opens the attaching-map calculation and returns, in a transfer truncated mid-sentence, one exact conservation law and one exact exclusion. The kernel-persistence theorem: for any linear attaching map A into continuum Cauchy data and the invertible source-free flow R_t, $\ker(R_t A) = \ker(A)$ and $\mathrm{rank}(R_t A) = \mathrm{rank}(A)$ at every finite time, independently of the mass, so reversible propagation preserves what entered the field and can never repair a record direction the bridge failed to encode. The exclusion: the current MA1 attachment is equivalent to $\mathrm{diag}(0.578064557803, 0)$ on the (orientation, polarity) record coordinates (controlling PSAC R19 having already found the scalar marked projection of rank 6 and nullity 6 on the 12-dimensional count+polarity carrier, and the MA1 projection of the complete two-direction Fold record of rank 1 with singular values

[0.578064557803, 0]), and the executed propagation across t/ξ ∈ {0, 0.25, 0.5, 1, 3, 7} returns rank one with the polarity output and second singular value exactly zero throughout: the current complete-mark attachment fails exactly, the polarity direction sitting in the exact kernel before propagation and staying there. The constructive alternative, PSAC R19's two-direction Whitney embedding with exact left inverse, survives at the rank level for all time by kernel persistence (a corollary, mine, so flagged), but the source's executed Whitney-survival grades and the round's verdict block are absent in the truncated transfer, so the full-rank bridge stands entailed at counting level and unexecuted beyond it.

Thirty-fifth, PMS-EX41 audits the marked source behind that bridge and, in a second consecutively truncated transfer, settles the structure while isolating the physics. One source is enough: the minimal marked label m = (r, ς) carries a four-valued mark on a single commitment whose scalar count marginal increments by one, so the second-source objection closes exactly. The economical reflection/exchange-compatible embedding ι_(a,b)(r, ς) = a r e_R + b ς e_O has Jacobian diag(a, b) and separates the four marked states faithfully iff both gains are nonzero, the current MA1 normal form being a = 0, b = 0.578064557803 and failing at rank one exactly as EX40 found. But mark existence does not fix the transverse gain: the count marginal is identical across marks and so contains no equation for a, the executed scan over a ∈ $[10^{-8}, 10^{2}]$ at fixed b returning an injective four-state embedding at every nonzero a with |det J| spanning $5.780645578030 \times 10^{-9}$ to $5.780645578030 \times 10^{+1}$, the audit rows (0, 0.25, 0.578064557803, 1 against b) grading NO, YES, YES, YES with minimum separations 0, 0.5, 1.15612911561, 2. Symmetry cannot finish the job: covariance reduces the physical first-cover readout to the single gain g_cover ∈ [−1, 1] with the source bias fixed at δ_K = 0.995570059549810 and E[Z_R4] = δ_K g_cover, the unmarked Doob kernel permitting the continuum and the present action returning g_cover = 0; a relative-scale rule such as |a| = |b| would be an underived metric premise, promotion rather than calculation; and the zero-background polarity tensor cannot be rescued by amplitude, the direction itself failing the leading record-current equation (PSAC-EX5BC/BD). The transverse direction is thereby structurally free and physically unset: what is owed is the source-returned transverse activation, the primitive action's own determination of the gain through an anisotropic or inhomogeneous background response, together with the EX40 and EX41 completions truncated in transfer.

Thirty-sixth, PMS-EX42 walks that anisotropic-response route to its end and closes it exactly, in a third consecutively truncated transfer. The unique local polarity carrier is the two-dimensional symmetric trace-free Hessian H_ab = D_a D_b m − (1/2) γ_ab Δm (PSAC-EX5BB–BD), whose zero-background divergence is generically nonzero, the flat identity ∂^{a}H_ab = ½ ∂_b Δm exhibiting the obstruction as a vector residual; and the newer commitment/κ-field theorem fixes the fundamental source field to the unique linear Klein-Gordon action with nonlinear self-interactions excluded. Perturbing an arbitrary background solution, s = s_0 + εh, the exact linearity gives the fluctuation operator L_(s_0) = □ + m^2 identically for every background, anisotropic and inhomogeneous configurations included, so dL_(s_0)/ds_0 = 0 and no committed background structure can by itself turn the inadmissible polarity mode into a zero mode of the record-current equation. Background anisotropy yields derived observables only, gradients and stress, and the present source

stack supplies no same-source record-tensor vertex feeding them back into the Fold record-current operator: promoting the stress tensor to that vertex would be a new bridge, not a consequence of the scalar theorem. The minimal type-correct rescue, addressed to the vector residual, is the branch at which the transfer cuts, its construction, grades and verdict owed with the completion. The activation debt thereby takes its sharpest shape: one same-source record-tensor vertex to derive, or the truncated minimal rescue to receive in full.

Thirty-seventh, PMS-EX43-R2 opens the extraction leg of that debt, superseding an earlier EX43 never received here (its broader negative retracted by the source for not having consumed the full predecessor chain), and, in a fourth consecutively truncated transfer, settles the existence side while disqualifying the cheapest naming route. The microscopic instrument possesses physically resolved marked outcomes: 319 marked operators on $C^7 \otimes C^{50}$ with completeness residual 2.471×10^{-14}, each returning the unique conditioned post-event state $z_{(\rho,e)} = M_e \eta_\rho / \sqrt{(p_e(\eta_\rho))}$ up to global phase, with the exact classical record-copy isometry (residual 0) provably leaving that update untouched; the detailed marks coarse-grain to the 84 persistent edge-and-terminal-type records (twelve edges, seven terminal types), whose renewal isometry is exact though not primitively selected. What the marks encode is firewalled as a separate question: the PFDMI terminal-type index t_term is not the PSAC R4 sign by the report's own notation, and capacity or existence arguments provably cannot perform the typing, PFHBA's exact-lift family having dimension 34,152 with the unmarked Doob kernel blind to the marked decomposition, so Fold-polarity identification must be returned by the source amplitude decomposition and projectors. Whether the current source already returns that independent mark is the extraction question whose executed answer, together with the HM4/RCMO/PRLU audit blocks and the verdict, is owed from the truncated remainder.

Thirty-eighth, PMS-EX44 opens the coupling generator from the geometry side and, in a fifth consecutively truncated transfer, closes the response half with zero new coefficients. The controlling chain is entirely returned: PSAC R19 Gate S gives the history score as the log-derivative of the deformed kernel, equal to ω_C exactly on the canonical branch; the exponential-family descent gives $K_{(\sigma,\alpha)} = K_0 \exp[\sigma\alpha\, \omega_C]/Z$ with no inserted tilt; the signed curvature response gives $\Gamma_{eff} = \tfrac{1}{2} k_C c^2 - \sigma\alpha * c$ with stationarity $c*_\sigma = \sigma\alpha*/k_C$ at $k_C = 360/713 = 0.504908835904628$, $\alpha* = 0.959001109719975$ and $c* = 1.89935497564000$; and PSAC-EX1B fixes $\lambda_C = 1$. The stationarity identity $\sigma\alpha* = k_C c*$ holds at machine residual 8.116×10^{-14}, eliminating the tilt parameter, so the normalised kernel becomes a function of the physical curvature coordinate alone, $K_c = K_0 \exp[k_C c\, \omega_C]/Z$, and its derivative is the exact probability-conserving score-covariance form $d/dc \log K_c = k_C[\omega_C - \langle \omega_C \rangle_c]$: any physical shift of the curvature coordinate tilts every next-step probability at the already-returned gain k_C, no new memory susceptibility, Doob coefficient or probability rule existing anywhere in the identity. The scope is the isolated scalar closure sector on the canonical reduction; the history-to-curvature pullback by which retained facts would shift c is the truncated leg, owed with the verdict; and the standing post-commitment firewall bars promoting the stationary identity to a causal post-renewal theorem until the ledger-to-active map is returned.

Thirty-ninth, PMS-EX55-R2, superseding the first EX55 and arriving with its verdict complete but its equations stripped (executions EX45 through EX54 remaining offline and unreceived), replaces the curvature-coordinate route with a native one and reduces the causal question to a single attaching map. PFDMI's Born probabilities define their own Fisher geometry on the declared 72-dimensional physical tangent (72 = 84 records − 12 per-edge normalisations), and on the actual frozen EX2E arrays both the terminal and the conditional-mark probability responses are of full physical rank at machine precision, 72/72 twice over, so no probability-invisible directions exist in that tangent; the HMGBC retained amendment stands from the audit, history changing kept geometry exactly and surviving auxiliary relaxation unchanged. By pullback of the positive Fisher metric, any retained-history displacement whose image under a primitive attaching map into the physical tangent is nonzero necessarily changes next probabilities, the verdict answering NO to any need for a separate geometry-to-probability coupling: no memory-force coefficient exists to invent. What remains is precise: the attaching map itself (the source-derived cross-layer intertwiner the cumulative audit has always listed), with the BCB Lorentz record 4-current and PFDMI's representation-valued edge carrier firewalled as different current types, the six-logit completion shortcut not physically executed at EX2E's evidential level, and the unique numerical lean magnitude not yet selected, PMS-EX10's five witness metrics agreeing in positive rank-72 support while differing in shape, so attachment will prove that history leans before proving how loudly. The round's closing dichotomy: the next calculation is one attached quantity, positive meaning the geometric-history mechanism works, zero meaning history is a spectator.

Fortieth, PMS-EX56, leading with a complete executive verdict that survived its seventh-consecutively clipped tail, executes the completion-coordinate half of that bridge and shrinks the attachment debt to a single translation. The frozen PFDMI-EX2A six completion logits carry a source-conditioned probability Jacobian of full rank six, upgrading the shortcut EX55-R2 graded below evidential level; the frozen GSJB-2 six-to-four completion-route incidence descends it to a rank-four response; and the GSJB-3 $Z_2 \times Z_2$ character basis diagonalises that response exactly, the conditional Fisher geometry being F_character = $4pq \cdot \mathrm{diag}(3, 3, 1, 1)$ at the frozen occupancy $p = 1 - e^{-1}$, $q = e^{-1}$, with the frozen primitive completion Hessian wearing the same 3:3:1:1 shape up to the scalar 315/4 at machine precision. The four physical completion characters are therefore not probability-null: nothing history says through them goes unheard. What remains is one upstream map across a stated type boundary: HMGBC's amendment is a quadratic completion operator while the EX2A law is controlled by linear scalar route logits, and no current source theorem returns the scalarisation/Radon-Nikodym map between them, so the missing object reduces from history → the 144-dimensional PFDMI tangent to DΛ_Ω : history-conditioned completion geometry → four completion characters, with the lean automatic once DΛ_Ω is nonzero.

Forty-first, PMS-EX57, its executive answer complete over an eighth-clipped tail, derives the first component of that map canonically and proves it insufficient alone: partly, but not fully. The HMGBC Gaussian measure supplies the canonical Hessian-to-weight rule Z_G(P) ∝ det(P)^(−1/2), and under the stated identification of that raw weight with the factor entering an EX2A completion mark, the amplitude-logit convention fixes c_G(P) = −¼ log

det P up to a constant, whence $Dc\_G[P; \delta P] = -\frac{1}{4}\,\mathrm{Tr}(P^{-1}\,\delta P)$ exactly, no free memory coefficient existing anywhere in the formula, the ¼ being the product of the Gaussian and amplitude square roots and the derivative being Jacobi's; a positive history stiffening can only lower the scalar setting. The same derivation names its limit: the executed Gaussian determinant is a branch-level scalar of the positive completion stiffness, it does not return the four marked completion-rate coordinates EX56 requires, and it is exactly blind to the source-native $k = +1$ versus $k = -1$ orientation-conjugate pair, the determinant being conjugation-invariant. So a canonical Gaussian scalarisation rule is closed while scalar stiffness alone is proved unable to be the complete outcome-specific history-to-probability bridge: the marked and orientation-sensitive components of $D\Lambda\_\Omega$ remain owed, the HMGBC audit's own Radon–Nikodym construction standing behind the rule and its remainder cut in transfer.

The cumulative verdict is therefore given by the following table, one row per graded layer or standing obligation.

No.	Cumulative verdict
1	ORDERED-HISTORY MATTER RESPONSE: CONDITIONAL PASS
2	PFDMI SAME-ACTION SCHUR ARCHITECTURE: PASS EXACT
3	BATH TOPOLOGY: EXACT TWO-COMPONENT PASS
4	PHYSICAL SCORE SUPPORT: RANK-72 PASS
5	NATIVE NUMERICAL SCORE METRIC: NON-IDENTIFIABLE
6	COMPLETION ATTACHMENT: PASS EXACT (3 : 3 : 1 : 1)
7	ENDPOINT-MEASURE / NEUTRAL-BRANCH UNIQUENESS: NO-GO
8	RECORD-PRESERVING RENEWAL EXISTENCE: PASS
9	NONZERO ASYMPTOTIC NEUTRAL INFORMATION: PASS
10	FULL MARKED FISHER RANK: PASS
11	DIMENSIONLESS RENEWAL LAW ($\kappa = 1/3$, r GAUGE): SELECTED
12	FIRST-PASSAGE/BORN COMPATIBILITY: PASS
13	NEUTRAL CARRIER AND (5, 4, 80) ROSTER: SELECTED UNDER THE VOID AXIOMS
14	VOID-RELATIVE DISTINGUISHABILITY METRIC: CLOSED, RANK 98
15	ORDINARY LINEAR VOID-TO-HISTORY INTERTWINER: EXACT NO-GO, RANK 0
16	BIRTH SUPPORT, ALL 49 COMPLEX DIRECTIONS: FORCED
17	NEUTRAL TWO-PLANE: GENUINE; RANK-96 PARENT INCOMPLETE BY TWO; MINIMUM RETAINED CARRIER 104
18	BIRTH STIFFNESS: COLLAPSED TO ONE NEUTRAL PARAMETER (94 DIRECTIONS EXACT)
19	PRE-FACT GEOMETRY: $G\_pre = 2\, I\_98$ SELECTED; θ REMOVED BY TYPING
20	NEXT-FACT LAW: BORN, $p\_A(z) = \|P\_A\, z\|^2/\|z\|^2$, CONDITIONAL TYPING GRADE
21	RESPONSE CARRIER: $H\_CMR^{104} = W\_D \oplus 0\_6$ FIXED, RANK 98, NULLITY 6

No.	Cumulative verdict
22	DETERMINISTIC FIRST AMPLITUDE: EXCLUDED (TWIRL NO-GO)
23	UNRESOLVED PREPARATION LAW: μ_FS UNIQUE INVARIANT, LAW LEVEL
24	OPPORTUNITY FACTORISATION: CONDITIONALLY DISCHARGED UNDER ER
25	RECORD-CONDITIONED FORM: GIBBS–HAAR, ELEVEN EFFECTIVE TILTS, DERIVED
26	LOCAL-COMPARISON HOLONOMY OCCUPANCY: NOT SELECTED BY LOCAL DATA
27	LOCAL COMMITMENT ACTION: S_A = −ln w_A + ΔI_A, UNIQUE ADDITIVE FORM; GIBBS–BORN UNFOLDING
28	COST FITTING: FORBIDDEN; MAGNITUDE-TO-AMPLITUDE MAP: EXCLUDED (48-PHASE FIBRE)
29	PROVENANCE SECTOR λ_prov: SEPARATED, RETYPED AS COPY-MAINTENANCE STIFFNESS, INVISIBLE TO LOGICAL DATA
30	SHARED-FACE FACT MULTIPLICITY: ONE, CLOSED CONDITIONALLY; 16 LOGICAL CHANNELS
31	PRIMITIVE RECORD LOCALISATION: ONE INTERFACE TOKEN, SELECTED CONDITIONALLY; λ_prov^primitive = 0 EXACT; D45″ CONDITIONALLY CLOSED
32	16-TOKEN PRIMITIVE CARRIER: SELECTED BLIND; 20-TOKEN CARRIER RETAINED FOR COPIED REGIMES; OLD ξ AGREEMENT REASSOCIATED
33	POST-COMMITMENT CONTRACT: ATOMIC ALPHABET, FIRST-ENTRY LAW, SPECTRAL COPY TEST: EXACT; NO-COPY SECTOR: ALLOWED
34	STIFFNESS: UPGRADED TO SYNDROME OPERATOR H_ss (SCALAR ONLY IF ISOTROPIC); COSTS: FOUR TYPES, REDUCED-CHANNEL NON-IDENTIFIABLE
35	FIRST BRIDGE EXECUTED: ATOM (1, 1, 0, 0); FACT RETAINED, CARRIER REOPENED; HISTORY = ORDERED EXTENSION; ARCHITECTURE-CONDITIONAL
36	COPY-VS-NO-COPY: RETYPED TO RETENTION INVARIANCE; XI-4 = FIXED DILATION; MANIFESTATIONS, NOT NEW FACTS
37	LEDGER RETENTION: EXACT PROJECTOR IDENTITIES (RETENTION 1, OVERWRITE 0, LEAKAGE 0); WORKING CARRIER: FULLY REOPENED
38	PERSISTENCE ≠ BACKREACTION: SPECTATOR LEDGER EXACT UNDER FACTORISED DYNAMICS; HISTORY COUPLING = ADDITIONAL LAW
39	CARRIER BRIDGE: HX1 = 6 CUT ⊕ 6 CYCLE; CGI ∩ HX1 = CUT EXACTLY; PRINCIPAL ANGLES $\{0^6, (\pi/2)^6\}$
40	LOOP-PHASE REGENERATION: EXCLUDED EXACTLY (GAUGE-ONLY RENEWAL PHASE; LABEL TYPE ERROR; INCIDENCE NO-GO); LOCK EXCESS (1 − s) Δk
41	EFFECT-ALGEBRA SATURATION: $\langle \mathbb{1}, E_1 \ldots E_{84} \rangle = M_{50}(\mathbb{C})$; EVERY RANK-ONE PROJECTOR AVAILABLE, FRAME-INVARIANTLY; BOOLEAN FLOOR RETAINED; FINER CARRIER NOT FORCED
42	ORDERED WORDS: NONCOMMUTING AND ORDER-CARRYING (3486/3486; REVERSAL EXACTLY ISOSPECTRAL, ORDER IN EIGENVECTORS ONLY)

No.	Cumulative verdict
43	EXTREMAL SELECTORS: EXCLUDED ON THE FROZEN EXECUTION (RANK-ONE PULLBACK ⇔ ORDER BLINDNESS FOR THE TOP RAY; SMALLEST-POSITIVE ALWAYS RANK 13)
44	COMMUTATOR SELECTOR: PERFECT HISTORY-SIGN TRANSMISSION ($C_{ji} = -C_{ij}$; ORTHOGONAL REVERSAL RAYS; NO BLIND PAIRS) YET ZERO RANK-ONE PULLBACKS IN 83,664 TESTS; EXCLUDED
45	EX2E RANK-ONE PULLBACK LOCUS: DIM 38 PER EDGE AT EVERY ADMITTED WITNESS (ROBUST); PULLBACK = EXACT IDENTITY THERE; COMPLETE SOLUTION SET; NOT A REDUCING SUBSPACE (EVERY EFFECT LEAKS OUT)
46	RESTRICTED HISTORY-ODD EXTREMA AT FIXED BACKGROUND: ORDER + RANK-ONE SIMULTANEOUSLY (83,664/83,664; ZERO FAILURES); CANONICAL, BACKGROUND-RELATIVE
47	ALL-WITNESS INTERSECTION: TRIVIAL; NO RAY SURVIVES EVERY ADMITTED ENDPOINT BACKGROUND; DIRECTION = BACKGROUND-DEPENDENT; NO EDGE-BLIND RAY EITHER; LAW = P(**h**, e)
48	BACKGROUND QUOTIENT BY DECLARED GAUGE: EXCLUDED (DIFFERENCES DOMINANTLY NON-GAUGE; GAUGE-INVARIANT CURRENT POPULATIONS DIFFER; FOUR INDEPENDENT NON-GAUGE FLAT DIRECTIONS)
49	FLAT MODULI: ALL FIVE WITNESSES EXACTLY FLAT; EX2F: ACTION TOO FLAT TO SELECT A FRAME; NO WITNESS-INDEPENDENT RAY (FIVE-FOLD PLANE INTERSECTION TRIVIAL)
50	SOFT CLOSURE: LICENSED AND COMPUTABLE (EXPONENTIAL ORIENTATION SUPPRESSION; DEPTH $n(\varepsilon)$ PER RESOLUTION; NOTHING EVER EXACTLY ZERO)
51	MARKOV BLINDNESS: D36 FIRST-ORDER; NEXT-STEP LAW HISTORY-INDEPENDENT (12.81% EVERY TIME)
52	PROBABILITY STEERING: FOUND (HCMR RECORD-CONDITIONED UPDATE; EXPONENT EXACTLY ONE; TV = $n/(49 + n)$ EXACT; EXECUTED ON ACTUAL MARKS); CONDITIONAL PREPARATION LEVEL
53	WITHIN-EPOCH TRANSITION BIAS: ESTABLISHED (INTERNAL PFDMI STATE CARRIES HISTORY; 879/879 MATCHED PAIRS NONZERO; COARSE D36 LAW EXACTLY BLIND WITHIN PAIRS; NO COEFFICIENT, NO ZEROS)
54	RENEWAL BOUNDARY: UNDER THE RESET THE BIAS DIES (LEDGER-TO-R4 GAIN ZERO); RECORD-LIKELIHOOD ROUTE CLEAN BUT UNINSERTABLE (PFHBA CONDITIONAL; F101/F102)
55	STATE-PRESERVING RENEWAL: EXECUTED (COPY ISOMETRY TOUCHES ONLY THE CLASSICAL MARK; BIAS PRESERVED EXACTLY AT 0.13344; NO-OVERWRITE INTACT); THE WIPE IS THE RESET ASSUMPTION, NOT A NECESSITY
56	NATURAL FADING: COEFFICIENT-FREE RELAXATION UNDER THE FROZEN FOLDS (0.13344 → 0.00584 ACROSS 100 FOLDS); MEMORY WITH RELAXATION, NOT PERMANENT CLOSURE

No.	Cumulative verdict
57	RENEWAL NON-UNIQUENESS: STRUCTURE ADMITS THE FULL Φ_λ CONTINUUM (CPTP, UNITAL, U(50)-COVARIANT, NO-OVERWRITE; λ FREE; DIFFERENCES SCALE EXACTLY LINEARLY; SYMMETRY AND DISTINGUISHABILITY CANNOT CHOOSE)
58	EFFECT-PRESERVING RIGIDITY: SAME-CARRIER ISOMETRIC RENEWAL PRESERVING ALL 84 EFFECTS = IDENTITY UP TO PHASE (SCALAR COMMUTANT; SPAN RANK 73 YET ALGEBRA IRREDUCIBLE); PASS-THROUGH UNIQUE IN THAT CLASS
59	RENEWAL SOURCE-FREE: EXACT PASS (ZERO COMMITMENT SOURCE; σ = (1,1,0,0); K7-CBR ALREADY ISOMETRIC); BUT SOURCE-FREE ⇏ REVERSIBLE AND NO-NEW-FACT ⇏ ZERO ENTROPY (EXPORT WITHOUT FACT PERMITTED; ONLY NEW FACT ⇒ COST SURVIVES)
60	PAR ROUTE: SUB-THRESHOLD DYNAMICS MUST BE REVERSIBLE, CONDITIONALLY UNITARY; BOTH HINGES TOGETHER ⇒ EX37 IDENTITY (CONDITIONAL EXACT PASS)
61	FIELD-LEVEL NO-RESET: EXACT (UNIQUE QUADRATIC κ ACTION; SOURCE-FREE FLOW = HOMOGENEOUS KG; MODE FLOW INVERTIBLE, det R = 1, ENERGY METRIC PRESERVED; LITERAL RESET IMPOSSIBLE AT ANY FINITE TIME; DISTINCT CAUCHY DATA NEVER MERGE)
62	HINGE ONE CONDITIONALIZED: RENEWAL = SOURCE-FREE FIELD FLOW AWAITS THE ATTACHING MAP A (PFDMI ↔ κ PHASE SPACE, FAITHFUL); SCALAR FIELD OUTCOME-BLIND (NO FOLD-MARK PROMOTION)
63	KERNEL PERSISTENCE: EXACT (ker(R_tA) = ker(A), MASS-INDEPENDENT; PROPAGATION NEVER REPAIRS AN UNENCODED DIRECTION); CURRENT MA1 ATTACHMENT: EXACT FAIL (POLARITY IN THE EXACT KERNEL; SECOND SV 0.000e+00 AT ALL TESTED t)
64	WHITNEY BRANCH: RANK SURVIVAL ENTAILED [MY COROLLARY]; EXECUTED SURVIVAL GRADES AND EX40 VERDICT ABSENT (TRANSFER TRUNCATED MID-SENTENCE)
65	MARKED SINGLE SOURCE: SUFFICIENT (FOUR-VALUED MARK; SCALAR MARGINAL = COUNT; SECOND-SOURCE OBJECTION CLOSED EXACTLY); FAITHFUL SEPARATION IFF BOTH GAINS NONZERO (MA1 = THE a = 0 ROW)
66	TRANSVERSE ACTIVATION: UNRETURNED (MARGINAL BLIND TO a; INJECTIVE CONTINUUM OVER TEN ORDERS; g_cover FREE WITH δ_K = 0.995570059549810 FIXED, CURRENT ACTION 0; RELATIVE-SCALE RULE = UNDERIVED PREMISE; ZERO-BACKGROUND TENSOR ROUTE CLOSED)
67	BACKGROUND RESCUE: CLOSED EXACTLY (LINEAR KG ⇒ FLUCTUATION OPERATOR $\Box + m^2$ FOR EVERY BACKGROUND; $dL/ds_0 = 0$; NO BACKGROUND LEGALISES THE POLARITY MODE; STRESS-TENSOR FEEDBACK = NEW BRIDGE, NOT A KG CONSEQUENCE)

No.	Cumulative verdict
68	MINIMAL TYPE-CORRECT RESCUE (§B): PARTIAL SOURCE RECORD; VECTOR-RESIDUAL CONSTRUCTION AND VERDICT OWED
69	MICROSCOPIC MARKED OUTCOMES: PASS (319 OPERATORS ON $C^7 \otimes C^{50}$; COMPLETENESS 2.471e-14; CONDITIONED STATE UNIQUE UP TO PHASE; COPY RESIDUAL 0; 84 = 12 × 7 RECORDS EXACT); FIREWALL: t_term ≠ R4
70	CAPACITY-TYPING: EXCLUDED (PFHBA EXACT-LIFT FAMILY DIMENSION 34,152; UNMARKED DOOB KERNEL BLIND); FOLD-POLARITY EXTRACTION VERDICT: PARTIAL SOURCE RECORD; ORIGINAL EX43 SUPERSEDED, NEVER RECEIVED
71	CURVATURE-PARAMETRISED KERNEL: EXACT ON THE STATIONARY SCALAR BRANCH ($\sigma\alpha* = k\_C\ c*$, RESIDUAL 8.116e-14; $K_c = K_0 \exp[k\_C\ c\ \omega\_C]/Z$; $k\_C = 360/713$; $\lambda\_C = 1$; ZERO NEW COEFFICIENTS)
72	GEOMETRY ⇒ PROBABILITY LEAN: $d/dc \log K_c = k\_C[\omega\_C - \langle\omega\_C\rangle\_c]$, PROBABILITY-CONSERVING, GAIN ALREADY RETURNED; HISTORY→CURVATURE PULLBACK LEG + VERDICT PARTIAL SOURCE RECORD; CAUSAL POST-RENEWAL PROMOTION FIREWALLED
73	HISTORY → GEOMETRY: EXACT AND UNSCREENABLE (HMGBC AMENDMENT $\Delta\Omega \geq 0$; AUXILIARY RELAXATION CANNOT SCREEN); NATIVE FISHER GEOMETRY: PFDMI BORN PROBABILITIES DEFINE IT AT FIXED PHYSICAL RANK; FROZEN EX2E RESPONSES 72/72 TWICE (TERMINAL AND MARKED): NO PROBABILITY-INVISIBLE DIRECTIONS; SEPARATE GEOMETRY→PROBABILITY COUPLING: NOT NEEDED
74	ONE ATTACHING MAP SHORT: HMGBC GEOMETRY → PFDMI PHYSICAL TANGENT OPEN (CROSS-LAYER INTERTWINER); BCB ≠ PFDMI CURRENT (TYPES); LEAN MAGNITUDE NOT YET SELECTED (EX10 SHAPES DIFFER); EX45–EX54 OFFLINE, EQUATIONS STRIPPED IN R2
75	COMPLETION-CHARACTER DESCENT: EXACT (EX2A SIX LOGITS FULL RANK SIX; GSJB-2 SIX-TO-FOUR: RANK-FOUR RESPONSE; GSJB-3 $Z_2 \times Z_2$ DIAGONALISES; F_character = 4pq·diag(3,3,1,1), $p = 1 - e^{-1}$; HESSIAN SAME SHAPE, FACTOR 315/4; FOUR CHARACTERS NOT PROBABILITY-NULL)
76	ATTACHMENT REDUCED: 144-DIM TANGENT → $D\Lambda\_\Omega$ INTO FOUR CHARACTERS (SCALARISATION/RADON-NIKODYM MAP ACROSS THE QUADRATIC→LINEAR BOUNDARY); NONZERO $D\Lambda\_\Omega$ ⇒ LEAN AUTOMATIC; PARTIAL SOURCE RECORD (VERDICT COMPLETE)
77	GAUSSIAN SCALARISATION: CANONICAL ($Z\_G \propto \det(P)^{(-1/2)}$; $c\_G = -¼ \log\det P + \text{const}$; $Dc\_G = -¼\ \mathrm{Tr}(P^{-1}\delta P)$; NO FREE MEMORY COEFFICIENT; STIFFENING LOWERS THE SCALAR SETTING; CONDITIONAL ON THE WEIGHT-ENTERS-MARK IDENTIFICATION)
78	SCALAR INSUFFICIENT: BRANCH-LEVEL SCALAR ONLY; FOUR MARKED COMPLETION-RATE COORDINATES NOT RETURNED; EXACTLY BLIND TO THE k = ±1 ORIENTATION PAIR; PARTIAL SOURCE RECORD (EXECUTIVE ANSWER COMPLETE)

No.	Cumulative verdict
79	MARKED/ORIENTATION-SENSITIVE COMPONENTS OF DΛ_Ω (SCALAR CHANNEL DERIVED; FOUR MARKED SETTINGS + THE EAR FOR ORIENTATION OWED) + SOURCE-RETURNED RECORD-TENSOR VERTEX (OR THE COMPLETED MINIMAL RESCUE) + FOLD-POLARITY EXTRACTION FROM THE SOURCE PROJECTORS + PARTIAL SOURCE RECORDS (SEE APPENDIX) / PRIMITIVE EFFECT-PRESERVATION SELECTION / D36-DIRECTION TYPING / PRIMITIVE FRAME-SELECTION STRUCTURE OR NEW DECLARED REDUNDANCY (SOURCE'S D-PF32) / PRIMITIVE EXTREMAL-RULE SELECTION / DIRECTION ATTACHMENT / FOLD↔MASD TRAP RELATION / EDGE-RESOLVED TYPING BRIDGE / SURVIVAL s / Δk NORMALIZATION / RETENTION PRIMITIVE PROOF / λ_syn AND γ_syn / COSTS / AFFINITY / ν / PHASES / REALISED z(ρ, α) / CALIBRATION / RECONCILIATION: OPEN

and the blind charged transfer remains locked.

The next primitive object is the marked half of the scalarisation beside the record-tensor vertex with its companion extraction and respect: the scalar channel of DΛ_Ω being derived canonically (a coefficient-free trace rule with a definite sign, conditional on the weight-enters-mark identification) while proved insufficient alone, what is owed is the directional remainder, the four marked completion-rate coordinates and the orientation-sensitive component the determinant provably cannot hear, with the BCB/PFDMI current typing firewalled and the lean magnitude a separate later selection; and beside it the anisotropic-background route being closed exactly (the linear action's fluctuation operator background-independent, $dL/ds_0 = 0$), what is owed is the same-source vertex by which background anisotropy would lawfully feed into the Fold record-current operator, a new bridge requiring derivation rather than a consequence of the scalar theorem, or equivalently the completed minimal type-correct rescue addressed to the vector residual $\partial^a H_{ab} = ½\, \partial_b \Delta m$, whose construction was truncated in transfer; alongside it the Fold-polarity extraction, the marks existing and filing exactly while capacity provably cannot name them (exact-lift dimension 34,152), so the independent R4 mark must be read from the source amplitude decomposition and projectors or shown absent, the executed answer being owed from the fourth truncated transfer; together with the EX40, EX41, EX42 and EX43-R2 completions, and the primitive selection of physical-effect preservation, which by EX37's scalar-commutant rigidity upgrades reversible survival to the exact identity; the derived ledger write-back stays the alternative door, and the Kraus-normalized record-likelihood law the uninstallable candidate form; together with the typing of the steering to the D36 orientation; alongside it the frame-selection structure or new declared redundancy (the declared-gauge quotient being excluded and the current action provably frame-blind per EX2F), the master-action derivation of the restricted-extremal rule, the direction attachment through the unreturned carrier map (with the Fold-to-MASD trap-functional relation derived, not renamed), and the candidate-continuation-resolved typing bridge, together with the standing companions: the commitment-boundary survival fraction s, the operational normalization of Δk, the history-coupling generator, the retention-invariance primitive proof, λ_syn and γ_syn, the path-ratio costs and affinity, the phases, the realised event state, the fact-clock calibration and the cross-corpus reconciliation, with the Route-M

scale sealed as a target throughout. The completions of EX40, EX41, EX42, EX43-R2 and EX44, EX55-R2's stripped displays, the EX56 and EX57 tails and the ten unreceived offline rounds EX45–EX54 are owed; PMS-EX58 is reserved for the continuation; its preregistration is not yet frozen.

PART I: PRIOR RESULTS CONSUMED BY EX7

[Compressed record: this round is fully graded; its theorem statements, editorial flags and section anchors are retained below, and its grades, executed values and audit fields remain in the cumulative verdict table, the execution ledger and the machine-readable contract. Working prose retired in the R55 condensation.]

1. The successful downstream hierarchy remains quarantined

2. EX6 primitive descent

PART II: THE ORDERED-HISTORY χ CHAIN

[Compressed record: this round is fully graded; its theorem statements, editorial flags and section anchors are retained below, and its grades, executed values and audit fields remain in the cumulative verdict table, the execution ledger and the machine-readable contract. Working prose retired in the R55 condensation.]

3. Final-record nullity

> **Theorem 25: Final-Record Matter-Asymmetry No-Go. [inherited exact theorem]** > > A nonzero physical ordered-commitment χ cannot be obtained from the final order-forgetting record alone.

4. Ordered residue

5. Domain, existence and magnitude must remain separate

Level 1: domain

Level 2: existence

Level 3: magnitude

PART III: THE HALF-LAZY AUDIT

[Compressed record: this round is fully graded; its theorem statements, editorial flags and section anchors are retained below, and its grades, executed values and audit fields remain in the cumulative verdict table, the execution ledger and the machine-readable contract. Working prose retired in the R55 condensation.]

6. Two distinct halves

7. The half is not a numerical hierarchy generator

> **Theorem 26: Half-Lazy Numerical-Weight Insufficiency Theorem. [exact typing result]** > > The half-lazy projection/quotient theorem fixes a normalisation on paired support. It does not determine the PFDMI sector-dependent relaxation ledger. > > Therefore no derivation of (5, 4, 80) may consist solely of invoking the half-lazy factor ½.

PART IV: FIRST χ GAP AND THE MASS BRIDGE

[Compressed record: this round is fully graded; its theorem statements, editorial flags and section anchors are retained below, and its grades, executed values and audit fields remain in the cumulative verdict table,

the execution ledger and the machine-readable contract. Working prose retired in the R55 condensation.]

8. First-gap architecture

9. Factorised Yukawa bridge

PART V: THE MATTER MAINTENANCE RESPONSE

[Compressed record: this round is fully graded; its theorem statements, editorial flags and section anchors are retained below, and its grades, executed values and audit fields remain in the cumulative verdict table, the execution ledger and the machine-readable contract. Working prose retired in the R55 condensation.]

10. Exact projected quark gate

11. Maintenance coordinate

12. Maintenance conjugacy

> **Theorem 27: Ordered-History Maintenance Visibility Theorem. [conditional physical theorem]** > > If the committed record is conjugate to the same signed maintenance coordinate which the up/down overlap reads with opposite sign, then the record is necessarily visible to the quark Yukawa contrast and the leading response is strictly positive.

13. What remains open on the matter side

PART VI: THE PFDMI SAME-ACTION SCORE

[Compressed record: this round is fully graded; its theorem

statements, editorial flags and section anchors are retained below, and its grades, executed values and audit fields remain in the cumulative verdict table, the execution ledger and the machine-readable contract. Working prose retired in the R55 condensation.]

14. Native marked score

15. Direct and relaxable tangent spaces

16. Exact reduced score

> **Theorem 28: Same-Action Relaxation Theorem. [exact]** > > The physically relaxed score is the Schur complement of the auxiliary source block.

PART VII: THE DIRECT LEDGER IS SUBSTANTIALLY DERIVED

[Compressed record: this round is fully graded; its theorem statements, editorial flags and section anchors are retained below, and its grades, executed values and audit fields remain in the cumulative verdict table, the execution ledger and the machine-readable contract. Working prose retired in the R55 condensation.]

17. PFDMI-EX2C reconstruction

> **Theorem 29: Direct-Ledger Reconstruction Theorem. [current PFDMI grade]** > > The direct representation trace triple is no longer an independent numerical score input at the current representation-census grade.

PART VIII: WHY THE RELAXABLE LEDGER IS HARDER

[Compressed record: this round is fully graded; its theorem statements, editorial flags and section anchors are retained below, and its grades, executed values and audit fields remain in the cumulative verdict table, the execution ledger and the machine-readable contract. Working prose retired in the R55 condensation.]

18. Relaxability is dynamical

19. Scalar reduction exposes the missing cross-block

> **Theorem 30: Three-Number Ledger Incompleteness Theorem. [exact]** > > A numerical triplet r_A is not complete provenance for the reduced score. > > The same source must return the bath block, cross-block and their relation.

PART IX: PMS-EX7 CROSS-LAYER TEST

[Compressed record: this round is fully graded; its theorem statements, editorial flags and section anchors are retained below, and its grades, executed values and audit fields remain in the cumulative verdict table, the execution ledger and the machine-readable contract. Working prose retired in the R55 condensation.]

20. The proposed identification

Matter maintenance

PFDMI relaxation

21. Type audit

22. Cross-layer non-identification theorem

> **Theorem 31: Ordered-History Maintenance / PFDMI Relaxation Non-Identification Theorem. [current-source exact boundary]** > > The current VERSF corpus supplies no source-derived carrier map which identifies the scalar quark maintenance response > > $g_{\chi}^{T} H^{-1} g_{\chi}$ > > with the PFDMI relaxable gauge/record/completion/CAR response > > $C B^{+} C\dagger$. > > Therefore the equality is not established, and the scalar maintenance response cannot be used as a derivation of the numerical PFDMI relaxation ledger.

23. Dimensional obstruction to direct identification

> **Corollary 31.1: Scalar-to-Ledger Insufficiency Corollary.** > > Even if B_q is physically derived, it cannot by itself determine (5, 4, 80).

PART X: THE EX7 NUMERICAL VERDICT

[Compressed record: this round is fully graded; its theorem statements, editorial flags and section anchors are retained below, and its grades, executed values and audit fields remain in the cumulative verdict table, the execution ledger and the

machine-readable contract. Working prose retired in the R55 condensation.]

24. What can actually be returned now

Direct ledger

Candidate conditional relaxation ledger

Same-action source derivation of relaxation ledger

Full cross-block package

Ordered-history matter response

Primitive derivation of $M_{\chi}(q)$

Identification of matter response with PFDMI relaxation

Blind RRHF recovery

PART XI: EX7 MAIN THEOREM

[Compressed record: this round is fully graded; its theorem statements, editorial flags and section anchors are retained below, and its grades, executed values and audit fields remain in the cumulative verdict table, the execution ledger and the machine-readable contract. Working prose retired in the R55 condensation.]

25. Theorem

> **Theorem 32: Ordered-History Maintenance Response and Native Relaxation-Ledger Separation Theorem.** > > The current VERSF matter/score corpus establishes: > > 1. a nonzero physical ordered-commitment χ cannot be a

final-record-only readout; > 2. a physical half-lazy χ gate must derive its half from projection/quotient structure and supplies no arbitrary numerical weight; > 3. the first-χ-gap architecture separates ordering, metric magnitude and numerical Yukawa closure; > 4. the quark realised-readout gate is $B_q = ½ D^T M^{-1} b_m$; > 5. under maintenance conjugacy, $B_q = g_\chi^T H^{-1} g_\chi > 0$; > 6. the PFDMI direct ledger is reconstructed as (6, 13/2, 378) within the inherited faithful typed carrier; > 7. the exact relaxed marked score is $Z = D − C B^+ C†$; > 8. the shorthand $Z_A = d_A − r_A$ requires the additional cross-block identity $b_A^2 = r_A^2$; > 9. relaxability is selected by source-native bath/ledger transfer dynamics, not representation multiplicity; > 10. no current source-derived intertwiner identifies the quark maintenance response with the PFDMI relaxable score blocks. > > Therefore the numerical relaxation ledger (5, 4, 80) remains unselected, and the ordered-history maintenance papers cannot be used as its derivation without a new typed cross-layer theorem.

PART XII: WHAT EX7 CHANGES

[Compressed record: this round is fully graded; its theorem statements, editorial flags and section anchors are retained below, and its grades, executed

values and audit fields remain in the cumulative verdict table, the execution ledger and the machine-readable contract. Working prose retired in the R55 condensation.]

26. R6 target versus R7 target

R6 formulation

R7 formulation

27. Matter maintenance becomes a parallel primitive test

PART XIII: PMS-EX8 EXECUTION

[Compressed record: this round is fully graded; its theorem statements, editorial flags and section anchors are retained below, and its grades, executed values and audit fields remain in the cumulative verdict table, the execution ledger and the machine-readable contract. Working prose retired in the R55 condensation.]

28. Native Bath-Adjacency, Cross-Block and Relaxable-Weight Descent

28.1 Exact bath topology from the completion graph

> **Theorem 28.1: Completion-Transfer Two-Component Theorem. [exact]** > > The four source-recovered completion channels define two exact bath-connectivity components, quark and lepton. A universal relaxation bath may not be inserted across them unless the source independently returns an inter-sector coupling.

28.2 Reduced bath dynamics

28.3 What EX8 does not return

28.4 EX8 verdict

PART XIV: PMS-EX9 EXECUTION

[Compressed record: this round is fully graded; its theorem statements, editorial flags and section anchors are retained below, and its grades, executed values and audit fields remain in the cumulative verdict table, the execution ledger and the machine-readable contract. Working prose retired in the R55 condensation.]

29. Physical Score-Normalisation, Endpoint-Frame and Colour/CAR Bath Completion

29.1 Minimum-norm endpoint quotient

29.2 Support is endpoint independent

> **Theorem 29.1: Physical Score-Support Quotient Theorem. [exact at support level, conditional on the declared quotient]** > > The primitive marked source selects a regulator-stable rank-72 physical terminal-score support after the declared endpoint quotient, even though the raw endpoint-dependent numerical Grams are inequivalent.

29.3 Exact graded support returns

29.4 Normalisation no-go at EX9

29.5 EX9 verdict

PART XV: PMS-EX10 EXECUTION

[Compressed record: this round is fully graded; its theorem statements, editorial flags and section anchors are retained below, and its grades, executed values and audit fields remain in the cumulative verdict table, the execution ledger and the machine-readable contract. Working prose retired in the R55 condensation.]

30. Primitive Native Score-Metric and Completion-Attachment Selection

30.1 Native Born–Fisher metric: endpoint non-identifiable

> **Theorem 30.1: Native Numerical Score-Metric Non-Identifiability. [exact non-identifiability certificate on the frozen witness family]** > > The primitive source selects the rank-72 physical score support but not one endpoint-independent numerical Born–Fisher stiffness on that support.

30.2 Endpoint-independent innovation metric

30.3 Exact square-root record weights

30.4 Completion attachment closes exactly

> **Theorem 30.2: Primitive Completion Character-Attachment Theorem. [exact within the declared route basis]** > > The four source-recovered completion routes

uniquely select, up to column signs and declared auxiliary-label ordering, the radial, sector, conjugation and mixed completion coordinates and the relative stiffness spectrum 3 : 3 : 1 : 1.

30.5 Old HFB completion block is not a scalar bridge

30.6 EX10 verdict

PART XVI: PMS-EX11 EXECUTION

[Compressed record: this round is fully graded; its theorem statements, editorial flags and section anchors are retained below, and its grades, executed values and audit fields remain in the cumulative verdict table, the execution ledger and the machine-readable contract. Working prose retired in the R55 condensation.]

31. Primitive Endpoint-Measure and Neutral-Branch Provenance

31.1 Three closed record orbits imply a stationary simplex

31.2 The symmetry-selected measure is absorbing

> **Theorem 31.1: Symmetric-Absorbing Endpoint No-Go. [exact]** > > A unique symmetry-invariant stationary measure does not constitute a physical score selection when that measure is terminal and destroys the active response that the metric is supposed to encode.

31.3 Central invariant endpoint information is insufficient

> **Theorem 31.2: Central-Invariant Endpoint Non-Identifiability. [exact]** > > No selector depending only on the available central invariant endpoint data can uniquely determine the physical numerical score metric, because identical invariant data coexist with inequivalent physical Fisher forms.

31.4 Neutral-branch provenance remains open

31.5 Finite-history repair does not provide provenance

31.6 Completion congruence is exact but nonselective

31.7 EX11 main theorem

> **Theorem 31.3: Primitive Endpoint-Measure and Neutral-Branch Provenance No-Go. [current-source no-go]** > > Under the frozen EX11 source corpus, the static history-neutral endpoint architecture does not uniquely return the physical numerical H_CMR response. The stationary set is nonunique; the symmetry-selected measure is absorbing and neutral-score null; central invariant endpoint data are insufficient to determine the noncentral score coherences; the two innovation-count branches are physically inequivalent; finite-episode lifts do not repair the absorbing rate law; and the

completion congruence is an O(4) family rather than a unique primitive bridge. > > The missing object is a source-derived, record-preserving, nonabsorbing renewal law together with its typed marked-history score lift and complete same-action cross blocks.

31.8 EX11 verdict

PART XVII: WHAT EX8–EX11 CHANGE

[Compressed record: this round is fully graded; its theorem statements, editorial flags and section anchors are retained below, and its grades, executed values and audit fields remain in the cumulative verdict table, the execution ledger and the machine-readable contract. Working prose retired in the R55 condensation.]

32. From numerical-ledger search to dynamical provenance

33. Persistent fact and renewed present must be distinct

PART XVIII: PMS-EX12 LOCK

[Compressed record: this round is fully graded; its theorem statements, editorial flags and section anchors are retained below, and its grades, executed values and audit fields remain in the cumulative verdict table, the execution ledger and the machine-readable contract. Working prose retired in the R55 condensation.]

34. Primitive Record-Preserving Renewal and

Complete Marked History-Rate Descent

Stage A: record-preserving reopening

Stage B: nonabsorbing stationary history-rate law

Stage C: typed defect-to-mark lift

Stage D: complete same-action Hessian

Stage E: terminal-roster test

Stage F: post-freeze downstream comparison

PART XIX: PMS-EX12 EXECUTION

[Compressed record: this round is fully graded; its theorem statements, editorial flags and section anchors are retained below, and its grades, executed values and audit fields remain in the cumulative verdict table, the execution ledger and the machine-readable contract. Working prose retired in the R55 condensation.]

35. Primitive Record-Preserving Renewal and Complete Marked History-Rate Descent

35.1 Stage A: record-preserving reopening

35.2 Stage B: nonabsorbing stationary history rate

35.3 Canonical witness

35.4 Real cone-positive generator

35.5 Stage C: does renewal restore enough physical score information?

35.6 But the typed defect-to-mark lift fails uniqueness

35.7 Stage D: full D, C, B, Z

35.8 Why r is not selected

35.9 Why κ is not selected

35.10 Stage E: does renewal select the neutral branch?

35.11 Regulator test

35.12 PMS-EX12 main theorem

> **Theorem 32.1: Record-Preserving Renewal Existence and Physical-Selection No-Go. [constructive existence exact; selection no-go on the frozen package]** > > Under the frozen PMS-EX12 source package: > > 1. an exact rank-84 ledger-append isometry permits completed records to remain immutable while a working carrier is reopened; > 2. the most general nonnegative S_3-equivariant three-key renewal is $R(\kappa) = \kappa I_3 + ((1 - \kappa)/2)(J_3 - I_3)$; > 3. with renewal probability $0 < r \le 1$ and completion probability $p = 1 - e^{-1}$, the stationary masses are $\mu_A = \mu_S = r/(2r + p)$, $\mu_C = p/(2r + p)$, and the D, R and renewal rates are $pr/(2r + p) > 0$; > 4. renewal therefore removes EX11's asymptotic neutral-information obstruction; > 5. the renewed neutral Fisher block has rank six and the complete 651-mark Fisher form has rank 588, removing the full-rank obstruction to the retained parent; > 6. nevertheless r

remains continuous, κ remains continuous, inequivalent exact typed score lifts reproduce the same parent Hessian, and the charged-minimal and neutral-extended branches remain physically distinct and simultaneously admissible. > > Therefore renewal is sufficient for continuing physical information but not uniquely selected by the current primitive source. The physical H_CMR remains unselected.

35.13 EX12 grade

PART XX: WHAT EX12 CHANGES

[Compressed record: this round is fully graded; its theorem statements, editorial flags and section anchors are retained below, and its grades, executed values and audit fields remain in the cumulative verdict table, the execution ledger and the machine-readable contract. Working prose retired in the R55 condensation.]

36. From renewal existence to renewal selection

PART XXI: QUARANTINED POST-FREEZE PHENOMENOLOGICAL COMPARISON

[Compressed record: this round is fully graded; its theorem statements, editorial flags and section anchors are retained below, and its grades, executed values and audit fields remain in the cumulative verdict table, the execution ledger and the machine-readable contract.

Working prose retired in the R55 condensation.]

PART XXII: PMS-EX13 LOCK

[Compressed record: this round is fully graded; its theorem statements, editorial flags and section anchors are retained below, and its grades, executed values and audit fields remain in the cumulative verdict table, the execution ledger and the machine-readable contract. Working prose retired in the R55 condensation.]

47. Primitive Renewal-Action and Typed Radon–Nikodym Hessian

PART XXIII: PMS-EX13 EXECUTION

[Compressed record: this round is fully graded; its theorem statements, editorial flags and section anchors are retained below, and its grades, executed values and audit fields remain in the cumulative verdict table, the execution ledger and the machine-readable contract. Working prose retired in the R55 condensation.]

48. Primitive Renewal-Action and Typed Radon–Nikodym Hessian

48.1 The zero-entropy reset selects the key kernel

48.2 r is not selected: it disappears as a physical parameter

48.3 Exact renewed stationary law

48.4 First-passage/Born test

48.5 Exact neutral first-passage return

48.6 The full Fisher-rank obstruction stays closed

48.7 Does EX13 now select the neutral branch?

48.8 The main EX13 failure: Ξ is still not selected

48.9 Consequence for D, C, B, Z

48.10 EX13 main theorem

> **Theorem 32.2: Void-Relative Fact-Selection and Renewal-Parameter**

Reduction Theorem. [exact under the declared P9 premises; occupancy and Ξ open] > > Under the declared zero-entropy-void, record-separation, S_3-neutrality and fact-indexed-time premises: > > 1. the unique S_3-invariant zero-entropy pre-fact ray is $|\chi_0\rangle = (1, 1, 1)/\sqrt{3}$; > 2. its record-preserving classical reset shadow is uniform, uniquely selecting κ_key = 1/3; > 3. the EX12 reset probability r is removed as a fact-time coordinate freedom, with canonical fact-indexed representative r = 1; > 4. the absolute common hazard remains undetermined; > 5. the renewed process remains nonabsorbing and regulator stable, with Γ_D = Γ_R = Γ_renewal = $(1 - e^{-1})/(3 - e^{-1})$; > 6. first-passage fact probabilities reproduce the terminal Born weights at approximately 10^{-15}; > 7. the full marked Fisher rank rises to 774, so rank is not the remaining obstruction; > 8. if a neutral pre-fact distinction exists, finite irreversible fact formation forces the neutral-extended terminal branch; > 9. nevertheless the primitive source does not yet prove neutral pre-fact occupancy and does not return a unique typed distinguishability map Ξ; two exact lifts differ by 1.727051. > > Therefore the dimensionless renewal law is selected, but the full physical H_CMR is not yet derived.

48.11 EX13 verdict

PART XXIV: WHAT EX13 CHANGES

[Compressed record: this round is fully graded; its theorem statements, editorial flags and section anchors are retained below, and its grades, executed values and audit fields remain in the cumulative verdict table, the execution ledger and the machine-readable contract. Working prose retired in the R55 condensation.]

49. From four unknowns to three, with the reset matrix finished

PART XXV: PMS-EX14 LOCK

[Compressed record: this round is fully graded; its theorem statements, editorial flags and section anchors are retained below, and its grades, executed values and audit fields remain in the cumulative verdict table, the execution ledger and the machine-readable contract. Working prose retired in the R55 condensation.]

50. Void-Relative Typed Distinguishability Hessian and Neutral-Occupancy Theorem

PART XXVI: PMS-EX14 EXECUTION

[Compressed record: this round is fully graded; its theorem statements, editorial flags and section anchors are retained below, and its grades, executed values and audit fields remain in the cumulative verdict table, the execution ledger and the machine-readable contract.

Working prose retired in the R55 condensation.]

51. Void-Relative Typed Distinguishability Hessian and Neutral-Occupancy Theorem

51.1 The neutral-occupancy question

51.2 Important interpretation

51.3 The void-relative distinguishability metric

51.4 The remaining four neutral directions

51.5 Full-rank closure

51.6 An exact spectral identity emerges

51.7 Does this finally give the physical Ξ?

51.8 The two missing directions are now explicit

51.9 Consequence for D, C, B, Z

51.10 What happened to the neutral branch?

51.11 EX14 main theorem

> **Theorem 32.3: Void-Relative Typed Distinguishability and Neutral-Carrier Selection Theorem. [exact within the frozen faithful algebra under the declared void axioms; intertwiner open]** > > Within the frozen faithful representation algebra and under the declared zero-entropy, full-gauge-invariance and S_3-neutrality axioms: > > 1. the twelve faithful gauge generators have common kernel dimension 3; > 2. that entire kernel lies inside one

rank-3 neutral-terminal central projector; > 3. deleting this projector leaves the charged-minimal carrier with common-kernel dimension 0; > 4. therefore any nonzero pure, gauge-invariant, S_3-neutral, zero-entropy pre-fact canvas must lie in the neutral-terminal rank-3 sector; > 5. post-freeze representation identification maps this sector to N_R, selecting the neutral-extended roster within the frozen alternatives; > 6. the void-relative graded distinguishability Hessian has full real rank 98 = 94 + 2 + 2; > 7. its extreme eigenvalues obey λ_min + λ_max = 8 at both evaluated regulators; > 8. however, exact embeddings of this rank-98 metric into the existing history parent remain nonunique, leaving precisely two physical/null directions unresolved. > > Therefore the neutral-occupancy/branch problem closes conditionally, and the internal void-relative response metric closes, but the primitive void-to-history intertwiner and hence the uniquely typed full H_CMR remain open.

51.12 EX14 verdict

PART XXVII: WHAT EX14 CHANGES

[Compressed record: this round is fully graded; its theorem statements, editorial flags and section anchors are retained below, and its grades, executed values and audit fields remain in the cumulative verdict table,

the execution ledger and the machine-readable contract. Working prose retired in the R55 condensation.]

52. The branch chain closes under the void axioms

PART XXVIII: PMS-EX15 EXECUTION

[Compressed record: this round is fully graded; its theorem statements, editorial flags and section anchors are retained below, and its grades, executed values and audit fields remain in the cumulative verdict table, the execution ledger and the machine-readable contract. Working prose retired in the R55 condensation.]

53. Primitive Innovation Intertwiner from Void Tangent to Full History Carrier

53.1 The first-order intertwiner is exactly zero

53.2 Yet the mark/Kraus system is not trivial

53.3 The 94 + 4 structure now makes sense

53.4 The typing correction

53.5 Can a minimal birth map be constructed at all?

53.6 What happens to the 98 → 96 problem?

53.7 This changes the interpretation of the missing two directions

53.8 Does EX15 finally give D, C, B, Z?

53.9 What EX15 does not undo

53.10 EX15 main theorem

> **Theorem 32.4: Primitive Linear-Intertwiner No-Go and Graded-Birth Retyping Theorem. [exact no-go and retyping on the current action; birth existence witnessed, provenance open]**
> > Under the frozen faithful carrier, selected neutral-singlet void ray and current PFDMI field action: > > 1. every ordinary first-order field channel from the void into gauge, representation-current and population variables has rank zero; > 2. the existing marked/Kraus derivative has rank 155 but preserves the inherited charged support and cannot create N_R-to-species amplitudes; > 3. therefore no ordinary action-derived linear intertwiner from the void tangent to the full history carrier is returned; > 4. the correct primitive object must be a graded support-changing birth functor, with amplitude birth at first order, probability/Casimir response at second order, bosonic completion at mixed second order and CAR/Fock completion at mixed third order; > 5. a minimal 49-complex-direction family $B_\alpha = |v_\alpha\rangle\langle\Omega|$ spans the complete rank-98 real void tangent and proves existence of a sufficient support-changing mechanism; > 6. this witness is not derived by the current action; > 7. the 98-versus-96 discrepancy lies in a neutral rank-2 plane, but symmetry admits a continuous

family of such planes and the supplied FCHI parent reproduces every sampled member, so the parent cannot select which plane is physical. > > Hence the primitive linear intertwiner fails exactly, the problem is retyped as support creation, and the full source-typed H_CMR remains open.

53.11 EX15 verdict

PART XXIX: WHAT EX15 CHANGES

[Compressed record: this round is fully graded; its theorem statements, editorial flags and section anchors are retained below, and its grades, executed values and audit fields remain in the cumulative verdict table, the execution ledger and the machine-readable contract. Working prose retired in the R55 condensation.]

54. From an embedding law to a creation law

PART XXX: PMS-EX16 EXECUTION

[Compressed record: this round is fully graded; its theorem statements, editorial flags and section anchors are retained below, and its grades, executed values and audit fields remain in the cumulative verdict table, the execution ledger and the machine-readable contract. Working prose retired in the R55 condensation.]

55. Support-Changing Primitive Birth Operator and Graded Innovation Functor

55.1 Can the void select one definite birth direction?

55.2 Therefore all 49 complex birth directions are physical candidates

55.3 But support is not the same as probability or stiffness

55.4 Why can't symmetry fix the k_j?

55.5 What about equal weighting?

55.6 EX16 finally settles the mysterious two directions

55.7 Why did the 96-dimensional parent fit so well then?

55.8 No-hidden-distinction admission

55.9 The minimum history carrier is therefore not 96

55.10 This changes the interpretation of H_CMR

55.11 Does EX16 derive the full birth covariance?

55.12 Can Fact-Momentum fix them?

55.13 What about the graded jets?

55.14 EX16 main theorem

> **Theorem 32.5: Support-Forced Birth and Rank-96 Incompleteness Theorem. [exact within the frozen faithful carrier under the declared void axioms and the no-hidden-distinction admission rule]** > > Within the frozen faithful carrier and the zero-entropy neutral-singlet void selected by EX14: > > 1. the joint gauge × S_3 action has no nonzero fixed direction

on the 49-complex-dimensional projective void tangent; > 2. therefore a symmetry-preserving primitive birth law cannot select one deterministic direction and must have full support on all 49 complex innovation directions; > 3. the real 98-dimensional birth tangent decomposes into twelve inequivalent gauge × S_3 components; > 4. every positive branch-blind invariant birth covariance consequently has the form K_birth = Σ_(j=1)^12 k_j P_j, leaving eleven independent relative stiffnesses; > 5. the currently retained principles do not select these ratios, as multiple source-clean invariant full-support laws give inequivalent covariances and different role probabilities; > 6. the two disputed neutral modes have strictly positive void-relative distinguishability eigenvalues at both regulators; > 7. therefore, under no-hidden-distinction admission, they are genuine physical modes rather than null directions; > 8. the inherited rank-96 parent is consequently incomplete by exactly two response directions; > 9. including the six persistent-record null modes requires a minimum history-plus-record carrier dimension of 104. > > Hence the birth support and physical response rank are selected, but the relative birth cost/stiffness law remains unselected.

55.15 EX16 verdict

PART XXXI: WHAT EX16 CHANGES

[Compressed record: this round is fully graded; its theorem statements, editorial flags and section anchors are retained below, and its grades, executed values and audit fields remain in the cumulative verdict table, the execution ledger and the machine-readable contract. Working prose retired in the R55 condensation.]

56. From which directions to what costs

PART XXXII: PMS-EX17 EXECUTION

[Compressed record: this round is fully graded; its theorem statements, editorial flags and section anchors are retained below, and its grades, executed values and audit fields remain in the cumulative verdict table, the execution ledger and the machine-readable contract. Working prose retired in the R55 condensation.]

57. Pre-Fact Innovation Action Metric and Rank-98 H_CMR Completion

57.1 The eleven stiffness ratios collapse

57.2 Where the two candidate metrics disagree

57.3 The neutral spectrum has exact structure

57.4 Best possible scalar identification fails

57.5 The surviving one-parameter family

57.6 Exact role weights at the Fubini–Study endpoint

57.7 Exact role weights at the distinguishability endpoint

57.8 The maximum-entropy candidate acquires a better interpretation

57.9 The alternative W_D interpretation remains viable

57.10 The corrected 104-dimensional carrier is now explicit

57.11 What happened to the old rank-96 parent?

57.12 Can Fact-Momentum choose θ?

57.13 Do we finally get D, C, B, Z?

57.14 EX17 main theorem

> **Theorem 32.6: Pre-Fact Innovation-Metric Reduction and Rank-98 Carrier Theorem. [exact within the frozen faithful void carrier under P12 and the P13 comparison frame]** > > Within the frozen faithful void carrier and under the EX16 no-hidden-distinction admission: > > 1. the Fubini–Study metric is G_FS = 2 I_98; > 2. G_FS and the void-relative distinguishability Hessian W_D agree exactly on all 94 nonneutral real directions to residual 2.2×10^{-17}; > 3. hence the eleven relative birth-stiffness freedoms of EX16 collapse to a four-dimensional neutral-sector ambiguity; > 4. the neutral W_D spectrum is pairwise complementary, {a, b, 8 − b, 8 − a}, with exact trace

16; > 5. W_D is not globally proportional to Fubini–Study, the optimal scalar being 51/49 with residual 0.3968; > 6. the minimal source-supported family is G_θ = (1 − θ) 2 I_98 + θ W_D; > 7. every member is positive rank 98; > 8. adjoining the six persistent-record nulls yields H_104 = G_θ ⊕ 0_6, a 104-dimensional rank-98/null-6 retained carrier at both regulators; > 9. neither the frozen source principles nor Fact-Momentum currently selects θ, the absolute action unit, or whether physical hazards depend on the metric, its inverse, or another transition tensor. > > Therefore EX17 closes the carrier architecture and reduces the birth-stiffness ambiguity enormously, but does not yet select the unique physical pre-fact action metric.

57.15 EX17 verdict

PART XXXIII: WHAT EX17 CHANGES

[Compressed record: this round is fully graded; its theorem statements, editorial flags and section anchors are retained below, and its grades, executed values and audit fields remain in the cumulative verdict table, the execution ledger and the machine-readable contract. Working prose retired in the R55 condensation.]

58. From eleven ratios to one dial, one rule and one tempo

PART XXXIV: PMS-EX18 EXECUTION

[Compressed record: this round is fully graded; its theorem statements, editorial flags and section anchors are retained below, and its grades, executed values and audit fields remain in the cumulative verdict table, the execution ledger and the machine-readable contract. Working prose retired in the R55 condensation.]

59. Pre-Fact Action-to-Hazard Bridge and Timeless Fact-Order Selection

59.1 The Tick-Race does not require background time

59.2 What must the branch weights w_A be?

59.3 Why this does not falsify W_D

59.4 Exhaustive additivity independently gives the same answer

59.5 The next-fact law

59.6 What happened to θ?

59.7 Corrected object ledger

59.8 What happens to the EX17 pairwise-8 result?

59.9 The isotropic role weights

59.10 The remaining missing object: which z?

59.11 Absolute time is also still open

59.12 What about D, C, B, Z?

59.13 EX18 main theorem

> **Theorem 32.7: Timeless Fact-Order, Born-Weight and Action/Response Typing Theorem. [exact under the frozen P14 package; Born law at conditional typing grade; preparation and calibration open]** > > Under the frozen EX18 faithful-carrier, void and branch-algebra package: > > 1. a common background clock is unnecessary for determining next-fact order; > 2. proportional Tick-Race hazards satisfy P(A next) = w_A / Σ_B w_B independently of the common baseline hazard shape and its monotone parameterisation; > 3. a primitive quadratic amplitude weight must be globally phase invariant; > 4. within the EX17 family G_θ, phase covariance holds at both regulators only at θ = 0; > 5. exhaustive branch additivity independently returns the same metric, G_pre = 2 I_98; > 6. therefore the conditional next-fact rule is $p_A(z) = \|P_A z\|^2 / \|z\|^2$; > 7. W_D is not rejected but retyped as the post-fact distinguishability/response metric; > 8. consequently the EX17 interpolation parameter θ is removed as a type-conflation parameter rather than numerically selected; > 9. the completed response carrier is H_CMR^104 = W_D ⊕ 0_6, dimension 104, rank 98 and nullity 6; > 10. the actual source-prepared amplitude z, its preparation measure and

the calibration from ordered facts to reference fact clocks remain open.

59.14 EX18 verdict

PART XXXV: WHAT EX18 CHANGES

[Compressed record: this round is fully graded; its theorem statements, editorial flags and section anchors are retained below, and its grades, executed values and audit fields remain in the cumulative verdict table, the execution ledger and the machine-readable contract. Working prose retired in the R55 condensation.]

60. The dial dissolves and the probability rule appears

PART XXXVI: PMS-EX19 EXECUTION

[Compressed record: this round is fully graded; its theorem statements, editorial flags and section anchors are retained below, and its grades, executed values and audit fields remain in the cumulative verdict table, the execution ledger and the machine-readable contract. Working prose retired in the R55 condensation.]

61. Primitive Pre-Fact Amplitude Preparation and Ordered-Fact Ledger Descent

61.1 What exactly is being prepared?

61.2 Can the substrate deterministically differentiate the void?

61.3 This matches the foundational papers

61.4 Can loop holonomy create z?

61.5 The explicit birth witness remains useful

61.6 Could the first fact install a global frame?

61.7 This is important for the history question

61.8 If no deterministic z is allowed, what can be selected?

61.9 Numerical audit of the Haar result

61.10 Precision about what has been derived

61.11 What does Haar + Born give?

61.12 The renewal/factorisation problem

61.13 The additional condition: ER

61.14 What this means physically

61.15 D44′ status

61.16 Does EX19 derive physical time?

61.17 Where does history enter?

61.18 Where the prior-paper audit mattered

61.19 What about the phases?

61.20 EX19 main theorem

> **Theorem 32.8: First-Differentiation No-Go and Minimal Loop-Supported Primitive Innovation-Factorisation Theorem. [exact under P15; factorisation conditional on P16 (ER); event realisation**

and calibration open] > > Under the frozen void/tangent package, the full refinement/isosymmetry bridge, the declared void/locality/one-Bit/no-unearned-frame axioms, and with no downstream Standard Model targets: > > 1. a complete refinement-symmetry twirl eliminates every deterministic void-to-tangent coupling, reducing an arbitrary raw birth norm 6.150 to 1.36×10^{-16}; > 2. therefore no deterministic fully equivariant law can select the first physical amplitude direction from the invariant void; > 3. $D_7/\mathbb{Z}_7$ holonomy preserves the void exactly while acting nontrivially on existing innovations, so holonomy transports but does not create the first distinction; > 4. one one-Bit commitment cannot install a global loop frame requiring $(N - 1) \log_2 q$ bits, hence the first primitive readout is local-comparison rather than global-frame typed; > 5. the unique unresolved probability measure invariant under the complete unitary/refinement bridge is Haar/Fubini–Study measure on $\mathbb{C}P^{48}$, with covariance $I_{49}/49$; > 6. exchangeability alone does not imply independent renewal opportunities; > 7. under Exchangeable Renewal Extendibility, de Finetti yields conditionally iid Bernoulli primitive opportunities governed by one common

dimensionless directing parameter; > 8. branch identity at a realised fact is independently governed by the EX18 Born norm; > 9. therefore the primitive-innovation factorisation closes conditionally at law level; > 10. the actual directing state, record-conditioned preparation law, realised amplitude and physical calibration from ordered Bits to reference-clock seconds remain unreturned.

61.21 EX19 verdict

PART XXXVII: WHAT EX19 CHANGES

[Compressed record: this round is fully graded; its theorem statements, editorial flags and section anchors are retained below, and its grades, executed values and audit fields remain in the cumulative verdict table, the execution ledger and the machine-readable contract. Working prose retired in the R55 condensation.]

62. From which state to what conditions the law

PART XXXVIII: PMS-EX20 EXECUTION

[Compressed record: this round is fully graded; its theorem statements, editorial flags and section anchors are retained below, and its grades, executed values and audit fields remain in the cumulative verdict table, the execution ledger and the machine-readable contract. Working prose retired in the R55 condensation.]

63. Record-Conditioned Directing Measure and Local-Comparison Holonomy Occupancy

63.1 Start from the EX19 law

63.2 The record-conditioned law

63.3 But Haar is no longer unique after a nontrivial record

63.4 What has actually been derived?

63.5 Relation to the older ordered-record result

63.6 Now the topology question

63.7 Exact binary occupancy calculation

63.8 Does local comparison force nontrivial occupancy?

63.9 What happens if ER is retained?

63.10 Complement symmetry gives an exact special case

63.11 The $\mathbb{Z}_7$ diagnostic

63.12 Eventual occupancy under repeated renewal

63.13 The construction order becomes unexpectedly important

63.14 Is the actual amplitude finally returned?

63.15 This is nevertheless a significant advance

63.16 EX20 main theorem

> **Theorem 32.9: Record-Conditioned Directing-Measure and Local-Holonomy Nonselection**

Theorem. [form exact under P17; tilts, directing law, occupancy and construction order open] > > Under the frozen EX19 projective tangent, Haar law, ER-conditional factorisation and declared local-comparison topology: > > 1. an existing record conditions the unresolved projective preparation through μ(dη | ρ) = Z(ρ)$^{-1}$ e^(−Φ_ρ(η)) μ_FS(dη); > 2. a constant Φ_ρ recovers Haar exactly; > 3. after a nontrivial record, the twelve invariant components possess exactly eleven physically effective relative tilts; > 4. the microscopic extension-information functional producing those tilts is not returned; > 5. an unfilled triangular loop has first cohomology of dimension one over both $\mathbb{Z}_2$ and $\mathbb{Z}_7$, while the filled triangle has $H^1 = 0$; > 6. for conditionally iid binary comparison bits, P(odd | α) = ½[1 − (1 − 2α)^3] exactly; > 7. nevertheless identical local marginals and exchangeability admit both zero and unit global occupancy, so local comparison alone cannot select the cohomology class; > 8. under ER, the unconditional occupancy is the ν-average of the exact conditional formula; > 9. complement symmetry would give exactly ½, while the uniform structural diagnostic gives 6/7, but neither is presently an unconditional physical prediction; > 10. the record-conditioned directing law, realised amplitude,

realised holonomy class and pre-commitment shared-face construction order remain unselected.

63.17 EX20 verdict

PART XXXIX: WHAT EX20 CHANGES

[Compressed record: this round is fully graded; its theorem statements, editorial flags and section anchors are retained below, and its grades, executed values and audit fields remain in the cumulative verdict table, the execution ledger and the machine-readable contract. Working prose retired in the R55 condensation.]

64. From an arbitrary preparation theory to eleven coefficients and a directing law

PART XL: PMS-EX21 EXECUTION

[Compressed record: this round is fully graded; its theorem statements, editorial flags and section anchors are retained below, and its grades, executed values and audit fields remain in the cumulative verdict table, the execution ledger and the machine-readable contract. Working prose retired in the R55 condensation.]

65. Local Commitment Action, Extension-Information Functional and Construction-Order Closure

65.1 Start from the EX20 residual

65.2 Why this additive form is unique

65.3 The resulting probability law

65.4 Does ΔI derive the amplitude?

65.5 The missing phase space is huge

65.6 This agrees with the earlier RAL audit

65.7 Could the entropy cost select the missing amplitude?

65.8 Consequence: the costs must be calculated, not fitted

65.9 Now the shared-face construction problem

65.10 Interpretation of J

65.11 A second distinction appears: provenance

65.12 The quotient

65.13 Can ordinary information theory tell us which is physical?

65.14 So provenance requires its own physical sector

65.15 The two candidate stability graphs

[Editorial note: the numerical entries of §65.15–65.17 (degrees, relation counts, spectral radii, coherence lengths, reproduction residuals, and the percentage gap of §65.17) were stripped in file transfer along with the equations; the structural and exactness statements are preserved, and the values are to be restored from the execution record.]

65.16 A large physical consequence of the unresolved fork

65.17 Interesting near-agreement, but not evidence yet

65.18 The construction-order fork at the end of EX21

65.19 What happened to the original EX21 objectives?

65.20 Consequently the actual amplitude remains open

65.21 EX21 main theorem

> **Theorem 32.10: Local Commitment-Action Form and Preparation/Construction Nonselection Theorem. [form exact under P18; costs, phases, provenance stiffness and multiplicity open]** > > Under the frozen EX20 preparation geometry and declared independent-composition, regularity, iso-entropic-neutrality and thermodynamic-additivity assumptions: > > 1. the unique additive local commitment action has form S_A = −ln w_A + ΔI_A; > 2. its Gibbs–Born unfolding is p_A = w_A e^(−ΔI_A) / Σ_B w_B e^(−ΔI_B); > 3. equal costs recover the timeless Born law at machine-precision residual; > 4. extension information does not determine the coherent amplitude, since orthogonal projective states can possess identical component magnitudes, with demonstrated Fubini–Study separation π/2; > 5. any strictly

positive target distribution can be reproduced by suitable nonnegative entropy costs, so the action form cannot select physical probabilities unless those costs are independently derived; > 6. shared-face exchange and complement symmetry leave exactly the one-parameter Ising family P(s_L, s_R) = ¼(1 + J s_L s_R); > 7. therefore identical one-bit marginals admit both one-effective-bit and two-effective-bit joint structures; > 8. duplicate provenance is invisible to Shannon, KL and Fisher information, requiring a separately typed provenance metric λ_prov; > 9. the two corresponding 16- and 20-token stability graphs are both internally consistent and give distinct downstream coherence lengths; > 10. the present action does not select the pre-commitment shared-face multiplicity, physical entropy costs, drive affinity or coherent phase assignment. > > Hence EX21 closes the **action form**, but not the **physical preparation content** or the **construction-order choice**.

65.22 EX21 verdict

PART XLI: WHAT EX21 CHANGES

[Compressed record: this round is fully graded; its theorem statements, editorial flags and section anchors are retained below, and its grades, executed values and audit fields remain in the cumulative verdict table, the execution ledger and the

machine-readable contract. Working prose retired in the R55 condensation.]

66. The commitment grammar closes; the contents and the copies do not

PART XLII: PMS-EX22 LOCK

[Compressed record: this round is fully graded; its theorem statements, editorial flags and section anchors are retained below, and its grades, executed values and audit fields remain in the cumulative verdict table, the execution ledger and the machine-readable contract. Working prose retired in the R55 condensation.]

67. The locked next execution

PART XLIII: PMS-EX22 EXECUTION

[Compressed record: this round is fully graded; its theorem statements, editorial flags and section anchors are retained below, and its grades, executed values and audit fields remain in the cumulative verdict table, the execution ledger and the machine-readable contract. Working prose retired in the R55 condensation.]

68. Primitive Shared-Face Event Multiplicity and Dual-Provenance Record Completion

68.1 Why the two sides are one fact

68.2 Consequence for the shared-face incidence count

68.3 The corrected fork

68.4 Can two records still represent only one fact?

68.5 Exact entropy accounting

68.6 The dual-record construction is a repetition code

68.7 The meaning of λ_prov is corrected

68.8 Both 16- and 20-token graphs remain valid

68.9 But the record-distinct branch is no longer a two-fact branch

68.10 Construction order now has a cleaner interpretation

68.11 What EX22 does to the original EX21 fork

68.12 Why this is conceptually important

68.13 Does EX22 determine λ_prov?

68.14 Does EX22 close the EX20/EX21 amplitude-preparation problem?

68.15 EX22 main theorem

> **Theorem 32.11: Shared-Face Single-Fact and Dual-Provenance Record-Completion Theorem. [conditional on the strong closure-frame transport model (P19); localisation and stiffness open]** > > Under the declared strong closure-frame transport model: > > 1. a shared face carries one relation $g \in D_7$, with opposite-side readout g^{-1}; > 2. the pair map has exactly 14 allowed images rather than 196 independent

combinations; > 3. the second side contributes zero conditional entropy, $H(g^{-1} \mid g) = 0$; > 4. therefore the two sides encode one relational fact, not two; > 5. the four shared faces consequently contribute incidence rank 4 rather than 8, and the primitive Tick-Race contains 16 logical fact channels; > 6. a 20-token representation remains exactly compatible with these 16 facts by carrying a four-dimensional provenance/redundancy kernel; > 7. each duplicated shared record is a [2, 1, 2] repetition code and introduces redundancy without a second outcome or entropy quantum; > 8. the provenance metric λ_prov G_diff acts only on copy-disagreement modes and leaves logical fact weights unchanged; > 9. both single-token and dual-record physical carriers remain internally consistent; > 10. therefore the primitive fact multiplicity is fixed to one, while physical record localisation and provenance-maintenance stiffness remain unselected.

68.16 EX22 verdict

PART XLIV: WHAT EX22 CHANGES

[Compressed record: this round is fully graded; its theorem statements, editorial flags and section anchors are retained below, and its grades, executed values and audit fields remain in the cumulative verdict table, the execution ledger and the machine-readable contract.

Working prose retired in the R55 condensation.]

69. The fork was about copies, not facts

PART XLV: PMS-EX23 EXECUTION

[Compressed record: this round is fully graded; its theorem statements, editorial flags and section anchors are retained below, and its grades, executed values and audit fields remain in the cumulative verdict table, the execution ledger and the machine-readable contract. Working prose retired in the R55 condensation.]

70. Shared-Interface Record Localisation and Primitive Copy-Economy Selection

70.1 Does bilateral access require two copies?

70.2 What is the two-copy branch then?

70.3 Does record formation itself require macroscopic duplication?

70.4 The actual selection principle

70.5 Why λ_prov^primitive = 0

70.6 This gives a cleaner ontology of a fact

70.7 Blind graph calculation after the selection

[Editorial note: the numerical entries of §70.7–70.8 and §70.10–70.11 (spectral data, Route-M exponents, both coherence lengths, the percentage comparisons and the fifteen-digit cross-scale

identity) were stripped in file transfer along with the equations, as in §65.15; the structural and exactness statements are preserved, and the values are to be restored from the execution record.]

70.8 Exact structural check on the two scales

70.9 The 20-token carrier is not discarded

70.10 Important consequence for the old coherence scale

70.11 Important qualification on the selected length

70.12 Does EX23 repair the amplitude-preparation problem?

70.13 EX23 main theorem

> **Theorem 32.12: Shared-Interface Primitive Record-Localisation and Copy-Economy Theorem. [conditional on the shared-face single-fact result, the GSJB-16 premises and the structure-economy principle (P19, P20); post-copy dynamics and D44′ open]** > > Under the frozen shared-face single-fact result and the GSJB-16 premises: > > 1. a single shared-interface token is readable by both neighbouring cells; > 2. each local readout has rank 4 and their joint readout remains rank 4, so bilateral access does not require duplicate records; > 3. the two-token carrier factorises exactly as one primitive interface write

followed by deterministic copying; > 4. a single binary macrorecord admits many-to-one microscopic encoding through two eight-state basins, so macroscopic duplication is not required merely for record formation; > 5. the VERSF minimum-distinction/structure-economy principle therefore selects one primitive interface record; > 6. because no copy-disagreement directions exist before copying, λ_prov^primitive = 0 exactly; > 7. the four provenance directions arise only after physical copying and may later acquire a nonzero maintenance stiffness; > 8. applying the localisation rule before evaluating either graph selects the 16-token primitive graph and conditionally returns its coherence length; > 9. the 20-token graph remains valid for already-distinct records or subsequent record proliferation; > 10. post-copy dynamics, the post-copy λ_prov, the maintenance cost and the independent event-level amplitude-preparation problem remain open.

70.14 EX23 verdict

PART XLVI: WHAT EX23 CHANGES

[Compressed record: this round is fully graded; its theorem statements, editorial flags and section anchors are retained below, and its grades, executed values and audit fields remain in the cumulative verdict table, the execution ledger and the

machine-readable contract. Working prose retired in the R55 condensation.]

71. One record at birth; copies are a later act

PART XLVII: PMS-EX24 EXECUTION

[Compressed record: this round is fully graded; its theorem statements, editorial flags and section anchors are retained below, and its grades, executed values and audit fields remain in the cumulative verdict table, the execution ledger and the machine-readable contract. Working prose retired in the R55 condensation.]

72. Primitive Record Copy Dynamics and Post-Commitment Redundancy Cost

72.1 EX24 begins after the first record

72.2 Exact post-commitment first-entry law

72.3 What decides whether anything eventually happens?

72.4 The exact copy/no-copy test

72.5 Does the current source tell us which case holds?

72.6 If copying does occur, when?

72.7 What about the “copy before causal split” idea?

72.8 Now derive the correct object for the stiffness

72.9 The clean-maintenance condition

72.10 A single λ_prov may not exist

72.11 Can RCMO give us H_ss?

[Editorial note: the RCMO blocking order and level-six spectrum values of this subsection were stripped in file transfer along with the equations, as in §65.15 and §70.7; they are to be restored from the execution record.]

72.12 So what is λ_prov numerically?

72.13 Does the [2, 1, 2] code prove the copies survive?

72.14 Approximate persistence has an exact bound

72.15 Static basins are not stability

72.16 What would a genuine maintenance barrier require?

72.17 Do copies have a calculable thermodynamic cost?

72.18 Four different costs must be kept separate

72.19 What about unlimited record proliferation?

72.20 EX24 main theorem

> **Theorem 32.13: Post-Commitment Copy-Decision, Syndrome-Maintenance and Cost Nonidentifiability Theorem. [structural contract exact under P21; the physical copy decision, stiffness operator, costs, timing and barrier open]** > > Starting from one completed primitive record: > > 1.

retention, renewal, copying, proliferation and erasure must be resolved as a competing first-entry problem over disjoint atomic dispositions; > 2. the exact atomic effects satisfy $\Sigma_a E_a + E_\infty = \mathbb{1}$ with $E_a = \Sigma_n (\mathcal{T}\dagger)^n(\mathcal{R}_a\dagger(\mathbb{1}))$; > 3. eventual post-commitment resolution is state-uniform iff $r(\mathcal{T}) < 1$; > 4. eventual copying on the conditioned branch is state-uniform iff $r(\mathcal{T}_{nc}) < 1$; if $r(\mathcal{T}_{nc}) = 1$, a physically stable no-copy sector is allowed; > 5. copy timing is exactly expressible in dimensionless opportunity counts but not yet in seconds; > 6. after copying, the maintenance Hessian decomposes into code and syndrome blocks, with clean maintenance requiring $H_{cs} = 0$ and the copy-disagreement response equal to H_{ss}; > 7. a scalar λ_{prov} exists only if the syndrome response is isotropic; > 8. the present corpus does not derive H_{ss}, λ_{prov}, the physical copy decision or copy timing; > 9. exact record persistence requires $\Phi\dagger(\Pi) = \Pi$ for every subsequent channel, while approximate persistence obeys $\mathrm{tr}[\Pi \rho_n] \geq (1 - \varepsilon)^n \mathrm{tr}[\Pi \rho_0]$; > 10. static basin partitions do not prove stability; > 11. reduced record channels do not uniquely determine physical copy or maintenance costs; > 12. therefore the current programme proves the complete structural contract

but not the physical post-commitment constitutive law.

72.21 EX24 verdict

PART XLVIII: WHAT EX24 CHANGES

[Compressed record: this round is fully graded; its theorem statements, editorial flags and section anchors are retained below, and its grades, executed values and audit fields remain in the cumulative verdict table, the execution ledger and the machine-readable contract. Working prose retired in the R55 condensation.]

73. The grammar of "what happens next" closes; the decision does not

PART XLIX: PMS-EX25 EXECUTION

[Compressed record: this round is fully graded; its theorem statements, editorial flags and section anchors are retained below, and its grades, executed values and audit fields remain in the cumulative verdict table, the execution ledger and the machine-readable contract. Working prose retired in the R55 condensation.]

74. First Post-Commitment Bridge Execution: Foundational Retention and Active-Carrier Renewal

74.1 The post-commitment atomic signature

74.2 Exact renewal calculation

[Editorial note: the executed numerical values of §74.2–74.3 (the unresolved radius, the hub,

boundary and stationary mean waiting counts) and of §74.7 and §74.11–74.12 (the XI-4 source-mark count and operator dimensions, the Gram's level-six eigenvalues, condition number, best scalar, isotropy residual and convergence orders) were stripped in file transfer along with the equations, as in §65.15, §70.7 and §72.11; the structural and exactness statements are preserved, and the values are to be restored from the execution record.]

74.3 Exact waiting count

74.4 What actually happens to the fact?

74.5 No foundational erasure or overwrite appears in the executed base instrument

74.6 But this is not yet a primitive-action derivation

74.7 What happens to the XI-4 copy map?

74.8 The important retyping of that rank-zero result

74.9 “Reality does not copy the committed fact”

74.10 Does the renewal law constrain the next working state?

74.11 Record-maintenance candidate audit

74.12 The apparent convergence does not rescue it

74.13 Individual stability is not retention-consistency stability

74.14 Dissipation is separately required

74.15 EX25 main theorem

> **Theorem 32.14: First Post-Commitment Foundational-Retention and Active-Renewal Bridge Theorem. [exact within the declared F2F/PFDMI append-only architecture (P22); primitive selection of the architecture open]** > > Within the declared F2F/PFDMI append-only architecture: > > 1. the unresolved self-history map has spectral radius strictly below one; > 2. the never-resolved defect vanishes and record-preserving renewal occurs with probability one for every history start; > 3. the stationary mean renewal waiting count is a fixed dimensionless opportunity count; > 4. the resolved atomic disposition is (keep, renew, copies, overwrite) = (1, 1, 0, 0), meaning the committed label survives while the active carrier reopens, with no foundational duplication, erasure or overwrite; > 5. the history therefore grows by ordered extension rather than recreation of prior facts; > 6. XI-4 is an exact fixed copy/dilation postprocessor, with zero isometry residual but rank-zero source-dependent copy propensity; > 7. this fixed-copy property is correctly interpreted as representation-level redundancy rather than foundational operation selection; > 8. the physical

primitive question is consequently retention invariance, rather than copy versus no-copy; > 9. the existing rank-five record response is positive and regulator-convergent but strongly anisotropic and is not yet the physical retention-syndrome Hessian; > 10. individual manifestation stability, inter-manifestation agreement stiffness and causal damping are separately typed objects; > 11. the execution proves the behaviour of the inherited append-only architecture but does not yet prove that the primitive master action uniquely selects it.

74.16 EX25 verdict

PART L: WHAT EX25 CHANGES

[Compressed record: this round is fully graded; its theorem statements, editorial flags and section anchors are retained below, and its grades, executed values and audit fields remain in the cumulative verdict table, the execution ledger and the machine-readable contract. Working prose retired in the R55 condensation.]

75. Keep the fact, reopen the desk

PART LI: PMS-EX26 EXECUTION

[Compressed record: this round is fully graded; its theorem statements, editorial flags and section anchors are retained below, and its grades, executed values and audit fields remain

in the cumulative verdict table, the execution ledger and the machine-readable contract. Working prose retired in the R55 condensation.]

76. Persistent-Ledger Retention and Working-Carrier Non-Backreaction

76.1 Start with the executed renewal map

76.2 Test whether the active carrier is only partly reopened

76.3 Now test the committed record itself

76.4 Overwrite test

76.5 Does the old fact restrict the next active state?

76.6 Explicit factorisation test

76.7 What would genuine history backreaction require?

76.8 This sharpens the ontology considerably

76.9 Does this mean history can never affect the present?

76.10 Important carrier caveat

76.11 EX26 main theorem

> **Theorem 32.15: Persistent-Ledger Retention and Non-Backreaction Theorem. [exact for the declared PFDMI renewal isometry (P23); history coupling and primitive proof open]** > > For the declared PFDMI record-preserving renewal isometry: > > 1. V†V = 𝟙 exactly; > 2. the completed edge/type label is stored in an orthogonal ledger

sector; > 3. for every retained label e, V†(L_e ⊗ 𝟙)V = D_e; > 4. hence a state already committed to e remains in e with probability one and has zero transition probability into f ≠ e; > 5. the active projector satisfies V†(𝟙 ⊗ Π_active)V = 𝟙; > 6. therefore the persistent ledger removes no declared active-carrier direction; > 7. if later dynamics factorise as id_ledger ⊗ Φ_work, every history projector commutes with that evolution; > 8. consequently persistent history does not by itself imply dynamical history backreaction; > 9. any such backreaction requires an additional ledger-dependent generator, channel, kernel, constraint or source-derived carrier map; > 10. full reopening of the PFDMI working carrier cannot be promoted to full reopening of another independently typed carrier without a derived intertwiner.

76.12 EX26 verdict

PART LII: WHAT EX26 CHANGES

[Compressed record: this round is fully graded; its theorem statements, editorial flags and section anchors are retained below, and its grades, executed values and audit fields remain in the cumulative verdict table, the execution ledger and the machine-readable contract. Working prose retired in the R55 condensation.]

77. The past stays, and does not push

PART LIII: PMS-EX27 EXECUTION

[Compressed record: this round is fully graded; its theorem statements, editorial flags and section anchors are retained below, and its grades, executed values and audit fields remain in the cumulative verdict table, the execution ledger and the machine-readable contract. Working prose retired in the R55 condensation.]

78. Carrier-Relative Renewal and Loop-Phase Regeneration Test

78.1 Freeze the two carriers

78.2 Exact six-plus-six decomposition

78.3 Principal-angle calculation

78.4 Identify those two HX1 sectors

78.5 Test the selected uniform-rim mode

78.6 Canonical incidence-renewal theorem

78.7 Could we simply invent a linear map from incidence labels to signed edges?

78.8 Is HX1 actually physical, though?

78.9 Exact uniform-mode Hessian

[Editorial note: the numerical entries of §78.9–78.10 (the Hessian entries and eigenvalues, k_relaxed, k_full, the Δk value,

the weighted excess formula) and the least-squares residual value of §78.7 were stripped in file transfer along with the equations, as in the standing notes; the structural and exactness statements are preserved, and the values are to be restored from the execution record.]

78.10 But Δk is not yet the physical confinement coefficient

78.11 Can the renewal phase recreate HX1?

78.12 The discrete retained record cannot repair this

78.13 The actual remaining question is now localized

78.14 This is an important narrowing

78.15 What do the newly uploaded entropy/capacity papers add?

78.16 Does EX27 prove history backreaction?

78.17 EX27 main theorem

> **Theorem 32.16: Carrier-Relative Renewal and Minimal Loop-Phase No-Regeneration Theorem. [exact on the frozen 24-dimensional carrier (P24); survival fraction s and physical normalization open]** > > On the frozen 24-dimensional directed nonself-history carrier: > > 1. the source-native CGI renewal-response carrier and the HX1 phase carrier each have

dimension 12; > 2. their intersection is exactly the rank-six incidence/coboundary cut space; > 3. their principal angles are $\{0^6, (\pi/2)^6\}$; > 4. HX1 decomposes exactly into six cut and six cycle directions; > 5. the selected uniform-rim phase lies entirely in the cycle sector and has zero overlap with the canonical incidence-renewal response; > 6. no fixed linear map from the fourteen incidence labels can reconstruct the full twelve signed HX1 edge phases; > 7. the HX1 phase is a genuine tangent of the master-action record/completion morphism; > 8. its unit-branch link/phase Hessian is positive, and complete loss of the relaxation direction produces the exact excess $\Delta k = k_{full} - k_{relaxed}$; > 9. the unique minimal branch-preserving renewal has zero tangent into the HX1 phase sector, $P_{HX1} T_{renewal} = 0$; > 10. the retained discrete record label supplies no continuous replacement phase; > 11. therefore canonical/minimal renewal cannot regenerate a commitment-lost HX1 loop mode; > 12. the sole local residual is the post-commitment availability of the old event-specific phase, $s = \|Q_{post} w\|^2 \in [0, 1]$, giving unit-branch excess $(1 - s) \Delta k$; > 13. a genuinely non-minimal source-derived phase channel remains logically possible but must be independently

returned by the primitive action.

78.18 EX27 verdict

PART LIV: WHAT EX27 CHANGES

[Compressed record: this round is fully graded; its theorem statements, editorial flags and section anchors are retained below, and its grades, executed values and audit fields remain in the cumulative verdict table, the execution ledger and the machine-readable contract. Working prose retired in the R55 condensation.]

79. Half the phase is bookkeeping; the other half is memory, if commitment locks it

PART LV: PMS-EX28 EXECUTION

[Compressed record: this round is fully graded; its theorem statements, editorial flags and section anchors are retained below, and its grades, executed values and audit fields remain in the cumulative verdict table, the execution ledger and the machine-readable contract. Working prose retired in the R55 condensation.]

80. Frame-Invariant Non-Boolean Rank-One Spectral Capacity

80.1 Freeze the exact PSAC endpoint

80.2 Define the physical effect algebra

80.3 The K7-QRC calculation already supplies the decisive premise

80.4
Burnside/bicommutant closure

80.5 This does NOT contradict EX5CE

80.6 We can construct the rank-one projectors explicitly

80.7 Why these are frame invariant

[Editorial note: the executed numerical values of this part (the rank floors at the 12/84/319 grains, the count of rank-one fine effects, the minimum eigenvalue gap, the connectivity threshold, and the frame-audit change magnitudes) were stripped in file transfer along with the equations, as in the standing notes; the structural and exactness statements are preserved, and the values are to be restored from the execution record.]

80.8 The old fork is therefore narrowed

80.9 But this does not yet select the physical commitment cut

80.10 History must select the operator, not merely an eigenvalue

80.11 The most natural next candidate: ordered effect words

80.12 Continuation faithfulness remains mandatory

80.13 EX28 main theorem

> **Theorem 32.17: Physical-Effect Algebra Saturation Theorem. [exact under P25; the selector's history map**

and pullback gates open] > > Let E_1, …, E_{84} be the 84 source-invariant PFDMI terminal effects on the 50-dimensional internal carrier. If their common commutant is scalar, > > {E_i}′ = $\mathbb{C}\mathbb{1}$, > > then the unital $*$-algebra they generate is > > $\langle \mathbb{1}, E_1, \ldots, E_{84} \rangle = M_{50}(\mathbb{C})$. > > Consequently it contains every rank-one projector on the physical carrier. In particular, a simple-spectrum Hermitian element of that algebra generates fifty mutually orthogonal rank-one projectors through its spectral polynomial calculus. Therefore failure of Boolean rank-one resolution at the 12-, 84- and 319-mark grains does **not** imply that the existing physical carrier lacks rank-one resolution. The remaining problem is source selection of a history-dependent element of the full physical operator algebra whose spectral projector satisfies the continuation-faithfulness pullback condition.

80.14 EX28 verdict

PART LVI: WHAT EX28 CHANGES

[Compressed record: this round is fully graded; its theorem statements, editorial flags and section anchors are retained below, and its grades, executed values and audit fields remain in the cumulative verdict table, the execution ledger and the machine-readable contract. Working prose retired in the R55 condensation.]

81. The alphabet was poor; the algebra is everything

PART LVII: PMS-EX29 EXECUTION

[Compressed record: this round is fully graded; its theorem statements, editorial flags and section anchors are retained below, and its grades, executed values and audit fields remain in the cumulative verdict table, the execution ledger and the machine-readable contract. Working prose retired in the R55 condensation.]

82. Ordered-History Effect-Word Spectral Selector and Continuation-Faithfulness Test

82.1 Frozen source

82.2 Build the ordered history word

82.3 An exact structural result: reversal changes eigenvectors, not eigenvalues

82.4 First coefficient-free selector: largest eigenvalue

82.5 Does the projector respond to history order?

82.6 Now impose the actual EX5CD physical requirement

82.7 The decisive result

82.8 Test the other natural extremum

[Editorial note: the executed numerical values of this part (the package SHA-256, the Frobenius-difference range, the spectrum discrepancy, the weakest eigengaps, the invariance level, the concentration and idempotency

precisions, the order-blind projector-difference bound, and the smallest-selector separation and gap values) were stripped in file transfer along with the equations, as in the standing notes; the counts (3486, 3354, 132, 300, 41,532, 41,832, rank 13) survive verbatim, and the stripped values are to be restored from the execution record.]

82.9 EX29 main theorem

> **Theorem 32.18: Ordered-Effect-Word Extremal Selector No-Go. [exact on the frozen EX2E execution (P26); non-extremal rules and the carrier identification open]** >
> On the frozen 84-effect PFDMI physical algebra, every pair of distinct physical effects is noncommuting, and the ordered products E_i E_j and E_j E_i produce different positive history operators while remaining exactly isospectral. Their extremal spectral projectors are therefore frame-invariant rank-one carriers of history ordering. However, under the source-native thirteen-channel current Kraus pullback, the largest-eigenvalue projector has rank-one hard pullback only on precisely those record pairs for which its projector is order blind, while every order-sensitive smallest-positive extremal projector pulls back with rank thirteen. Consequently neither natural coefficient-free extremal spectral rule simultaneously

supplies history-order sensitivity and the rank-one hard continuation cut required by the minimal topological trap.

82.10 What remains unexecuted

82.11 EX29 verdict

PART LVIII: WHAT EX29 CHANGES

[Compressed record: this round is fully graded; its theorem statements, editorial flags and section anchors are retained below, and its grades, executed values and audit fields remain in the cumulative verdict table, the execution ledger and the machine-readable contract. Working prose retired in the R55 condensation.]

83. Order and sharpness refuse the two easy readings

PART LIX: PMS-EX30 EXECUTION

[Compressed record: this round is fully graded; its theorem statements, editorial flags and section anchors are retained below, and its grades, executed values and audit fields remain in the cumulative verdict table, the execution ledger and the machine-readable contract. Working prose retired in the R55 condensation.]

84. History-Odd Commutator Spectral Selector and Hard-Pullback Test

84.1 Frozen source

84.2 Exhaustive commutator scan

84.3 Reversal is exact

84.4 Both extrema are uniquely defined

84.5 Perfect order sensitivity

84.6 Now impose the physical hard-cut requirement

84.7 Positive extremal projector

84.8 This is not a numerical-tolerance accident

84.9 Negative extremal projector

84.10 Combined result

[Editorial note: the executed numerical values of this part (the package SHA-256, the commutator Frobenius-norm range, the two weakest relative isolation gaps, the maximum squared reversal overlap, the projector-distance value, and the two sets of singular-value, singular-ratio and Gram-eigenvalue minima) were stripped in file transfer along with the equations, as in the standing notes; the counts (3486, 41,832, 83,664, rank 13) survive verbatim, and the stripped values are to be restored from the execution record.]

84.11 Why this candidate fails

84.12 This is sharper than EX29

84.13 What EX30 does not prove

84.14 Cross-carrier equality remains open, but is not load-bearing here

84.15 EX30 main theorem and verdict

> **Theorem 32.19: Commutator-Extremal Selector No-Go. [my packaging of the executed §84.2–84.10 results; exact on the frozen EX2E execution (P27)]** > > On the frozen 84-effect PFDMI physical algebra with its 12 × 13 current Kraus family: every distinct pair of physical effects has nonzero Hermitian commutator C_(ij) = i [E_i, E_j] with C_(ji) = −C_(ij) exactly; both extremal eigenvalues are simple throughout, and the extremal rays are exactly orthogonal, so history reversal maps the selected ray to an orthogonal ray with no order-blind pairs; yet the thirteen-channel Kraus pullback of every extremal ray, positive and negative, has rank 13 in all 83,664 instances, with Gram spectra bounded away from collapse. Consequently the commutator-extremal rule supplies perfect history-sign transmission and no rank-one hard continuation cut, and is excluded as the physical selector on this execution.

PART LX: WHAT EX30 CHANGES

[Compressed record: this round is fully graded; its theorem statements, editorial flags and section anchors are retained below, and its grades, executed values and audit fields remain in the cumulative verdict table, the execution ledger and the machine-readable contract.

Working prose retired in the R55 condensation.]

85. Memory perfected, sharpness refused: the problem becomes geometry

PART LXI: PMS-EX31 EXECUTION (R2: PREDECESSOR- AND BACKGROUND-AUDITED)

[Compressed record: this round is fully graded; its theorem statements, editorial flags and section anchors are retained below, and its grades, executed values and audit fields remain in the cumulative verdict table, the execution ledger and the machine-readable contract. Working prose retired in the R55 condensation.]

86. Rank-One Kraus-Pullback Locus, Audited Against Predecessor Constraints and Endpoint Backgrounds

86.1 Prior-paper constraints frozen first

86.2 Solve the EX2E rank-one problem on its own terms

[Editorial note: the equations of this part were stripped in transfer, so the adjoint placement in the vanishing condition is reconstructed; the reading consistent with the orbit-current form and with the exact pullback identity, and verified independently, is that the twelve nontrivial current channels are supported on the twelve-dimensional current sector on both sides, so kernel rays are annihilated bilaterally and the trivial positive-root

channel acts as the identity on them.]

86.3 It does not violate the source's common-reduction no-go

86.4 History-odd capacity still works on a fixed background

86.5 But EX2E itself says the background is not physically selected

86.6 New background-robustness result

86.7 The decisive all-witness intersection

86.8 What this does to the EX31 verdict

86.9 And the topological attachment is still separately open

86.10 EX31-R2 main theorem and corrected verdict

> **Theorem 32.20 (R2): Background-Relative Rank-One Pullback Locus and Restricted History-Odd Construction. [my packaging of the executed and audited results; exact on the frozen EX2E executions (P28); background selection, direction attachment and primitive selection open]** > > On the frozen EX2E instrument: for each candidate continuation edge and each admitted endpoint witness, the stacked twelve nontrivial current channels have rank 12, so the rank-one pullback locus $\mathcal{K}$_e is 38-dimensional and is exactly the set of rays whose pullback equals the ray

projector; the locus is invariant under hidden current-generator rotations at fixed witness, and it is not a common reducing subspace of the 84-effect physical algebra, every physical effect leaking amplitude out of it. At fixed background, the restricted history-odd commutator Π_e C_(ij) Π_e is nonzero with simple orthogonal extrema for all 3486 pairs and twelve edges, reversal exactly swaps the extremal rays, and all 83,664 extremal pullbacks are rank one with zero failures. Across the five equally admitted endpoint witnesses the locus dimension is invariant while its direction is not, and the common kernel of all five witnesses is trivial on every edge: no ray is a rank-one hard cut for every admitted background. Consequently the construction is background-relative and canonical; the primitive endpoint/current background selection (or quotient), the trap-to-working direction attachment, the Fold-to-MASD trap-functional relation, and the primitive selection of the extremal rule remain open.

PART LXII: WHAT EX31 (R2) CHANGES

[Compressed record: this round is fully graded; its theorem statements, editorial flags and section anchors are retained below, and its grades, executed values and audit fields remain in the cumulative verdict table,

the execution ledger and the machine-readable contract. Working prose retired in the R55 condensation.]

87. The recipe is real; the scenery is unchosen

PART LXIII: PMS-EX32 EXECUTION

[Compressed record: this round is fully graded; its theorem statements, editorial flags and section anchors are retained below, and its grades, executed values and audit fields remain in the cumulative verdict table, the execution ledger and the machine-readable contract. Working prose retired in the R55 condensation.]

88. Internal-Frame Flat-Moduli and Background-Quotient Audit

88.1 All five backgrounds are exactly flat for the current residual

88.2 But the witness differences are overwhelmingly not gauge

88.3 There is an even stronger invariant test

88.4 Even their endpoint geometry generally differs

88.5 Now return to the EX31 rank-one planes

88.6 This fits the prior PFDMI conclusion exactly

88.7 And PSAC's separate typing firewall still applies

88.8 EX32 main theorem

> **Theorem 32.21: Non-Gauge Background-Moduli Theorem. [my packaging of**

the executed §88.1–88.6 results; exact on the frozen executions (P29); frame-selection structure and any undiscovered redundancy open] > > On the frozen EX2E witness set: all five endpoint/current backgrounds satisfy the representation-current residual exactly, and all ten pairwise differences are flat, lying in the null geometry whose dimension exceeds the declared 84-dimensional gauge orbit (EX2F). The pairwise differences are dominantly outside the gauge orbit, with the four primary-relative differences linearly independent; the seven representation projectors commute exactly with the twelve faithful gauge generators, so current-sector populations are gauge invariants, and these populations differ substantially between witnesses, certifying non-gauge inequivalence; endpoint-Gram-equivalent rephasings (p53_quadratic_shifted) still change the gauge-invariant current populations. The EX31 rank-one planes retain projective dimension 37 at every witness while their five-fold intersection is trivial on every edge. Consequently the declared gauge quotient cannot resolve the background dependence, no witness-independent ray exists among the admitted backgrounds, and the residue is the primitive frame-selection structure

(which EX2F proves the current action cannot supply) or a genuinely new redundancy (the source's open moduli debt).

88.9 EX32 verdict

PART LXIV: WHAT EX32 CHANGES

[Compressed record: this round is fully graded; its theorem statements, editorial flags and section anchors are retained below, and its grades, executed values and audit fields remain in the cumulative verdict table, the execution ledger and the machine-readable contract. Working prose retired in the R55 condensation.]

89. The easy exit is bricked up; the moduli are real

PART LXV: PMS-EX33 EXECUTION

[Compressed record: this round is fully graded; its theorem statements, editorial flags and section anchors are retained below, and its grades, executed values and audit fields remain in the cumulative verdict table, the execution ledger and the machine-readable contract. Working prose retired in the R55 condensation.]

90. Finite-Distinguishability Soft-Closure Test

90.1 Start with the actual D36 probabilities

[Editorial note: the numerical probability values and the total-variation distance of this part were stripped in transfer; the surviving normalized table of

§90.2 fixes the implied single-step orientation ratio at r = 0.1281/0.8719 ≈ 0.14692, my reconstruction, which reproduces every surviving table entry to all printed digits; the two stripped table rows and the resolution column of §90.3 are restored from that ratio and flagged accordingly.]

90.2 The old result now has a clearer meaning

90.3 Distinguishability gives an effective “closure”

90.4 But there is an important no-go

90.5 What is actually needed now

90.6 EX33 main theorem

> **Theorem 32.22: Soft-Closure and Markov-Blindness Theorem. [my packaging of the executed §90.1–90.5 results; exact on the frozen D36 law and the imported distinguishability framework (P30); the history-conditioned tilt law open]** > > On the frozen D36 rim law with its directional bias: both orientations have strictly positive probability at every depth; the disfavoured monotone orientation’s normalized share falls exponentially, as $r^n/(1 + r^n)$ with the single-step orientation ratio r, reproducing the PSAC two-step forward/reversed ratio at n = 2; for any finite operational resolution ε there is a computable depth n(ε) beyond which the disfavoured orientation is operationally

indistinguishable from zero, so effective closure is a licensed operational notion; but the law is first-order Markov, so the next-step orientation probabilities are identical for all histories ending at the same present state, the cumulative suppression being a product of history-blind factors; consequently no accumulation of history closes the next step at any finite resolution under the current law, and operational next-step closure requires a source-derived history-conditioned tilt p(direction | **h**), which is absent.

90.7 EX33 verdict

PART LXVI: WHAT EX33 CHANGES

[Compressed record: this round is fully graded; its theorem statements, editorial flags and section anchors are retained below, and its grades, executed values and audit fields remain in the cumulative verdict table, the execution ledger and the machine-readable contract. Working prose retired in the R55 condensation.]

91. Closure softens; the missing law becomes a lean

PART LXVII: PMS-EX34 EXECUTION

[Compressed record: this round is fully graded; its theorem statements, editorial flags and section anchors are retained below, and its grades, executed values and audit fields remain in the cumulative verdict table,

the execution ledger and the machine-readable contract. Working prose retired in the R55 condensation.]

92. Retained History → Probability Steering

92.1 What the current master action does

92.2 But HCMR already contains the probability-steering mechanism

92.3 The especially simple result

[Editorial note: the equations and the component-dimension list were stripped in transfer; the displayed succession form is my reconstruction, fixed uniquely by the exact surviving total-variation table of §92.5, which it reproduces row for row, and flagged accordingly (F210).]

92.4 One new fact changes every future probability

92.5 Repeated history strengthens the effect

92.6 The distinguishability idea becomes mathematical

92.7 Example

92.8 This suggests a different interpretation of "closure"

92.9 But there is one major firewall

92.10 EX34 main theorem and grade

> **Theorem 32.23: Conditional Probability-Steering Theorem. [my packaging of the executed**

§92.1–92.9 results; exact at the HCMR conditional preparation-law level (P31); causal promotion and direction typing open] > > On the frozen 49-dimensional preparation carrier with twelve components: the HCMR record-conditioned update steers the future directing law by the ordered mark likelihood with exponent exactly one, fixed by probability-chain consistency and admitting no adjustable history coefficient; the steering takes the succession form in which a retained type-k fact raises that component and uniformly renormalizes the rest, nothing ever reaching zero at finite history; two equal-length histories concentrated in different components produce next-event laws at total-variation distance exactly n/(49 + n); a never-realised component's probability d_k/(49 + n) falls below any operational resolution ε at the computable depth n ≥ d_k/ε − 49, making resolution-relative closure history-deepening with no sharp transition; the update is executed on the actual mark instrument (XI-2, RSU chain structure); and, by PSAC-EX5AA, the presently published primitive action has ledger-to-future derivative exactly zero, so this steering is a conditional preparation law, not yet the causal next-transition law, and its

identification with the D36 orientation is untyped.

PART LXVIII: WHAT EX34 CHANGES

[Compressed record: this round is fully graded; its theorem statements, editorial flags and section anchors are retained below, and its grades, executed values and audit fields remain in the cumulative verdict table, the execution ledger and the machine-readable contract. Working prose retired in the R55 condensation.]

93. The lean exists; only its enactment is owed

PART LXIX: PMS-EX35 EXECUTION

[Compressed record: this round is fully graded; its theorem statements, editorial flags and section anchors are retained below, and its grades, executed values and audit fields remain in the cumulative verdict table, the execution ledger and the machine-readable contract. Working prose retired in the R55 condensation.]

94. History-Conditioned Transition Bias

94.1 Execution frame

94.2 A particularly clean pair

94.3 The census

94.4 What this means

94.5 The remaining problem

94.6 The clean candidate route, and why it may not be inserted

94.7 EX35 main theorem and verdict

> **Theorem 32.24: Within-Epoch History-Conditioned Transition Bias Theorem. [my packaging of the executed §94.1–94.6 results; exact on the frozen PFDMI/EX2E execution at the physical terminal grain (P32); renewal-boundary transmission and direction typing open]** > > On the frozen PFDMI/EX2E matrices at the physical terminal grain: there exist matched history pairs with identical start, identical penultimate node and identical final transition whose next physical terminal distributions differ, and in the executed census of 879 such pairs every one retains a nonzero difference, the history being carried by the internal PFDMI state while the coarse D36 next-node law remains exactly identical within each pair; the bias requires no memory coefficient and assigns no future probability zero. By the imported PSAC post-renewal test, the reopened working channel is independent of the retained ledger with ledger-to-R4 gain zero, so the bias is confined to the unrenewed working epoch; the Kraus-normalized record-likelihood update is a coefficient-free candidate for the post-renewal law but is not insertable without a source derivation (PFHBA's Doob descent being conditional and history-control

insertion prohibited). Consequently causal history steering is established within epochs and absent across renewals, and the promotion residual is localized to the renewal boundary: internal-state carry-through or derived ledger feedback.

[Editorial note: the source document ends at its verdict heading, the verdict block itself being absent in transfer along with all equations; the following summary table is mine (F216).]

PART LXX: WHAT EX35 CHANGES

[Compressed record: this round is fully graded; its theorem statements, editorial flags and section anchors are retained below, and its grades, executed values and audit fields remain in the cumulative verdict table, the execution ledger and the machine-readable contract. Working prose retired in the R55 condensation.]

95. The lean acts live; renewal is where it dies

PART LXXI: PMS-EX36 EXECUTION

[Compressed record: this round is fully graded; its theorem statements, editorial flags and section anchors are retained below, and its grades, executed values and audit fields remain in the cumulative verdict table, the execution ledger and the machine-readable contract. Working prose retired in the R55 condensation.]

96. State-Preserving Renewal Test

96.1 The copy touches only the classical mark

96.2 The minimal state-preserving renewal

96.3 The bias then fades naturally

96.4 Distinguishability example

96.5 EX36 main theorem and verdict

> **Theorem 32.25: State-Preserving Renewal Theorem. [my packaging of the executed §96.1–96.4 results; exact on the frozen executions and the EX35 witness pair (P33); the renewal-map selection derivation open]** > > On the frozen D36/PFDMI dynamics with the HCMR conditioned-state return: the completed record label can be copied into the persistent ledger by an isometry touching only the classical mark, leaving the system state unchanged; the minimal renewal that carries the conditioned present state forward preserves the EX35 within-epoch bias exactly across the renewal (internal trace distance and next-terminal separation unchanged, 0.13344 for the executed witness pair), while the complete reset annihilates it; the carried bias then relaxes under the ordinary frozen Folds with no memory force or fitted coefficient, from 0.13344 at zero Folds to 0.00584 at one

hundred, so suppressed alternatives cross any finite operational resolution at a computable age; state-preserving renewal is consistent with the exact no-overwrite preservation of the old ledger. Consequently the death of the history effect at renewal is a property of the reset assumption, not of renewal or record retention, and the open object is the primitive derivation selecting the renewal map: why renewal carries the conditioned state forward rather than replacing it with a history-blind reset, under which reset the corpus presently grades automatic history backreaction as negative with history-dependent later active dynamics left open.

[Editorial note: the source's verdict body was largely stripped in transfer; the table below is my summary (F216 discipline carried forward).]

PART LXXII: WHAT EX36 CHANGES

[Compressed record: this round is fully graded; its theorem statements, editorial flags and section anchors are retained below, and its grades, executed values and audit fields remain in the cumulative verdict table, the execution ledger and the machine-readable contract. Working prose retired in the R55 condensation.]

97. The wipe was never forced; the owed object is the choice of map

PART LXXIII: PMS-EX37 EXECUTION

[Compressed record: this round is fully graded; its theorem statements, editorial flags and section anchors are retained below, and its grades, executed values and audit fields remain in the cumulative verdict table, the execution ledger and the machine-readable contract. Working prose retired in the R55 condensation.]

98. Renewal-Uniqueness, Covariant-Memory-Family and Physical-Effect Rigidity Test

98.1 Predecessor audit

98.2 The exact covariant counterfamily

98.3 The exact linear scaling on the EX35 witness pair

98.4 Physical 84-effect rigidity

98.5 What the entropy papers add

98.6 EX37 main theorem

> **Theorem 32.26: Renewal Non-Uniqueness and Effect-Preserving Rigidity Theorem. [my numbering of the source's boxed results and executed verdict (P34); primitive class selection open]** > > On the frozen structures: the covariant family $\Phi_\lambda(\rho) = \lambda\rho + (1 - \lambda)\,\mathrm{tr}(\rho)\, I_{50}/50$, tensored with the ledger identity, is completely positive, trace preserving,

unital, U(50)-covariant, target-free, same-carrier and exactly no-overwrite for every $\lambda \in [0, 1]$, with λ not source-returned, and on the EX35 witness pair both the internal trace distance and the next-terminal total variation scale exactly linearly in λ from zero to their full carried values; consequently covariance, full reopening and ledger no-overwrite together do not select the renewal map, symmetry having already been unable to do so in the S_3-equivariant κ family, and distinguishability conservation being insufficient by the export permission. Conversely, the 84 frame-invariant physical effects, though of real linear span rank only 73, generate an irreducible algebra with scalar common commutant, so any same-carrier isometric renewal preserving every physical effect is the identity up to a global phase and fixes every density matrix. The selection of that restricted class by the primitive action, for which the entropy papers supply a conditional route requiring renewal to be reversible and cost-free between commitments while reset necessarily creates a new irreversible export, remains open.

98.7 EX37 verdict

PART LXXIV: WHAT EX37 CHANGES

[Compressed record: this round is fully graded; its theorem statements, editorial flags and

section anchors are retained below, and its grades, executed values and audit fields remain in the cumulative verdict table, the execution ledger and the machine-readable contract. Working prose retired in the R55 condensation.]

99. The dial is real; the identity owns one class; the class awaits its proof

PART LXXV: PMS-EX38 EXECUTION

[Compressed record: this round is fully graded; its theorem statements, editorial flags and section anchors are retained below, and its grades, executed values and audit fields remain in the cumulative verdict table, the execution ledger and the machine-readable contract. Working prose retired in the R55 condensation.]

100. Source-Free Renewal Reversibility Test

100.1 Renewal really is source-free at the commitment-count level

100.2 The existing K7 renewal is actually reversible

100.3 But source-free does not force reversibility

100.4 PAR gives the real route

100.5 EX38 main theorem

> **Theorem 32.27: Source-Free Non-Sufficiency and Two-Hinge Reduction Theorem. [my numbering of the source's executed results and complete verdict (P35); both hinges open]** > > On the

frozen structures: ordinary renewal carries zero commitment source in the κ-field continuity equation and is typed $\sigma = (1, 1, 0, 0)$, so it creates no new foundational fact, and the existing K7-CBR renewal is already an explicit isometry filing the completed fact while reopening the carrier, though not primitively derived; nevertheless source-freedom does not force reversibility, since the covariant eraser family is source-free at every λ while scaling the EX35 history signal as $0.13343664226134488\,\lambda$ down to complete erasure, and no-new-fact does not imply zero entropy production, the corpus permitting correlation export without stable record formation, so only the one-way implication (new fact $\Rightarrow$ cost) survives. The pre-factual reversibility theorem supplies the genuine route: below the commitment threshold no irreversible operation is admissible, so dynamics there must be reversible and conditionally unitary; reversibility alone still admits nontrivial rotations, so the exact EX37 identity additionally requires preservation of the physical effect algebra. Consequently the renewal-selection problem reduces to two precise hinges, PAR-sector membership of the renewal and primitive effect-preservation selection, whose

conjunction forces the state-preserving renewal exactly.

100.6 EX38 verdict

PART LXXVI: WHAT EX38 CHANGES

[Compressed record: this round is fully graded; its theorem statements, editorial flags and section anchors are retained below, and its grades, executed values and audit fields remain in the cumulative verdict table, the execution ledger and the machine-readable contract. Working prose retired in the R55 condensation.]

101. Costlessness confirmed, and insufficient; the proof splits into two hinges

PART LXXVII: PMS-EX39 EXECUTION

[Compressed record: this round is fully graded; its theorem statements, editorial flags and section anchors are retained below, and its grades, executed values and audit fields remain in the cumulative verdict table, the execution ledger and the machine-readable contract. Working prose retired in the R55 condensation.]

102. Homogeneous Commitment-Field Renewal and No-Reset Test

102.1 Predecessor audit

102.2 New source input: the unique commitment-field action

102.3 Exact mode-flow theorem

102.4 Numerical execution

102.5 Consequence for history

102.6 What this does not yet prove, and the typing firewall

102.7 EX39 main theorem and verdict

> **Theorem 32.28: Field-Level No-Reset Theorem. [my numbering of the source's executed results and complete verdict (P36); the attaching map and effect preservation open]** > > Under the unique quadratic commitment/κ-field action (inherited), the source-free field equation is the homogeneous Klein-Gordon equation, whose mode flow R_ω(t) is exactly invertible (R(−t)R(t) = I, det R = 1) and exactly preserves the energy metric G_ω, executed at machine precision across the inherited mass and the tested wavenumber/time grid; consequently distinct Cauchy data never merge at any finite time, a literal reset is many-to-one and cannot equal the homogeneous flow, and a source-free continuum history distinction survives globally while remaining free to redistribute or locally attenuate. The identification of renewal with this flow is conditional on the source-native attaching map A embedding the PFDMI conditioned state faithfully (distinguishability-preservingly) in the field phase space, the scalar field being

outcome-blind so no Fold-mark promotion follows, and field-level reversibility preserving the terminal probabilities only together with EX37's physical-effect preservation, whose conjunction upgrades reversible survival to unique state-preserving renewal.

PART LXXVIII: WHAT EX39 CHANGES

[Compressed record: this round is fully graded; its theorem statements, editorial flags and section anchors are retained below, and its grades, executed values and audit fields remain in the cumulative verdict table, the execution ledger and the machine-readable contract. Working prose retired in the R55 condensation.]

103. The field cannot forget; the memory must be shown to live there

PART LXXIX: PMS-EX40 EXECUTION (TRUNCATED TRANSFER)

104. Attaching-Map Kernel Persistence and Whitney-Survival Test

This begins the attaching-map calculation reserved in the R40 contract (Premise P37). The question: can the current PFDMI/Fold history-bearing record be faithfully attached to the commitment/κ field so that EX39's reversible source-free evolution preserves the physical distinction that changes later probabilities?

[Editorial note: the source document arrived truncated

mid-sentence, mid-word, part way through its second section; the Whitney-survival execution promised by its title, and the verdict block, are absent in transfer (F244). What follows merges only what arrived, plus one rank-level corollary flagged as mine (F245).]

104.1 Predecessor audit and PSAC R19 imports

EX35 established a history-dependent next-probability signal on the frozen PFDMI/EX2E instrument; EX36 showed state-preserving renewal carries it forward; EX37 proved identity/pass-through unique inside the same-50D effect-preserving isometric class; EX38 showed no-new-fact/source-free alone does not force reversibility; EX39 proved homogeneous commitment/κ-field evolution invertible and unable to implement a reset. Controlling PSAC R19 has already executed the Fold-to-continuum mark problem: the current scalar marked projection has rank 6 and nullity 6 on the 12-dimensional count+polarity carrier; a construction-level two-direction Whitney embedding exists with exact left inverse; and the projection of the complete two-direction Fold record onto the current MA1 has rank 1 with singular values [0.578064557803, 0], so the polarity direction is exactly absent.

104.2 Kernel-persistence theorem

Let A be any linear attaching map from a record carrier V into continuum Cauchy data H, and let R_t be the source-free continuum evolution, invertible for every finite t by EX39. Then ker(R_t A) = ker(A), because R_t A v = 0 iff A v = R_t^{-1} 0 = 0, and therefore rank(R_t A) = rank(A). This is exact and independent of the detailed Klein-Gordon mass. Consequently:

reversible field propagation can preserve information that entered the field, but it can never repair an attaching map that failed to encode a record direction.

104.3 Current MA1 Fold-complete attachment: exact fail

In record coordinates (orientation, polarity), the current MA1 Jacobian is equivalent up to source/target basis convention to A_MA1 = diag(0.578064557803, 0) on the two classical record directions. Embedding the nonzero orientation column in one (q, p) Klein-Gordon phase-space pair, leaving the polarity column zero, and propagating with two independent homogeneous KG modes, every tested time t/ξ ∈ {0, 0.25, 0.5, 1, 3, 7} returns rank(R_t A_MA1) = 1, propagated polarity-output norm exactly 0, and second singular value exactly 0 (maxima 0.000e+00 and 0.000e+00). Therefore:

CURRENT MA1 COMPLETE-MARK ATTACHMENT: EXACT FAIL.

The polarity direction is not merely weak: it is in the exact kernel before propagation and remains there for all later source-free evolution [the source sentence is cut at this point in transfer].

104.4 What is entailed for the Whitney branch, and what is not

The transfer ends before the Whitney-survival execution. One statement is nonetheless entailed by §104.2 and is mine, so flagged: since the PSAC R19 two-direction Whitney embedding has an exact left inverse, it has trivial kernel on the two record directions, so by kernel persistence rank(R_t A_Whitney) = 2 for every finite t: at the counting level, both record directions survive propagation. Nothing beyond this rank statement may be constructed here (F245): the source's executed Whitney grades, its distinguishability and readout results, its treatment of the marked-bridge typing, and its verdict are absent, and the Whitney embedding remains a construction-level object, not the source-derived attaching map (F246).

104.5 EX40 main theorem (surviving content)

> **Theorem 32.29: Kernel-Persistence and Current-Attachment Failure**

Theorem. [my packaging of the source's surviving §1–§2 results only (P37); the Whitney-survival execution and verdict truncated in transfer] > > For any linear attaching map A from a record carrier into continuum Cauchy data and the invertible source-free evolution R_t of EX39: ker(R_t A) = ker(A) and rank(R_t A) = rank(A) for every finite t, independently of the Klein-Gordon mass, so reversible propagation preserves what entered the field and never repairs an unencoded record direction. For the current MA1 attachment, equivalent to diag(0.578064557803, 0) on the (orientation, polarity) record coordinates, the polarity direction lies in the exact kernel, and the executed propagation across the tested time grid returns rank one, polarity output exactly zero and second singular value exactly zero throughout; hence the current complete-mark attachment fails exactly, before and after any amount of source-free evolution. By kernel persistence, the full-rank two-direction Whitney embedding preserves both record directions at the rank level for all time [my corollary]; its executed survival grades and the round's verdict did not arrive.

104.6 Partial summary (transfer truncated)

| Object | Grade *(surviving content; table mine)* | |—|—| | Kernel persistence under invertible source-free flow | EXACT (mass-independent) | | Propagation repairing an unencoded direction | IMPOSSIBLE: ker(R_t A) = ker(A) | | Current MA1 complete-mark attachment | EXACT FAIL: polarity in the exact kernel at all t | | Propagated polarity norm / second singular value | 0.000e+00 / 0.000e+00 at every tested time | | Whitney two-direction embedding, rank survival | ENTAILED (my corollary): rank 2 for all t | | Whitney executed survival grades | ABSENT: transfer truncated | | EX40 verdict block | ABSENT: transfer truncated |

PART LXXX: WHAT EX40 CHANGES

105. The field never repairs a bridge; the current bridge provably drops a direction

The bridge question opens with a conservation law and a casualty. The conservation law is the round's exact theorem: a reversible field carries forward precisely what was written into it, no more, so the quality of memory in the field is decided entirely at the bridge, at the moment of writing, and no amount of lawful evolution afterwards can restore a direction the bridge failed to encode. The casualty is the theory's current bridge: measured against the two classical record directions, it writes orientation at strength 0.578 and polarity at strength exactly zero, so the polarity half of every completed record never enters the field at all, not weakly, not decayingly, but exactly, and by the conservation law it stays absent forever. Half of what the ledger knows, the field is never told. The constructive way out is already on the theory's books, a two-direction embedding with an exact left inverse, and the counting argument guarantees both directions then survive all propagation; but the executed test of that survival, and the round's own verdict, were lost in transfer, cut off mid-word, so the Whitney branch stands entailed at the level of rank and unexecuted at

every level that matters beyond it. The attaching debt thus splits cleanly: the current map is excluded exactly, and the full-rank candidate awaits its arrived-in-full test.

PART LXXXI: PMS-EX41 EXECUTION (TRUNCATED TRANSFER)

106. Fact-Separating Single-Source / Transverse-Activation Audit

This executes the full-rank attachment question reserved in the R41 contract (Premise P38). The question: can the fact-separating marked primitive source required by PSAC generate the missing transverse Whitney/Fold-polarity continuum direction **without** introducing a second primitive source and **without** a fitted or otherwise unreturned coefficient?

[Editorial note: the source document again arrived truncated mid-sentence, mid-word, at the close of its fifth section; its verdict block is absent in transfer, the second consecutive clipped export (F252). Sections 1–4 and most of §5 arrived intact and are merged below.]

106.1 Predecessor audit and PSAC imports

EX40: invertible downstream κ evolution preserves exactly the rank and kernel of the attaching map. PSAC-EX5BE: unsigned scalar Single-Source factorisation is impossible for physically distinct Fold outcomes; and (§§6.66–6.67) no second primitive source is required, the one primitive source instead being a **fact-separating marked commitment configuration**, with scalar count density only its marginal. PSAC-EX5BF–EX5BH: the minimal complete classical record is (r, ς), four states, exactly bijective with (b, ω) once physical orientation attachment is supplied. PSAC-EX5BI: the unique four-state joint R4/orientation sharp completion instrument exists at construction level; physical same-event activation is open. PSAC-EX5BK/BL: covariance reduces first-cover R4 activation to one gain g_cover ∈ [−1, 1], the unmarked Doob kernel cannot determine it, and the current action returns g_cover = 0. PSAC-EX5BC/BD: an isolated zero-background Fold-polarity tensor fails the leading record-current equation; amplitude tuning cannot repair a direction outside the linearised kernel, and any rescue must be a source-returned anisotropic/inhomogeneous background response.

106.2 One source is enough: exact structural result

Write the minimal marked source label as m = (r, ς), with r, ς ∈ {−1, +1}. Its scalar count marginal forgets both binary marks and simply records that one commitment occurred. Thus one primitive event can carry a four-valued mark while its scalar marginal still increments the old count by one: this is one marked source, not two independent fact-producing sources. So the second-source objection is closed:

one commitment source + richer mark alphabet ≠ two primitive commitment sources.

106.3 General two-direction marked embedding

At the classical two-direction level, the most economical reflection/exchange-compatible linear form is ι_(a,b)(r, ς) = a r e_R + b ς e_O, with independent graded continuum directions e_R and e_O. Its source-to-continuum Jacobian is J_(a,b) = diag(a, b), so det J = ab, and the four marked states are faithfully separated in the two continuum directions iff **a ≠ 0 and b ≠ 0**. The current MA1 normal form corresponds to a = 0, b = 0.578064557803, hence rank 1: exactly the EX40/PSAC result.

106.4 Mark existence does not fix the transverse gain

The scalar count marginal is identical for every (r, ς), so it contains no equation capable of fixing a; the fact-separation requirement says only a ≠ 0 and does not select its magnitude. Scanning a over 10^{-8} … 10^{2} with b fixed at the source-returned orientation response 0.578064557803, every nonzero a gives an injective four-state embedding, the determinant spanning $5.780645578030 \times 10^{-9} \le |\det J| \le 5.780645578030 \times 10^{+1}$: a continuum of equally fact-separating marked embeddings. The representative audit:

Polarity gain a	Orientation gain b	Rank	Minimum state separation	Four-state injective
0	0.578064557803	1	0	NO
0.25	0.578064557803	2	0.5	YES
0.578064557803	0.578064557803	2	1.15612911561	YES
1	1	2	2	YES

The first row is the present MA1 action and fails; every later row succeeds mathematically despite a different transverse gain. So: fact-separating marked source ⇒ a ≠ 0 required, but **not** ⇒ a = a_physical uniquely.

106.5 Why symmetry cannot finish the job

PSAC independently reaches the same conclusion on the physical readout side: all covariant first-cover R4 population channels form a one-parameter family g_cover ∈ [−1, 1]. The source bias is already fixed, δ_K = 0.995570059549810, but E[Z_R4] = δ_K g_cover, the unmarked Doob kernel permits a continuum of g_cover values, and the present action gives g_cover = 0. Thus symmetry fixes the **shape and sign transformation law** of the missing mark, not its physical activation. Demanding, for example, |a| = |b| would fix a relative scale, but that is an extra metric/isometry premise on the classical marked-source embedding which the present source stack does not derive at the physical Fold-to-continuum bridge; imposing it here would be F78/F86-style promotion rather than a calculation.

106.6 The zero-background tensor route is also closed

Could one simply take the intrinsic Fold-polarity tensor and multiply it by some nonzero a? No: PSAC-EX5BC/BD proves that at zero record background the polarity direction itself fails the leading record-current equation, and multiplying a bad direction by a scalar

changes only the residual magnitude; it cannot pu[t the direction inside the lawful kernel: the source sentence is cut at this word in transfer, and the round's verdict block did not arrive].

106.7 EX41 main theorem (surviving content) and partial summary

Theorem 32.30: Single-Source Sufficiency and Transverse-Activation Non-Selection Theorem. [my packaging of the source's surviving §1–§5 results (P38); the verdict block truncated in transfer; the activation derivation open]

One fact-separating marked primitive source suffices: the four-valued mark (r, ς) rides a single commitment whose scalar count marginal increments by one, so no second primitive source is introduced. At the classical two-direction level the reflection/exchange-compatible embedding ι_(a,b) has Jacobian diag(a, b) and separates the four marked states faithfully iff both gains are nonzero, the current MA1 action being the a = 0 row and failing at rank one exactly as EX40 found. Mark existence does not select the transverse gain: the count marginal is identical across marks, every nonzero a yields an injective embedding across ten orders of magnitude of |det J|, covariance reduces the physical readout to the single free gain g_cover with the source bias fixed at δ_K = 0.995570059549810 and the current action returning g_cover = 0, a relative-scale rule such as |a| = |b| being an underived premise, and the zero-background polarity tensor being unrescuable by amplitude since the direction itself fails the leading record-current equation. Consequently the missing transverse direction is structurally available at no ontological cost, and what remains owed is the source-returned transverse activation: the primitive action's own determination of the gain, expected through an anisotropic or inhomogeneous background response.

Object	Grade *(surviving content; table mine)*
Second-source objection	CLOSED EXACTLY: one marked source, richer alphabet
Faithful four-state separation	IFF a ≠ 0 AND b ≠ 0 (Jacobian diag(a, b))
Current MA1 action	a = 0 row: rank 1, FAILS (EX40 confirmed)
Fact-separation fixing the gain magnitude	NO: marginal blind; injective continuum over ten orders
Symmetry fixing the activation	NO: g_cover ∈ [−1, 1] free; current action returns 0 (δ_K = 0.995570059549810 fixed)
Relative-scale rule (e.g. |a| = |b|)	UNDERIVED PREMISE: imposing it = promotion
Zero-background tensor amplification	CLOSED: direction fails the record-current equation
Source-returned transverse activation	OWED: anisotropic/inhomogeneous background response route
EX41 verdict block	ABSENT: transfer truncated (second consecutive)

PART LXXXII: WHAT EX41 CHANGES

107. One source suffices; the volume knob is real and unset

The bridge debt loses its cheapest objection and gains its final shape. No second wellspring of facts is needed: a single commitment can carry a four-way mark while its count stays an honest count, so the richer record costs nothing ontologically, and the missing transverse direction is structurally there for the taking, any nonzero gain separating all four marked states faithfully, across ten orders of magnitude of scale. What nothing yet supplies is the setting of that gain. The count is deaf to it, identical for every mark, so fact-separation demands only that the knob not be at zero; symmetry, as ever in this thread, fixes how the mark would transform and not how loudly it plays, the whole covariant readout collapsing to one free gain that the present action sets exactly to zero, which is precisely why the current bridge drops the polarity direction and why the EX40 kernel is exact rather than small. The tempting patches are each closed by name: a relative-scale rule would be an underived premise, promotion not calculation; and amplifying the raw polarity tensor fails because on an empty background that direction is unlawful in itself, no scalar making a bad direction good. So the attaching debt compresses to a single physical number with a derivation owed: the source-returned transverse activation, the gain the background answers with when a fact leans on it, expected through the anisotropic response the controlling audits already point to. The round's own verdict, for the second transfer running, was cut off mid-word and is owed with it.

PART LXXXIII: PMS-EX42 EXECUTION (TRUNCATED TRANSFER)

108. Anisotropic/Inhomogeneous Background Rescue Audit

This executes the anisotropic-response route reserved in the R42 contract (Premise P39). The question: can an already-derived anisotropic or inhomogeneous commitment background make the unique Fold-polarity tensor an admissible zero mode of the linearised record-current equation, without a fitted parameter?

[Editorial note: the source document again arrived truncated mid-line, the third consecutive clipped export, ending exactly as its section B ("Minimal type-correct anisotropic rescue") begins with the words "The PSAC obstruction is a vector residual"; the §B construction and the verdict block are absent in transfer (F256). Section A and the predecessor audit arrived intact and are merged below.]

108.1 Predecessor audit and imports

EX40: downstream invertible κ evolution preserves the rank and kernel of the attaching map; it cannot restore a polarity direction that never entered the continuum. EX41: one

marked primitive source is sufficient in principle, but the transverse polarity activation remains unreturned, and amplitude fitting cannot repair the zero-background Fold-Hessian mode. PSAC-EX5BB–EX5BD: the unique local polarity carrier is the two-dimensional symmetric trace-free Hessian

$H_{ab} = D_a D_b m - (1/2)\, \gamma_{ab}\, \Delta m,$

whose divergence at zero background is generically nonzero, isotropic background not supplying the required vector-source response, so that only an anisotropic/inhomogeneous source-returned background remained open. And the newer commitment/κ-field theorem: the fundamental source field is governed by the unique linear Klein-Gordon action, nonlinear self-interactions being excluded.

108.2 Fundamental κ-background test: exact negative

The current fundamental commitment-field equation is $(\Box + m^2)s = \rho_{committed}$. Take an arbitrary background solution s_0 and perturb it, $s = s_0 + \varepsilon h$, $\rho = \rho_0 + \varepsilon j$. Because the equation is exactly linear, $(\Box + m^2)s_0 = \rho_0$ and $(\Box + m^2)h = j$, so the fluctuation operator is

$L_{(s_0)} = \Box + m^2$ for **every** background s_0,

including anisotropic or inhomogeneous source configurations. Hence $dL_{(s_0)}/ds_0 = 0$, and the exact negative follows:

ordinary κ/commitment-field background structure cannot by itself change the fundamental linearised operator so as to turn a previously inadmissible mode into a zero mode.

Spatially varying κ can produce anisotropic gradients and an anisotropic stress tensor, but those are derived observables: the present source stack supplies no same-source record-tensor vertex that feeds that anisotropy back into the Fold record-current operator. Promoting the stress tensor to that missing vertex would be a new bridge, not a consequence of the scalar KG theorem.

108.3 The truncated rescue branch

Section B, “Minimal type-correct anisotropic rescue,” opens by identifying the PSAC obstruction as a vector residual and is cut at that line. Nothing of the construction, its grades, or the round’s verdict arrived; the vector character of the obstruction is independently confirmed by the flat-space identity $\partial^a H_{ab} = \tfrac{1}{2}\, \partial_b \Delta m$ (this paper’s verification), generically nonzero, so any type-correct rescue must supply a matching vector-source response, and its content remains owed with the completion.

108.4 EX42 main theorem (surviving content)

> **Theorem 32.31: Background-Independence No-Go Theorem. [my packaging of the source’s surviving section A and audit (P39); the §B rescue construction and verdict truncated in transfer]**

Under the unique linear commitment/κ-field action, with nonlinear self-interactions excluded, the linearised fluctuation operator about any background solution is $\Box + m^2$, identically for every background including anisotropic and inhomogeneous source configurations, so $dL\_(s_0)/ds_0 = 0$ exactly and no arrangement of committed background structure can, by itself, change the fundamental linearised operator or render the previously inadmissible Fold-polarity Hessian mode a zero mode of the record-current equation. Background anisotropy produces derived anisotropic observables only, and their feedback into the Fold record-current operator would require a same-source record-tensor vertex that the present stack does not supply: a new bridge, not a consequence of the scalar theorem. The minimal type-correct rescue, addressed to the vector residual of the zero-background obstruction, is the truncated branch and remains owed.

108.5 Partial summary (transfer truncated)

Object	Grade *(surviving content; table mine)*
Fluctuation operator about arbitrary background	$\Box + m^2$ IDENTICALLY: $dL/ds_0 = 0$ exact
Background turning the polarity mode admissible	IMPOSSIBLE within the current stack
Anisotropic gradients / stress tensor	DERIVED OBSERVABLES ONLY: no feedback vertex supplied
Stress-tensor promotion to the feedback vertex	A NEW BRIDGE, not a KG consequence
PSAC obstruction character	VECTOR RESIDUAL ($\partial^a H\_ab = ½\, \partial\_b \Delta m$, generically nonzero)
Minimal type-correct rescue (§B)	ABSENT: transfer truncated (third consecutive)
EX42 verdict block	ABSENT: transfer truncated

PART LXXXIV: WHAT EX42 CHANGES

109. The background cannot set the gain; only a new vertex could

The route the previous round pointed down is walked to its end in one step, and the end is a wall with a door drawn on it. Because the field of commitments obeys a strictly linear law, its ripples feel the same operator over every background, however warped, however uneven: the second variation of a quadratic action does not know where it was taken, so no arrangement of committed structure, isotropic or wildly anisotropic, can by itself legalise the missing polarity mode; the gain the last round isolated cannot be set by scenery. The wall is exact, and it is the linearity theorem's own shadow: had the field carried the excluded self-interaction, its fluctuations would have felt the background, and the door would already be open. What the wall leaves is drawn precisely: background unevenness

does produce derived anisotropy, stress and gradient alike, but nothing in the present laws feeds those back into the record's own equation, and writing such a feedback, a same-source record-tensor vertex, would be new law to derive, not old law to consult. The obstruction the rescue must match is a vector residual, the divergence the polarity Hessian cannot shed at zero background; the round's own attempt at the minimal lawful rescue was cut off at exactly that clause, the third torn report in a row. The activation debt thus takes what is likely its final shape: one same-source vertex to derive, or the truncated minimal rescue to receive in full.

PART LXXXV: PMS-EX43-R2 EXECUTION (TRUNCATED TRANSFER)

110. Full-Predecessor Microscopic-Mark Sufficiency and Fold-Polarity Extraction Audit

This opens the mark-extraction leg of the record-tensor question reserved in the R43 contract (Premise P40). The report supersedes an earlier PMS-EX43 that was never received into this paper: by the source's own statement, that earlier round used the correct PSAC polarity/orientation firewall but did not first consume the full PFHBA/HCMR/PFDMI/HM4 predecessor chain and therefore phrased its negative too broadly. The corrected question is not whether VERSF has physical marked outcomes; it does. It is: given the executed 319 microscopic marked operators, their exact conditioned-state update, the exact 319-label copy map, the 319→84 detailed-record coarse-graining and the persistent 84-label renewal, does the current source already return the independent Fold-polarity/R4 mark needed for a complete Fold record and for later causal steering?

[Editorial note: the source document again arrived truncated, the fourth consecutive clipped export, cut mid-word at the header of its HM4/RCMO/PRLU audit block; the remainder of the predecessor audit, any execution sections, and the verdict block are absent in transfer (F263). The surviving audit blocks are merged below.]

110.1 HCMR-P1 / HCMR-XI-2: marked outcomes and the conditioned state

A physically/operator-resolved mark returns a unique conditioned post-event state, z_(ρ,e) = M_e η_ρ / √(p_e(η_ρ)) up to global phase, and copying an orthogonal classical record label does not alter this state update. The microscopic execution contains 319 marked operators on $C^7 \otimes C^{50}$, with completeness residual 2.471×10^{-14} and exact classical record-copy isometry residual 0. Therefore:

MICROSCOPIC MARKED OUTCOME + CONDITIONED STATE: PASS.

This must not be confused with the separate question of what physical binary property those marks encode (F259).

110.2 PFDMI: the terminal-type index and its firewall

The detailed PFDMI mark is written in the source as L(e, α, r) = P_r C(e, α) U_e; to avoid a notation collision this report names it the terminal-type index t_term, and it is **not** the later PSAC R4 sign (F260). The implemented detailed marks coarse-grain to 84 persistent records indexed by edge and terminal type, and the 84-label renewal isometry is exact, |e, t_term⟩_C → |e, t_term⟩_A ⊗ |e, t_term⟩_L: an exact construction whose primitive selection remains open (F264).

110.3 PFHBA-7: capacity cannot type the marks

PFHBA closes recurrent capacity/existence very strongly but proves identifiability failure: even after broad source typing, the exact-lift family has dimension 34,152, and the unmarked Doob kernel does not determine the marked decomposition or the Kraus partial isometries. Physical mark labels must be returned by the source amplitude decomposition/projectors. Therefore:

capacity cannot be used to type the PFDMI labels as Fold polarity.

The transfer is cut at the opening of the HM4/RCMO/PRLU block; the rest of the audit, the extraction execution, and the verdict are owed with the completion.

110.4 EX43-R2 main theorem (surviving content)

> **Theorem 32.32: Marked-Outcome Sufficiency and Capacity-Typing Exclusion Theorem. [my packaging of the source's surviving audit blocks only (P40); the HM4/RCMO/PRLU audit, extraction execution and verdict truncated in transfer; the superseded EX43 never received]**
>
> The executed microscopic instrument possesses physically resolved marked outcomes: 319 marked operators on $C^7 \otimes C^{50}$ with completeness residual 2.471×10^{-14}, a unique conditioned post-event state up to global phase, and an exact classical record-copy isometry that leaves that update untouched; these coarse-grain to the 84 persistent edge-and-terminal-type records whose renewal isometry is exact though not primitively selected. What the marks encode is a separate and unanswered question: the PFDMI terminal-type index is firewalled from the PSAC R4 sign by the report's own notation, and capacity or existence arguments provably cannot perform the typing, the PFHBA exact-lift family having dimension 34,152 with the unmarked Doob kernel blind to the marked decomposition, so any Fold-polarity identification must be returned by the source amplitude decomposition and projectors. Whether the current source already returns that independent mark is the question whose executed answer did not arrive.

110.5 Partial summary (transfer truncated)

Object	Grade *(surviving content; table mine)*
Microscopic marked outcome + conditioned state	PASS (319 operators; completeness 2.471e-14; copy residual 0)

Object	Grade *(surviving content; table mine)*
319 → 84 coarse-graining and 84-label renewal	EXACT CONSTRUCTION (12 edges × 7 terminal types); primitive selection OPEN
t_term identified with the PSAC R4 sign	FIREWALLED: distinct objects by the report's own notation
Capacity/existence typing of the marks	EXCLUDED: exact-lift family dimension 34,152; Doob kernel blind
Source-projector return of Fold polarity	THE OPEN QUESTION: execution and verdict absent
HM4 / RCMO / PRLU audit blocks	ABSENT: transfer truncated (fourth consecutive)
Original EX43	SUPERSEDED by this R2; never received; its broader negative retracted by the source

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PART LXXXVI: WHAT EX43-R2 CHANGES

111. The marks exist; capacity cannot name them; the naming was torn away

The extraction leg opens by settling what the missing direction is not missing. The theory's working instrument is not blind: three hundred and nineteen physically resolved marked outcomes exist, each returning a unique conditioned state that an honest copy of the classical label provably never disturbs, and they file into the standing eighty-four persistent records exactly. So the question was never whether outcomes carry marks; it is what the marks say. And the round's surviving half closes the cheapest way of answering: sheer capacity cannot do the naming, because even after broad typing the family of exact lifts is thirty-four thousand dimensional and the unmarked kernel cannot see into it, so which binary property a mark encodes must be read from the source's own amplitude decomposition, from its projectors, or not at all. The report's own notation draws the same line inside the formalism, refusing to let the terminal-type index impersonate the polarity sign. What survives is therefore a clean division of labour: existence granted, capacity disqualified, extraction pending; and the extraction, the executed answer to whether the present source already returns the independent polarity mark, is exactly where the fourth consecutive torn transfer cuts off. The source has also corrected itself along the way, retracting an earlier, broader negative for not having consumed its full predecessor chain, which is the auditing discipline working as designed.

PART LXXXVII: PMS-EX44 EXECUTION (TRUNCATED TRANSFER)

112. History-to-Curvature-to-Probability Pullback Test

This opens the coupling-generator calculation from the geometry side (Premise P41). The question: can the past lean on future probabilities **without a new memory-force coefficient**, by shifting a physical curvature/geometry coordinate which already parametrises the stochastic law?

[Editorial note: the source document again arrived truncated, the fifth consecutive clipped export, cut mid-equation part way through its second section; the history-to-curvature pullback leg promised by the title, any further sections, and the verdict block are absent in transfer (F268). The surviving audit and sections are merged below.]

112.1 Full predecessor audit

The controlling chain: PSAC R19 Gate S gives the physical closure/history score as the log-derivative of a deformed physical history kernel, S_C(x, y) = d/dε_C log K^ε(y|x)|*(ε=0), equal to ω_C exactly on the canonical branch. The PSAC exponential-family descent gives, after the declared bath reduction, K*(σ,α)(y|x) = K_0(y|x) exp[σα ω_C(x, y)] / Z_x(σα), with no extra history-dependent tilt inserted. The PSAC signed curvature response gives, in the isolated scalar closure sector, Γ_eff(c|σ) = ½ k_C c^2 − σα∗ c with stationarity c∗_σ = σα∗/k_C, and on the executed canonical reduction k_C = 360/713 = 0.504908835904628, α∗ = 0.959001109719975 and c∗ = 1.89935497564000. PSAC-EX1B fixes λ_C = 1, so the canonical score-to-closure direction carries no additional numerical rescaling. EX35/EX36 supply the carried, finite-lived probability distinction. And the HCMR/PSAC post-commitment firewall stands: the current factorised ledger does not yet return an automatic retained-ledger → future-active backreaction map, so a stationary geometry/probability identity must not be promoted automatically to a complete causal post-renewal theorem (F266). The older Fubini-Study/entropy papers are not needed for the main calculation and serve only as supporting interpretation.

112.2 Eliminating the tilt parameter

The stationary curvature equation gives k_C c∗_σ = σα∗, with machine residual |k_C c∗ − α∗| = 8.116 × 10^{-14} at the published canonical numbers. Hence, on this executed stationary scalar branch, the already-normalised probability kernel can be written **directly in terms of the physical curvature coordinate**:

K_c(y|x) = K_0(y|x) exp[k_C c ω_C(x, y)] / Σ_z K_0(z|x) exp[k_C c ω_C(x, z)].

No new memory susceptibility, Doob coefficient or probability rule has been inserted: every constant is already returned. This is the key EX44 identity.

112.3 Geometry automatically produces a probability lean

Differentiating the curvature-parametrised kernel, d/dc log K_c(y|x) = k_C [ω_C(x, y) − ⟨ω_C⟩_c], and therefore dK_c(y|x)/dc = k_C K_c(y|x)[ω_C(x, y) − ⟨ω_C⟩_c] [the source line is cut inside this bracket; its closure is the exponentiated chain-rule form of the logged

identity on the preceding line and nothing further (F269)]. Any physical process that shifts the curvature coordinate therefore tilts every next-step probability at the already-returned gain k_C, in the score-covariance direction, with Σ_y dK_c/dc = 0 identically: the lean redistributes probability and never creates or destroys it.

112.4 The truncated pullback leg

The remainder of the document, the history-to-curvature pullback by which retained facts would shift c, any execution of it, and the verdict block, did not arrive. Nothing of that leg may be constructed here, and the imported firewall independently blocks promoting the stationary identity to a causal post-renewal theorem even once the leg arrives (F266).

112.5 EX44 main theorem (surviving content)

Theorem 32.33: Curvature-Parametrised Kernel and Tilt-Elimination Theorem. [my packaging of the source's surviving audit and §§1–2 (P41); the history-to-curvature pullback leg and verdict truncated in transfer; causal promotion firewalled]

On the executed stationary scalar closure branch, the stationarity identity $\sigma\alpha_* = k_C c_*$ (machine residual 8.116×10^{-14} at $k_C = 360/713$, $\alpha_* = 0.959001109719975$, $c_* = 1.89935497564000$, with $\lambda_C = 1$) eliminates the tilt parameter, and the already-normalised history kernel becomes a function of the physical curvature coordinate alone, $K_c = K_0 \exp[k_C c\, \omega_C]/Z$, with no new memory susceptibility, Doob coefficient or probability rule inserted. Its curvature derivative is the exact score-covariance form $d/dc \log K_c = k_C [\omega_C - \langle \omega_C \rangle_c]$, probability-conserving identically, so any physical shift of the curvature coordinate tilts every next-step probability at the already-returned gain k_C. What would make the past the agent of that shift, the history-to-curvature pullback, is the truncated leg; and by the standing post-commitment firewall the stationary identity is not a causal post-renewal theorem until the ledger-to-active map is returned.

112.6 Partial summary (transfer truncated)

Object	Grade *(surviving content; table mine)*
Tilt-parameter elimination $\sigma\alpha_* = k_C c_*$	EXACT: residual 8.116e-14 at the returned constants
Curvature-parametrised kernel K_c	EXACT IDENTITY on the stationary scalar branch; zero new coefficients
Probability lean under curvature shift	$d/dc \log K_c = k_C[\omega_C - \langle \omega_C \rangle_c]$; gain $k_C = 360/713$ returned; probability conserved
Scope	Isolated scalar closure sector, canonical reduction, $\lambda_C = 1$
Causal post-renewal promotion	FIREWALLED: no automatic ledger → active map
History-to-curvature pullback leg	ABSENT: transfer truncated (fifth consecutive)

Object	Grade *(surviving content; table mine)*
EX44 verdict block	ABSENT: transfer truncated

PART LXXXVIII: WHAT EX44 CHANGES

113. Geometry already owns the lean; what is owed is the hand that bends it

The coupling problem turns inside out. Every earlier round asked what new law would let the past push on the next event, and each candidate coefficient was found free, unreturned, or forbidden; this round shows that on the theory's own stationary branch no new law is needed for the pushing itself, because the probability rule is already a function of a physical curvature coordinate, written entirely in returned numbers, the tilt parameter dissolving into curvature times a stiffness the theory computed long ago. Bend the coordinate and every next-step probability tilts, at gain k_C, in the direction of the history score, conserving total probability to the last digit; the lean is not a speculative force but a derivative the kernel already possesses. What the round does not hand over is the hand on the lever: the pullback by which retained facts would actually bend the curvature coordinate is precisely the leg the fifth torn transfer removed, and the standing firewall independently insists that even a perfect stationary identity is not yet a causal post-renewal theorem, the ledger-to-active map being still unreturned. So the memory-force question sharpens into its cleanest form yet: the response is exact and costs nothing; owed is only the bending, the map from what has been committed to where the geometry sits.

PART LXXXIX: PMS-EX55-R2 EXECUTION (SUPERSEDES EX55; EQUATION-STRIPPED TRANSFER; EX45–EX54 NOT RECEIVED)

114. History Geometry to Native Probability Geometry

This revised EX55 supersedes the first EX55 (Premise P42): the newer corpus papers and the actual frozen PFDMI matrices give a cleaner result, replacing the first version's curvature-coordinate route with a native one. The key advance: **no separate law saying geometry changes probability needs inventing**, because PFDMI's actual Born probabilities already define their own Fisher geometry.

[Editorial note: the source numbering still jumps EX44 → EX55, executions EX45–EX54 having run offline and never been received (F274). This revision arrived with its tail complete and the full source verdict present, the first complete verdict since EX39, but with the mathematical displays stripped in transfer: the primitive Fisher construction, the stated rank values, the HMGBC amendment formula, the attaching-map and pullback displays of the new theorem, the frozen Jacobian, its Wilson-basis reduction, the smallest singular value, the reconstruction residual, the raw mark-Jacobian rank, the BCB current symbol, the six-logit hope display, and

the two EX10 shape-difference figures are all blank (F275). The surviving prose, conclusions and verdict are merged below; only structurally forced closures are supplied, flagged.]

114.1 The two retained legs

HMGBC gives a genuine retained history-dependent geometric amendment [display stripped; the R1 transfer of this audit carried it as H_XX(h) = H_XX^MASD + ΔΩ(h), ΔΩ ≥ 0], and that amendment survives ordinary auxiliary relaxation unchanged: past history changes retained geometry, exactly, unscreenably. And PFDMI's Born probabilities define a primitive Fisher construction [display stripped] whose physical probability-score space has fixed rank [stated later in the round as the declared 72-dimensional physical tangent].

114.2 The new theorem: attachment suffices

Suppose the primitive action supplies an attaching map taking a retained-history displacement into the PFDMI physical tangent [displays stripped]. Pulling the PFDMI Fisher metric back to history space then gives, exactly, a positive response for every displacement whose image is nonzero [the structural closure is forced: a pullback of a positive metric is positive semidefinite, and positive precisely off the attaching map's kernel; nothing beyond this structure is supplied here]. Hence:

once history genuinely deforms the PFDMI physical geometry, the probability lean follows automatically,

and there is no additional coefficient of any memory-force form to invent (the verdict row below grades the need for a separate geometry-to-probability coupling: NO).

114.3 Executed on the actual frozen EX2E arrays

The frozen terminal-probability Jacobian [matrix and stated values stripped], reduced in the actual physical Wilson basis, has full physical rank: **MACHINE PASS at 72/72**, with the smallest singular value and the exact-at-stored-precision reconstruction both reported and stripped in transfer. Within the declared 72-dimensional physical PFDMI tangent, **there are no hidden probability-invisible directions left**. The finer conditional-mark calculation is even stronger: the raw mark-probability Jacobian [rank value stripped] again has full-rank physical quotient, **MACHINE PASS at 72/72**, consistent with PFDMI's earlier native probability-descent certificate.

114.4 The new papers, and one typing firewall

The record-spacetime paper independently starts from record probabilities and obtains their Fisher geometry, its separately labelled volume-matching closure then fixing the conformal scale of spacetime; and *From Conservation to Geometry* connects Fisher-Rao probability geometry to Fubini-Study quantum geometry, the Born map being the geometry-preserving projection under its BCB assumptions. A coherent geometric picture results, with one typing issue not to be glossed: the BCB paper's current [symbol stripped] is a Lorentz record 4-current, whereas PFDMI's endpoint/current is a representation-valued edge carrier; they are **not automatically the same current**.

114.5 The remaining missing object, the six-logit hope, and the strength limitation

The missing object is now very precise: the primitive action must return the attaching map [display stripped] carrying HMGBC history displacements into the PFDMI physical tangent, in agreement with the cumulative audit's standing open debt of source-derived cross-layer intertwiners. A smaller route may exist through EX2A's six completion logits, completion being a positive reweighting of existing marks with six independent coordinates, but the frozen source does not yet provide the six-coordinate completion probability Jacobian at EX2E's evidential level, and its rank-six Kraus-amplitude derivative alone cannot be promoted into a probability result. And one limitation survives even after attachment: the physical support is nailed down much better than the numerical strength, PMS-EX10's five target-blind endpoint witnesses all giving positive rank-72 Born-Fisher metrics whose numerical shapes differ [both difference figures stripped] even after trace normalization, so attachment can prove that history leans, before and separately from proving how loudly.

114.6 EX55-R2 main theorem and source verdict

> **Theorem 32.34 (R2): Native Probability-Geometry Attachment Theorem. [my packaging of the source's revised round (P42), superseding the R1 packaging; the stripped displays are listed, not reconstructed; the attaching map open]**
>
> PFDMI's Born probabilities define their own Fisher geometry on the declared 72-dimensional physical tangent, and on the actual frozen EX2E arrays both the terminal and the conditional-mark probability responses are of full physical rank 72/72 at machine precision, so no probability-invisible directions exist in that tangent; HMGBC's retained history amendment changes retained geometry exactly and survives auxiliary relaxation unchanged; therefore, by pullback of the positive Fisher metric, any retained-history displacement whose image under a primitive attaching map into the physical tangent is nonzero necessarily changes next probabilities, with no separate geometry-to-probability coupling to invent. The attaching map itself is the one object short of the full past-to-geometry-to-next-probability theorem; the BCB and PFDMI currents are of different carrier types and not automatically identified; the six-logit completion shortcut is not physically executed; and the unique numerical lean magnitude is not yet selected, the EX10 witness metrics agreeing in support and differing in shape.

The source verdict, complete in transfer:

Test	Result
Past/history changes retained geometry	EXACT PASS
Geometry survives ordinary relaxation	EXACT PASS
PFDMI probabilities define Fisher geometry	EXACT PASS at fixed physical rank
Physical terminal probability response	MACHINE PASS: 72/72
Physical marked probability response	MACHINE PASS: 72/72

Test	Result
Nonzero physical PFDMI tangent changes probabilities	EXACT/MACHINE PASS
Need separate geometry→probability coupling	NO
HMGBC geometry attached to PFDMI physical tangent	OPEN
BCB identified with PFDMI current	OPEN: different carrier types
Six-logit completion shortcut physically executed	OPEN
Unique numerical lean magnitude	NOT YET SELECTED
Full past→geometry→next probability theorem	ONE ATTACHING MAP SHORT

The round closes by restating the standing intuition rigorously: the past need not push with a force; it can instead change the geometry of the present, and **if that geometric change reaches the physical PFDMI tangent, the ordinary probability law necessarily changes with it**. The next calculation is no longer "find a memory force" but the single attached quantity [display stripped]: positive means the geometric-history mechanism works; zero means history is a spectator for future probabilities.

PART XC: WHAT EX55-R2 CHANGES

115. The odds' own geometry has no blind spots; owed is the map that reaches it

The revision replaces a bridge with a floor. The first EX55 owed a time-ordering proof, that the next attempt would look at the amended curvature; the revision makes the looking automatic, because the probability law was never a separate onlooker: PFDMI's own Born probabilities carry their own geometry, and on the actual frozen arrays that geometry has been checked direction by direction, seventy-two out of seventy-two, twice over, terminal and marked alike, with not one probability-invisible direction left in the declared physical tangent. So there is nowhere for a geometric change to hide: any deformation that reaches that tangent must change the odds, exactly, with no coupling constant anyone has to invent, the verdict saying NO in so many words to the need for a separate law. History's side is equally settled, the retained amendment standing unscreenable from the previous audit. What the round leaves owed is the connector and the volume: the attaching map by which the history-bent geometry actually enters the physical tangent, the precise cross-layer intertwiner the cumulative audit has listed all along, with a possible six-logit shortcut not yet at evidential grade and a current-typing firewall between the BCB and PFDMI carriers; and separately the loudness, the witnesses agreeing that the lean is real while disagreeing on its shape, so support will be proved before strength. The closing dichotomy could not be sharper: compute the attached quantity, and positive means the mechanism works, zero means the past is a spectator. One map decides whether history speaks.

PART XCI: PMS-EX56 EXECUTION (VERDICT COMPLETE; TAIL TRUNCATED)

116. Completion-Character Native Probability Descent and HMGBC Scalarisation Boundary

This executes the completion-coordinate half of the EX55-R2 bridge (Premise P43). The source adapted its format to the standing export fault by leading with an executive verdict, which survived; the document's tail is nonetheless clipped again, the seventh such transfer, cut at the header of the PFDMI-EX2A audit block, the detailed audit remainder and execution sections being absent (F281).

116.1 Executive verdict (source, complete)

EX56 closes the **completion-coordinate-to-probability** half of the EX55-R2 bridge. The frozen PFDMI-EX2A six completion logits have a source-conditioned probability Jacobian of **full rank six**. The already-frozen GSJB-2 six-to-four completion-route incidence then gives a **rank-four probability response**, and the GSJB-3 $Z_2 \times Z_2$ character basis **diagonalises** that response. The resulting direct-sum conditional Fisher geometry is exactly

$F_{character} = 4pq \cdot \mathrm{diag}(3, 3, 1, 1)$, with $p = 1 - e^{-1}$, $q = e^{-1}$,

and the frozen GSJB-3 primitive completion Hessian has exactly the same 3:3:1:1 shape, differing only by the scalar factor 315/4, to machine precision. So the four physical completion characters are **not probability-null**.

What remains open is one upstream map: HMGBC returns a history-dependent **quadratic** completion operator/Hessian amendment, whereas the EX2A probability law is controlled by **linear** scalar route logits, and no current source theorem returns the scalarisation/Radon-Nikodym map from the former into the latter. The missing object is therefore no longer history → arbitrary 144-dimensional PFDMI tangent; it reduces to

$D\Lambda_\Omega$: history-conditioned completion geometry → four completion characters,

and **once $D\Lambda_\Omega$ is nonzero, EX56 proves the probability lean follows automatically**.

116.2 Surviving predecessor audit

EX55-R2: on a positive admitted support, Fisher-null ⇔ probability-null, and the frozen physical EX2E terminal probability Jacobian is injective on its declared 72-dimensional physical Wilson tangent; its remaining question was the physical history-to-PFDMI attachment. HMGBC/HCMR: the retained history-dependent completion-Hessian amendment $H_{XX}(h) = H_{XX}^{MASD} + \Delta\Omega(h)$, $\Delta\Omega \geq 0$, survives the declared auxiliary Schur reduction. The PFDMI-EX2A audit block is cut at its header; the remainder of the audit and the execution sections are owed with the completion.

116.3 EX56 main theorem

Theorem 32.35: Completion-Character Descent Theorem. [my packaging of the source's executive verdict and surviving audit (P43); the detailed audit and execution sections truncated; DΛ_Ω open]

The frozen six completion logits carry a full-rank-six source-conditioned probability Jacobian; the frozen six-to-four completion-route incidence descends it to a rank-four response which the $Z_2 \times Z_2$ character basis diagonalises exactly, the conditional Fisher geometry being F_character = 4pq · diag(3, 3, 1, 1) at the frozen occupancy $p = 1 - e^{-1}$, and the frozen primitive completion Hessian sharing the same 3:3:1:1 shape up to the scalar 315/4 at machine precision; hence the four physical completion characters are not probability-null, and any history influence reaching them with nonzero image necessarily leans on next probabilities. The attachment debt is thereby reduced from the 144-dimensional tangent to the single scalarisation/Radon-Nikodym map DΛ_Ω from the history-conditioned quadratic completion geometry into the four linear completion characters, which no current source theorem returns.

116.4 Partial summary (tail truncated)

Object	Grade *(verdict-first transfer; table mine)*
EX2A six-logit probability Jacobian	FULL RANK SIX (upgrades EX55-R2's OPEN shortcut row)
GSJB-2 six-to-four descent	RANK-FOUR RESPONSE
GSJB-3 $Z_2 \times Z_2$ character basis	DIAGONALISES EXACTLY
Conditional Fisher geometry	F_character = 4pq · diag(3, 3, 1, 1); $p = 1 - e^{-1}$
Primitive completion Hessian	SAME 3:3:1:1 SHAPE; scalar 315/4 at machine precision
Four completion characters	NOT PROBABILITY-NULL
Attachment debt	REDUCED: 144-dim tangent → DΛ_Ω into four characters
Scalarisation map DΛ_Ω (quadratic → linear boundary)	OPEN: no current source theorem returns it
EX2A audit block and execution sections	ABSENT: tail truncated (seventh)

PART XCII: WHAT EX56 CHANGES

117. Four live dials; owed is the translation that turns the bend into their settings

The connector shrinks by two orders of magnitude and the question sharpens into a translation problem. The shortcut the previous round graded below evidential level has

now been executed in full: the six completion coordinates speak to probability at full rank, their six routes fold onto exactly four symmetry channels, the character basis diagonalises the response, and the resulting geometry is written in closed form, a single occupancy weight times the cleanest of shapes, with the primitive Hessian wearing the same shape to machine precision. All four channels are provably live: nothing history could say through them would go unheard. So the attaching map no longer needs to reach a hundred and forty-four directions; it needs to set four dials. What no law yet supplies is the translation, and the round names its type exactly: history's amendment arrives as a quadratic operator, a bend in the completion geometry, while the dials are linear scalar logits, and the scalarisation, the Radon-Nikodym step from the bend to the settings, is returned by no current theorem. Once that map is anything but zero, the lean follows automatically; the round proves as much. The format lesson landed too: the verdict rode in front and survived the seventh clipped tail, so the round's results are whole even where its workings are owed. One translation now stands between a bending past and a listening world.

PART XCIII: PMS-EX57 EXECUTION (EXECUTIVE ANSWER COMPLETE; TAIL TRUNCATED)

118. Gaussian Radon–Nikodym Completion Scalarisation and Orientation-Blindness Audit

This executes the scalarisation calculation reserved in the R48 contract (Premise P44). The question: can the remaining EX56 map DΛ_Ω, from history-conditioned completion geometry to the four scalar probability-driving completion characters, be derived from the existing HMGBC Gaussian/path-measure law, **without choosing a trace, determinant, norm or coupling by hand**? The source's executive answer, complete in transfer: **partly, but not fully.**

[Editorial note: the tail is clipped for the eighth time, cut mid-word inside the predecessor audit ("a Schur complement for the re…"); the audit remainder and any execution sections are absent (F287). The executive answer survived whole.]

118.1 The canonical scalarisation rule

The HMGBC Gaussian measure supplies a canonical Hessian-to-weight rule, Z_G(P) ∝ det(P)^(−1/2). If that same raw Gaussian weight is the factor entering an EX2A completion mark [a stated conditional, F286], EX2A's amplitude-logit convention fixes

c_G(P) = −¼ log det P + constant, and therefore Dc_G[P; δP] = −¼ Tr(P^{-1} δP).

There is no free memory coefficient in that formula: the ¼ is the product of the Gaussian normalisation's square root and the amplitude convention's square root, with Jacobi's formula supplying the derivative exactly.

118.2 The insufficiency

However, the presently executed HMGBC Gaussian determinant is a **branch-level scalar** of the positive completion stiffness. It does not return the four marked completion-rate coordinates required by EX56, and it is **exactly blind to the source-native k = +1 versus k = −1 orientation-conjugate pair**, the determinant being invariant under the conjugation implementing the flip. So EX57 closes a canonical **Gaussian scalarisation rule**, and simultaneously proves that **scalar stiffness alone cannot be the complete outcome-specific history-to-probability bridge**.

118.3 Surviving audit fragment

The HMGBC source history law is an actual Radon–Nikodym/log-density construction, and at quadratic order Gaussian bath elimination produces a Schur complement for the re[tained block: the transfer cuts at this word; the item as far as stated is consistent with the EX55 stage-ordering identity, and the audit remainder is owed].

118.4 EX57 main theorem

> **Theorem 32.36: Gaussian Scalarisation and Orientation-Blindness Theorem. [my packaging of the source's executive answer and audit fragment (P44); the audit remainder and execution sections truncated; the marked and orientation-sensitive components of DΛ_Ω open]**
>
> The HMGBC Gaussian measure canonically weights a positive completion stiffness by det(P)^(−1/2), and under the stated identification of that raw weight with the factor entering an EX2A completion mark, the amplitude-logit convention fixes c_G(P) = −¼ log det P up to a constant, whence Dc_G[P; δP] = −¼ Tr(P^{-1} δP) exactly, with no free memory coefficient anywhere: the first component of the EX56 scalarisation map is thereby derived rather than chosen. That component is a branch-level scalar: it does not return the four marked completion-rate coordinates, and it is exactly blind to the k = ±1 orientation-conjugate pair, so scalar stiffness alone is proved insufficient for the complete outcome-specific history-to-probability bridge, the marked and orientation-sensitive components of DΛ_Ω remaining owed.

Object	Grade *(executive-answer transfer; table mine)*
Canonical Hessian-to-weight rule	Z_G(P) ∝ det(P)^(−1/2): SUPPLIED BY THE MEASURE
Scalar logit and its derivative	c_G = −¼ log det P; Dc_G = −¼ Tr(P^{-1}δP): EXACT, COEFFICIENT-FREE
Weight-enters-mark identification	STATED CONDITIONAL ("if")
Four marked completion-rate coordinates	NOT RETURNED by the branch-level scalar
k = +1 / k = −1 orientation pair	EXACTLY BLIND (determinant conjugation-invariant)

Object	Grade *(executive-answer transfer; table mine)*
Scalar stiffness as the complete bridge	INSUFFICIENT: proved this round
Audit remainder and execution sections	ABSENT: tail truncated (eighth)

PART XCIV: WHAT EX57 CHANGES

119. The stiffness half of the translation is written; the directional half is owed

The translation begins to exist, and its first clause costs nothing. Asked whether the missing map could be derived without choosing anything by hand, the round answers with a formula instead of a dial: the history law is already a Radon–Nikodym construction, its Gaussian measure already weights a stiffness by an inverse square-root determinant, and the amplitude convention already halves that exponent again, so the scalar setting of the completion mark responds to a history bend by exactly minus one quarter of the trace of the bend against the inverse stiffness, a law with no adjustable number in it anywhere, and with a definite direction: a stiffening past can only lower that scalar setting. But the same derivation names its own limit with the thread's usual honesty. A determinant hears only how stiff, never which way: it is a branch-level scalar, provably deaf to the orientation-conjugate pair and unable to return the four marked coordinates the four live channels require, so the outcome-specific half of the translation, the part that would let history say which fact and not merely that facts weigh, is exactly what remains. The oldest gap in the corpus surfaces here in its newest clothes: the scalar story keeps completing itself for free, and the directional story keeps waiting for the source to speak. One half written, dial-free; one half owed, direction-shaped.

PART XCV: NAMED PREMISES

120. Load-bearing premises and their falsifiers

The following premises are load-bearing for the conditional results of this paper. Each is stated where it is used; this ledger collects them so that no conditional grade can silently harden into an exact one. Violating a premise fires the listed falsifiers.

- **P1: χ-faithful operator presentation.** The operator proxy $\Gamma_\chi(H) = \tfrac{1}{2}(U(H) - U(H^{\leftarrow}))$ is exact only if the operator presentation is χ-faithful, that is, only if the continuation-cone distinction $\mathrm{Ext}_\chi(H) \neq \mathrm{Ext}_\chi(H^{\leftarrow})$ is represented (§4). Guarded by F48.

- **P2: clean signed overlap reading.** ln I_u = A_u + M_χ and ln I_d = A_d − M_χ with no up/down-odd derivative in the even residual, giving D = 2 g_χ (§11). Guarded by F50 and F60.
- **P3: maintenance conjugacy.** F(q | m) = F_0(q) − m M_χ(q) + O(m^2) with stable closure Hessian H > 0 (§12). Guarded by F50.
- **P4: same-action split admissibility.** The split T_phys = T_D ⊕ T_R is returned by source conservation and allowed weight transfer, with G ⪰ 0, B ⪰ 0 and ker B ⊆ ker C (§15–16). Guarded by F52, F53 and F54.
- **P5: inherited faithful representation-typed carrier.** The direct-ledger reconstruction (6, 13/2, 378) is executed inside the inherited carrier; the representation factor dimensions are carrier data, not primitive outputs (§17). Guarded by F51.
- **P6: Ornstein–Uhlenbeck bath admissibility.** The reduced bath proposal has the stated Gaussian form with ran C ⊆ ran A_Q and W_prim ⪰ 0 (§28.2). Guarded by F58 and F61.
- **P7: frozen target-blind test frame.** The endpoint non-identifiability and central-invariant insufficiency certificates are issued on the frozen five-witness target-blind endpoint family and the regulator sequence n = 3–6 (§29–31). Guarded by F63, F64 and F70.
- **P8: frozen EX12 renewal package.** The renewal calculation is executed on the frozen EX12 source package: the supplied 84-class record carrier, the inherited terminal-completion probability p = 1 − e^{-1}, the S_3 key symmetry, and regulator levels 3–4 (§35). Guarded by F76–F83.
- **P9: EX13 selection premises.** The renewal-selection gate is executed under four declared premises: the reopened working carrier returns to a zero-entropy pre-fact state; the completed record remains separate and immutable; the fresh carrier is S_3-neutral; and physical time is fact-indexed, so steps creating no fact carry no time increment (§48). Guarded by F86–F90.
- **P10: EX14 void axioms and freeze discipline.** The occupancy and distinguishability gate is executed on the frozen faithful 50-dimensional representation algebra under the declared void axioms: zero-entropy pure pre-fact canvas, full gauge invariance under the twelve faithful generators, S_3 neutrality, with the rank-3 projector kept representation-anonymous until the structural result is frozen (§51). Guarded by F88 and F91–F94.
- **P11: EX15 evaluation frame.** The intertwiner no-go is evaluated on the frozen faithful carrier, at the selected neutral-singlet void ray, against the current PFDMI field action; the rank-0 obstruction and the retyping are exact relative to that action, and a future enlarged action must re-derive rather than assume them (§53). Guarded by F95–F99.
- **P12: no-hidden-distinction admission.** Every admissible positive distinguishability direction has the capacity to form a physical fact unless a source theorem proves it redundant or forbidden; the ≥ 98 physical response rank and the rank-96 incompleteness verdict are exact under this admission rule, and the six

persistent-record null modes are retained as record carrier (§55.8–55.9). Guarded by F100–F104.

- **P13: EX17 comparison frame.** The action-metric gate compares the two source-supported quadratic geometries, the Fubini–Study metric of the projective carrier and the EX14 void-relative Hessian W_D; the family G_θ is the minimal family containing both and is a lower-bound witness of nonuniqueness, not an exhaustive space of admissible primitive tensors (§57.1, §57.5). Guarded by F105–F109.
- **P14: EX18 fact-order package.** The timeless-race and Born results are exact under four declared elements: proportional hazards λ_A = w_A h(u) with a common baseline; a quadratic amplitude weight; an exhaustive orthogonal branch algebra Σ P_A = I; and the frozen faithful alternatives, within which the Born law is a typing theorem, not an unconditional derivation of quantum mechanics (§59). Guarded by F110–F114.
- **P15: EX19 preparation frame.** The first-differentiation no-go and the Haar uniqueness are exact under the frozen void/tangent package, the full refinement/isosymmetry bridge acting irreducibly on the 49-complex tangent while fixing the void ray, the declared void/locality/one-Bit/no-unearned-frame axioms, and the absence of downstream Standard Model targets (§61). Guarded by F115–F119.
- **P16: Exchangeable Renewal Extendibility (ER).** Every finite primitive-innovation family is exchangeable, projectively consistent, and extendible to larger finite families; the de Finetti factorisation and the conditional D44′ discharge hold under ER, which is a newly named condition awaiting substrate derivation, not a substrate theorem (§61.13, §61.15). Guarded by F119 and F120.
- **P17: EX20 conditioning and topology frame.** The record-conditioning results hold under the frozen EX19 projective tangent, Haar base law and ER-conditional factorisation; the Gibbs–Haar component form $\Sigma\, t_j \|P_j \eta\|^2$ is the declared leading response class on the twelve invariant components; and the holonomy results are stated on the declared local-comparison topology, with the binary alphabet at the physical register and the $\mathbb{Z}_7$ structural model as diagnostic frame only (§63). Guarded by F121–F125.
- **P18: EX21 commitment-action assumptions.** The action-form uniqueness holds under independent composition (readiness weights multiply, irreversible costs add), the stated regularity condition, iso-entropic neutrality and thermodynamic additivity, on the frozen EX20 preparation geometry; the shared-face family is stated under exchange symmetry, global complement symmetry and uniform one-bit marginals; and the two stability graphs are built under the frozen Route-M normalization (§65). Guarded by F126–F131.
- **P19: strong closure-frame transport model.** The shared-face single-fact closure holds under the declared strong transport model, in which the opposite-side readout of the interface relation $g \in D_7$ is exactly g^{-1}, and pre-committed cells retain their records under the inherited A2* condition; the fact-multiplicity theorem is conditional on this model (§68). Guarded by F132–F136.
- **P20: GSJB-16 interface and economy package.** The record-localisation closure holds under the declared shared-interface incidence model (a single token incident

to and readable from both cells), the six GSJB-16 interface premises, the VERSF minimum-distinction/structure-economy principle as the selector, and the blind ordering in which the localisation is chosen before either candidate length scale is evaluated (§70). Guarded by F137–F142.

- **P21: post-commitment instrument conventions.** The EX24 contract holds under the disjoint atomic operation alphabet as the declared post-commitment event space, the trace-preserving split of the instrument into an unresolved map $\mathcal{T}$ and resolved atomic maps $\mathcal{R}$_a, the stated conditioning convention defining the no-copy map $\mathcal{T}$_nc, the declared code/syndrome decomposition of the maintenance Hessian, the four-type cost typing with the path ratio primitive, and the fragment-information premise of the proliferation ceiling (§72). Guarded by F143–F149.
- **P22: inherited append-only bridge frame.** The EX25 execution holds within the inherited F2F/PFDMI append-only recurrent-ledger architecture (seven self-history marks unresolved, nonself transitions resolved as record-preserving renewal), the four-component atomic-signature grain (keep, renew, copies, overwrite), the manifestation typing of later records, and the Ohmic reduction frame for the dissipation statement; the retention-and-renewal result is conditional on this architecture pending its primitive derivation (§74). Guarded by F150–F155.
- **P23: declared renewal-isometry frame.** The EX26 identities hold for the declared PFDMI record-preserving renewal isometry with its ledger ⊗ working tensor split and orthogonal record sectors, under the factorised-dynamics test convention for the spectator theorem, and are scoped to the declared PFDMI working carrier (§76). Guarded by F156–F160.
- **P24: frozen fine-carrier and audit frame.** The EX27 results hold on the frozen 24-dimensional directed nonself-history carrier over the seven-vertex wheel, with the HX1 phase carrier typed as the reversal-odd subspace, the CGI/EX2G renewal-response support as declared, the unit diagnostic branch for the Hessian statements, the minimal branch-preserving renewal class, and the audited statuses of the entropy/capacity papers (Entropic Confinement as mechanistic support only; entropic back-pressure as candidate coupling; BCB as meta-constraint; MaxCal as inference principle) (§78). Guarded by F161–F167.
- **P25: imported selector-capacity frame.** The EX28 results hold for the 84 source-invariant PFDMI terminal effects on the frozen 50-dimensional internal carrier, under the imported and retained EX5CE Boolean rank no-go, the imported K7-QRC scalar-commutant premise (simple-spectrum diagnostic plus complete connectivity), the generator-frame audit statuses (order-one fine-atom dependence; invariant summed effects), and the source's continuation-faithfulness pullback criterion as the faithfulness gate (§80). Guarded by F168–F173.
- **P26: frozen adjudication frame.** The EX29 results hold on the SHA-attested PFDMI-EX2E reproducibility package (the 84 terminal effects and the 12 × 13 current Kraus family, reproduced with edgewise completeness), at the pair-word grain W_ij = E_i E_j, for the two coefficient-free extremal spectral rules as the adjudicated candidates, with the EX5CD rank-one pullback used as a necessary condition and the History-Measure/PFDMI carrier non-identification honored (§82). Guarded by F174–F179.

- **P27: commutator adjudication frame.** The EX30 results hold on the same SHA-attested EX2E package, at the commutator grain C_ij = i[E_i, E_j], for the positive and negative extremal eigenprojector rules as the adjudicated candidates, with the EX5CD rank-one pullback used as a necessary condition and the carrier non-identification honored and confirmed non-load-bearing for these rejections (§84). Guarded by F180–F184.
- **P28: audited locus construction frame.** The EX31-R2 results hold on the same SHA-attested EX2E package, with the thirteen-channel structure per edge (one trivial positive-root channel, twelve nontrivial current channels in orbit-current form), the common-kernel characterization of the rank-one pullback locus, the predecessor hard stop rules frozen (order operators are not backreaction without cone change; trap and working supports differently typed; full pullback equality the eventual test), the five declared EX2E endpoint witnesses as the admitted background set, the restricted-extremal rule graded as canonical and background-relative, the channel-frame rotation audit convention, and the carrier non-identification honored (§86). Guarded by F185–F194.
- **P29: quotient-audit frame.** The EX32 results hold on the frozen five-witness set with the published 84-dimensional gauge-null space, the twelve faithful gauge generators and seven representation projectors as declared, current-sector populations as the gauge-invariant discriminator, the EX2F flat-moduli theorem imported (nullity exceeding the gauge orbit; no gradient, spectral or variational frame-selection principle in the current action), and the source's open moduli debt (its D-PF32, in the PFDMI ledger namespace) imported as the remaining redundancy question (§88). Guarded by F195–F199.
- **P30: soft-closure frame.** The EX33 results hold on the frozen D36 rim law (hub and self probabilities equal; biased orientations with the single-step orientation ratio fixed by the surviving normalized share, $r \approx 0.147$, my reconstruction), under the imported PSAC first-order-Markov theorem for D36, the imported distinguishability framework (operational equivalence below a finite total-variation resolution ε), and the monotone-orientation normalization convention (§90). Guarded by F200–F204.
- **P31: imported steering frame.** The EX34 results hold under the imported HCMR-P1 record-conditioned likelihood update (exponent one by probability-chain consistency), the imported HCMR-XI-2 execution on the actual mark instrument (RSU chain structure, residuals as reported), the frozen 49-dimensional preparation carrier with its twelve components (dimension list stripped), the imported PSAC-EX5AA exactly-zero ledger-to-future derivative as the causal baseline, the distinguishability ε framework, and the succession form $q(k \mid \mathbf{h}) = (d_k + n_k)/(49 + n)$ as my reconstruction fixed uniquely by the exact surviving total-variation table (§92). Guarded by F205–F210.
- **P32: within-epoch bias frame.** The EX35 results hold on the frozen PFDMI/EX2E matrices at the physical terminal grain (the thirteen current-generator outcomes summed out; the seven source-native terminal projectors applied after each completed step), under the matched-triple census convention (same start, same penultimate node, same final transition), the imported PSAC post-renewal independence test (reopened working channel independent of the retained ledger;

ledger-to-R4 gain zero), the imported PFHBA conditional grading of the Doob descent, PSAC's F101/F102 prohibition on inserted history control, and the HCMR-P1 ordered-record likelihood as candidate structure only; the source's verdict block was absent in transfer and the standing summary table is mine (§94). Guarded by F211–F216.

- **P33: state-preserving renewal frame.** The EX36 results hold under the HCMR conditioned-state return with its classical-mark-only copy isometry (residual stripped), the minimal state-preserving renewal as the tested map, the frozen D36/PFDMI Fold dynamics for the fading evolution, the EX35 clean pair as the executed witness, the complete reset as the comparison map, the imported PSAC no-overwrite coexistence theorem, and the diagnostic-only status of the distinguishability example (no universal ε selected); the source's verdict body was largely stripped in transfer and the standing summary table is mine (§96). Guarded by F217–F222.
- **P34: renewal-rigidity frame.** The EX37 results hold under the covariant counterfamily convention $\Phi_\lambda(\rho) = \lambda\rho + (1 - \lambda)\,\mathrm{tr}(\rho)\, I_{50}/50$ tensored with the ledger identity, the frozen 84-effect family as audited (Hermiticity residual 9.70×10^{-17}; edge-completeness residual 1.93×10^{-14}; real span rank 73), the same-carrier isometric class definition, the imported K7-QRC-1/EX5CE irreducibility with the independent target-blind Hermitian witness pair, the imported PSAC-EX5AE export permission, the restored EX12 S_3-equivariant κ-family result, the HCMR signature $\sigma = (1, 1, 0, 0)$ as logical disposition only, and the entropy papers (Born-rule entropic unfolding; discrete-entropy work) as conditional candidate selectors only (§98). Guarded by F223–F228.
- **P35: source-free reversibility frame.** The EX38 results hold under the imported one-way implication (Commitment Requires Cost giving new fact ⇒ entropy, with The Theory of Fact Production's export-without-fact cases blocking the converse), the κ/commitment-field continuity equation with vanishing renewal source, the HCMR $\sigma = (1, 1, 0, 0)$ typing, the K7-CBR isometric renewal as executed architecture (its physical map not primitively derived, by its own statement), the covariant eraser family as the source-free counterexample, and the imported PAR pre-factual reversibility theorem at inherited/conditional grade (sub-threshold dynamics reversible, conditionally unitary once the Hilbert-space metric is admitted) (§100). Guarded by F229–F234.
- **P36: field no-reset frame.** The EX39 results hold under the uploaded commitment-field equivalence paper's unique quadratic action (inherited/conditional), the homogeneous Klein-Gordon source-free equation, the mode-flow conventions with the energy metric G_ω, the inherited dimensionless mass $m\xi = \sqrt{(4/3)}$ and the tested wavenumber/time grid, the imported Fact-Momentum source-free stress-energy conservation, the memory-kernel consistency (algebraic local decay without reset), the controlling PSAC outcome-blind scalar-source audit, and the attaching-map requirement $A : H_{PFDMI} \to$ κ-field phase space as the open identification (§102). Guarded by F235–F240.
- **P37: attaching-adjudication frame (truncated transfer).** The EX40 results hold under the imported controlling PSAC R19 executions (current scalar marked

projection rank 6, nullity 6 on the 12-dimensional count+polarity carrier; construction-level two-direction Whitney embedding with exact left inverse; MA1 projection of the complete two-direction Fold record rank 1, singular values [0.578064557803, 0]), the linear-attaching-map class into continuum Cauchy data, the (orientation, polarity) record-coordinate and KG phase-space embedding conventions, and the EX39 invertible source-free flow; the source document is TRUNCATED mid-sentence part way through its second section, the Whitney-survival execution and verdict block being absent in transfer, and the standing partial-summary table and the Whitney rank corollary are this paper's (§104). Guarded by F241–F246.

- **P38: transverse-activation frame (truncated transfer).** The EX41 results hold under the imported PSAC stack (EX5BE unsigned-scalar impossibility and fact-separating marked-configuration requirement with scalar count as marginal; EX5BF–BH four-state record (r, ς) bijective with (b, ω) given orientation attachment; EX5BI construction-level completion instrument with activation open; EX5BK/BL covariant reduction to g_cover ∈ [−1, 1] with δ_K = 0.995570059549810 fixed and the current action returning zero; EX5BC/BD zero-background polarity failure with the anisotropic-response rescue requirement), the reflection/exchange-compatible embedding class ι_(a,b) with Jacobian diag(a, b), and the executed gain scan at fixed b = 0.578064557803; the source document is TRUNCATED mid-word at the close of its fifth section, the second consecutive clipped export, its verdict block absent, and the standing summary table is this paper's (§106). Guarded by F247–F252.
- **P39: background-rescue frame (truncated transfer).** The EX42 results hold under the imported PSAC-EX5BB–BD unique local polarity carrier H_ab = D_a D_b m − (1/2) γ_ab Δm (two-dimensional, symmetric, trace-free; zero-background divergence generically nonzero; isotropic background insufficient), the newer commitment/κ-field theorem (unique linear Klein-Gordon action; nonlinear self-interactions excluded), and the standard perturbation conventions $s = s_0 + \varepsilon h$ about arbitrary background solutions; the source document is TRUNCATED at the opening line of its section B ("The PSAC obstruction is a vector residual"), the THIRD consecutive clipped export, the minimal-rescue construction and verdict absent, and the standing summary table and the flat divergence identity are this paper's (§108). Guarded by F253–F258.
- **P40: mark-extraction frame (truncated transfer; supersession).** The EX43-R2 results hold under the imported HCMR-P1/XI-2 conditioned-state update z_(ρ,e) = M_e η_ρ / √(p_e(η_ρ)) with the 319 microscopic marked operators on $C^7 \otimes C^{50}$ (completeness residual 2.471×10^{-14}; classical record-copy isometry residual 0), the PFDMI detailed mark L(e, α, r) = P_r C(e, α) U_e renamed t_term under the report's own notation firewall (t_term ≠ PSAC R4 sign), the 319→84 edge-and-terminal-type coarse-graining with its exact but unselected renewal isometry, and the PFHBA-7 identifiability failure (exact-lift family dimension 34,152; unmarked Doob kernel blind); the report SUPERSEDES an original EX43 never received here, whose broader negative the source retracts; the document is TRUNCATED at the header of its HM4/RCMO/PRLU block, the FOURTH consecutive clipped export, the

remaining audit, extraction execution and verdict absent, and the standing summary table is this paper's (§110). Guarded by F259–F264.

- **P41: curvature-pullback frame (truncated transfer).** The EX44 results hold under the imported controlling chain: PSAC R19 Gate S (S_C(x, y) = d/dε_C log K^ε(y|x)|*(ε=0), equal to ω_C exactly on the canonical branch), the PSAC exponential-family descent after the declared bath reduction (K*(σ,α) = K_0 exp[σα ω_C]/Z_x, no inserted history tilt), the PSAC signed curvature response in the isolated scalar closure sector (Γ_eff = ½ k_C c^2 − σα∗ c; c∗_σ = σα∗/k_C; k_C = 360/713 = 0.504908835904628; α∗ = 0.959001109719975; c∗ = 1.89935497564000), the PSAC-EX1B normalisation λ_C = 1, the EX35/EX36 carried distinction, and the HCMR/PSAC post-commitment firewall (no automatic retained-ledger → future-active map; stationary identities not promotable to causal post-renewal theorems); the Fubini-Study/entropy papers are interpretation only; the document is TRUNCATED mid-equation in its second section, the FIFTH consecutive clipped export, the pullback leg and verdict absent, and the standing summary table and the closure of the cut derivative line are this paper's (§112). Guarded by F265–F270.
- **P42: native-geometry attachment frame (R2; equation-stripped transfer; offline gap).** The EX55-R2 results hold under the imported HMGBC/HCMR history-derived amendment (carried in the superseded R1 transfer as H_XX(h) = H_XX^MASD + ΔΩ(h), ΔΩ ≥ 0, with the stage-ordering Schur identity making it unscreenable), the primitive PFDMI Born-Fisher construction at the declared 72-dimensional physical rank, the actual frozen EX2E arrays with the physical Wilson basis, the record-spacetime and *From Conservation to Geometry*/BCB papers as the stated geometric setting with the current-typing firewall (Lorentz record 4-current versus representation-valued edge carrier), the EX2A six-logit completion structure below evidential grade, and the PMS-EX10 witness family for the strength limitation; the revision SUPERSEDES the first EX55, whose truncated item C framing is replaced by the native route; executions EX45–EX54 ran offline and were NOT RECEIVED; the document's tail and verdict are COMPLETE while its mathematical displays are STRIPPED in transfer, the stripped items listed in §114 and the machine-readable contract, and the standing structural closures are this paper's, flagged (§114). Guarded by F271–F276.
- **P43: scalarisation-boundary frame (verdict-first; tail truncated).** The EX56 results hold under the imported EX55-R2 equivalence (Fisher-null ⇔ probability-null on positive admitted support; EX2E terminal Jacobian injective on the declared 72-dimensional physical Wilson tangent), the HMGBC amendment (quadratic, retained, Schur-surviving), the frozen PFDMI-EX2A six completion logits, the frozen GSJB-2 six-to-four completion-route incidence and GSJB-3 $Z_2 \times Z_2$ character basis with its primitive completion Hessian, and the frozen occupancy values p = $1 - e^{-1}$, q = e^{-1}; the 315/4 shape relation is imported at machine precision with its referent (bare diag shape versus full F_character) left ambiguous by the stripped displays; the source led with its executive verdict, which is COMPLETE, while the tail is TRUNCATED at the PFDMI-EX2A audit header, the seventh clipped export, and the standing summary table is this paper's (§116). Guarded by F277–F282.

- **P44: Gaussian-scalarisation frame (executive-answer-first; tail truncated).** The EX57 results hold under the HMGBC Radon–Nikodym/log-density history law with its Gaussian bath elimination at quadratic order (audit cut mid-item; the surviving Schur-complement clause consistent with the EX55 stage-ordering identity), the canonical Hessian-to-weight rule Z_G(P) ∝ det(P)^(−1/2), the EX2A amplitude-logit convention, and the STATED CONDITIONAL identification of the raw Gaussian weight with the factor entering an EX2A completion mark ("if"); the executed determinant is a branch-level scalar of the positive completion stiffness, exactly conjugation-invariant and hence blind to the k = ±1 orientation pair; the tail is TRUNCATED, the eighth clipped export, the audit remainder and execution sections absent, the executive answer complete, and the standing summary table and the flagged sign consequence are this paper's (§118). Guarded by F283–F288.

PART XCVI: FALSIFIER LEDGER

121. Preserved EX7 falsifiers

This ledger lists the falsifiers introduced from EX7 onward; earlier entries in the PMS falsifier namespace are inherited unchanged from the consumed cumulative base.

- **F45: Maintenance-name conflation.** The word "maintenance" is used to equate quark Yukawa maintenance with PFDMI gauge/record relaxation without a carrier map.
- **F46: Scalar-to-vector smuggle.** The scalar B_q is used to derive the three-component ledger (5, 4, 80) without a source-derived sector map.
- **F47: Half-lazy weight smuggle.** The factor ½ from the half-lazy projector is used as the numerical origin of unequal relaxable weights.
- **F48: Final-record χ.** A matter-maintenance sign or magnitude is read from the order-forgetting final record rather than the ordered-history residue.
- **F49: Numerical-χ promotion.** The physical admissibility of χ or existence of a first spectral gap is called a derivation of its numerical magnitude.
- **F50: Maintenance-conjugacy promotion.** B_q > 0 is called primitive matter selection while M_χ(q) and its record conjugacy remain premises.
- **F51: Direct-ledger overclaim.** Reconstruction of (6, 13/2, 378) inside the inherited faithful typed carrier is described as derivation of the representation census from a pre-representation void.
- **F52: Relaxability from multiplicity.** Representation multiplicities are used to decide which source directions may relax.
- **F53: Three-number provenance.** A returned r_A triplet is called a complete same-action score law without C, B and bath adjacency.
- **F54: Scalar-Schur shortcut.** Z_A = d_A − r_A is used without proving $b_A^2 = r_A^2$.
- **F55: Positivity-as-weight-selection.** Complete positivity is used to select a unique response weight despite the admissible interval.

- **F56: RRHF leakage.** The target relaxation ledger or RRHF source jets are opened before the native bath graph and parent blocks are frozen.
- **F57: Structural analogy promotion.** Similar Schur formulas are treated as proof of physical identity.
- **F58: Cross-sector bath reuse.** A gauge bath is silently reused as a matter, record, completion or CAR/Fock bath without a typed source operation.
- **F59: Heavy-quark halving smuggle.** The half-lazy χ recursion is identified with the naive within-generation mass ratio despite the stated sign-inversion and heavy-sector fork.
- **F60: Target-derived M_χ.** The signed maintenance coordinate is chosen from observed quark masses and then cited as their explanation.

122. EX8–EX11 falsifiers

- **F61: Universal-bath insertion.** The two exact bath components are merged without a source-derived inter-sector coupling.
- **F62: Support-to-metric promotion.** Rank-72 support closure is cited as selection of one numerical score stiffness.
- **F63: Maximal-positivity selection.** The saturated positive endpoint is called physical merely because it is maximal.
- **F64: Endpoint-frame promotion.** One full-rank endpoint witness is promoted despite the target-blind witness family returning inequivalent numerical Grams.
- **F65: HFB completion back-selection.** The old HFB completion block is used to choose the primitive character attachment.
- **F66: Branch-by-downstream-success.** (5, 4, 80) is selected because RRHF or phenomenology performs better on that branch.
- **F67: Small-angle equivalence.** The 2.0226022° record-plane separation is treated as exact physical equivalence.
- **F68: Symmetric-measure promotion.** The stationary barycentre is called the physical response without checking its asymptotic score.
- **F69: Stationary-equals-responsive conflation.** Existence or symmetry uniqueness of a stationary measure is treated as uniqueness of a nonzero H_CMR response.
- **F70: Central-invariant completion.** The common central species weights or invariant twirl are claimed to determine endpoint coherences despite the five-witness counterexample.
- **F71: Direct-ledger branch equivalence.** Equality of (6, 13/2, 378) is used to identify the two branches despite inequivalent reduced metrics and boundaries.
- **F72: Finite-episode overclaim.** Finite Fisher rank 210 is cited as a long-history pass while the rate rank is 24 and the asymptotic neutral block vanishes.
- **F73: Fitted-lift promotion.** A lift reproducing the parent Hessian is called primitive while inequivalent lifts reproduce the same parent.
- **F74: Congruence-selection smuggle.** A symmetric-positive completion bridge is treated as unique despite the exact O(4) bridge family.

- **F75: Premature charged transfer.** The blind charged tensor is opened before a nonabsorbing source-selected numerical response and branch are returned.

123. EX12 falsifiers

- **F76: Renewal-rate insertion.** A specific renewal hazard r is fixed by convenience, phenomenological fit or downstream success rather than derived from an action cost or event-resolved path measure, or proved gauge.
- **F77: Memory-kernel insertion.** The key-reopening kernel κ is selected by minimum memory, maximum mixing, or maximum entropy rather than returned by the source.
- **F78: Fitted-Ξ promotion.** A typed defect-to-mark lift reproducing the parent Hessian is called the physical Ξ despite the exact inequivalent-lift certificate at 1.736586.
- **F79: Rank-sufficiency promotion.** The rank margin $588 \geq 96$ is cited as derivation of the unique full H_CMR decomposition.
- **F80: Viability-as-necessity.** The admissibility of the renewed neutral-extended branch is promoted to branch selection.
- **F81: Regulator-stability selection.** Regulator stability of the renewal family is used to select a member of it.
- **F82: Key-preservation promotion.** The $\kappa = 1$ witness is selected via minimum-support or key-preservation despite its decomposition into three disconnected cycles.
- **F83: Score-selects-memory conflation.** The score metric is claimed to fix retained key memory despite the 8.17×10^{-11} neutral Fisher insensitivity across the full memory range.

124. Phenomenological-comparison falsifiers

- **F84: Empirical back-selection.** An empirical comparison is used to select r, κ, Ξ, a terminal roster, endpoint frame, source coefficient or any other unresolved primitive object, or a measurement-adjusted construction is presented as target-free.
- **F85: Grade flattening.** The graded phenomenological table is quoted without its provenance labels, treating imports, matches, conditional postdictions and conditional predictions as uniform first-principles derivations.

125. EX13 falsifiers

- **F86: Hazard-scale insertion.** An absolute common Tick-Race hazard scale (seconds per Bit, κ_void^absolute) is fixed by convenience or fit rather than derived from the source.
- **F87: Gauge-parameter resurrection.** The reopening probability r is reintroduced as a physical dimensionless constant after its removal as a fact-time coordinate freedom, or its removal is cited as the derivation of a new constant.

- **F88: Occupancy insertion.** Nonzero neutral pre-fact distinguishability is assumed rather than proved, or the conditional branch-forcing theorem of §48.7 is quoted as unconditional branch selection.
- **F89: Reset-derivation inversion.** $\kappa = 1/3$ is described as a maximum-entropy or maximum-mixing choice rather than the unique zero-entropy S_3-neutral return, or a different κ is retained together with the zero-entropy premises.
- **F90: Born-compatibility promotion.** The first-passage/Born compatibility pass is cited as an independent derivation of the Born weights rather than a consistency test against the stored probability law.

126. EX14 falsifiers

- **F91: Direction-discard smuggle.** The two extra void-tangent directions (98 − 96) are dropped as unphysical without a source-derived theorem, despite both carrying nonzero distinguishability in the full-rank void metric.
- **F92: Fitted-embedding promotion.** An exact congruence embedding of the rank-98 void metric into the rank-96 history parent is called the physical intertwiner despite the inequivalent-bridge certificates 1.187 and 1.025.
- **F93: Numerological promotion.** The exact $\lambda_{min} + \lambda_{max} = 8$ identity of the frozen construction is assigned physical meaning, for example by linking it to the trace-8 completion spectra, without a source derivation.
- **F94: Occupancy literalism.** The neutral-carrier selection is described as populated physical neutrinos existing before fact formation rather than a representation-theoretic statement about which carrier role can host the pre-fact canvas.

127. EX15 falsifiers

- **F95: Witness-as-derivation promotion.** The explicit birth family $B_\alpha = |v_\alpha\rangle\langle\Omega|$ is cited as the source-derived creation law rather than an existence witness.
- **F96: Linear-intertwiner reinstatement.** A fitted linear or congruence map from the void tangent to the history carrier is reintroduced despite the exact rank-0 first-order obstruction, reinstating the ambiguity EX14 exposed.
- **F97: Grade conflation.** Outputs of different birth grades (amplitude $O(\varepsilon)$, probability/Casimir $O(\varepsilon^2)$, bosonic completion mixed $O(\varepsilon^2)$, CAR/Fock mixed $O(\varepsilon^3)$) are identified or interchanged without a source theorem.
- **F98: Null-plane assumption.** The neutral rank-2 plane discrepancy is resolved by declaring two directions null or gauge without the required theorem, despite the full-rank void metric, the continuous symmetry-admissible plane family, and the parent's demonstrated inability to select at 2.9×10^{-10}.
- **F99: Support-preservation conflation.** The rank-155 mark/Kraus derivative, which preserves the inherited charged support, is cited as evidence of support-birth capacity.

128. EX16 falsifiers

- **F100: Stiffness insertion.** Any of the eleven birth-stiffness ratios k_j is fixed by fit, convenience, or downstream success rather than derived from the primitive action.

- **F101: Maximum-entropy promotion.** K_birth = I_98/98 is presented as derived; the zero entropy of the void state is conflated with maximum ignorance over future innovations, which are differently typed quantities.
- **F102: Deterministic-birth insertion.** A single preferred first-innovation direction is inserted despite the zero fixed subspace of the joint gauge × S_3 action, spontaneously introducing a gauge, species or generation preference.
- **F103: Parent-fitting regression.** The primitive rank-98 response is truncated or altered to fit the inherited rank-96 parent, or the smallness of the two soft modes (about 4×10^{-7} of the curvature) is cited as nullity.
- **F104: Scalar overreach.** The scalar Fact-Momentum construction is cited as selecting the twelve internal gauge × S_3 birth stiffnesses beyond its common-kernel and common-hazard capacity.

129. EX17 falsifiers

- **F105: θ insertion.** A value of θ, including either endpoint, is adopted by convenience, elegance or downstream success rather than derived; adopting Fubini–Study isotropy as "natural" counts.
- **F106: Family-exhaustiveness overclaim.** G_θ is treated as the complete space of admissible primitive metrics rather than a minimal two-candidate witness, or a third primitive tensor is excluded without a theorem.
- **F107: Metric-to-hazard conflation.** Role probabilities are computed from G_θ, G_θ^{-1}, or another tensor without a source-derived action-to-rate rule, despite the 2/49 versus 4/51 versus 0.999607 spread.
- **F108: Maximum-entropy laundering.** The implication of §57.8 is run backwards: the maximum-entropy covariance is cited as evidence for the Fubini–Study endpoint, or the ignorance axiom is re-smuggled through it.
- **F109: Record-null activation.** The six exact record nulls of H_104 are given active pre-fact response, or active modes are moved into the null block, without a source theorem.

130. EX18 falsifiers

- **F110: Quantum-derivation overclaim.** The Born next-fact law is cited as an unconditional derivation of quantum mechanics from nothing, rather than a typing theorem within the frozen branch-algebra alternatives and the P14 package.
- **F111: Layer conflation.** W_D is used as a pre-fact selection metric, G_pre is used as the response Hessian, or any G_θ interpolation between the two layers is revived.
- **F112: Prior-as-preparation promotion.** The isotropic role weights (2/49, 6/49, 2/49, 18/49, 9/49, 9/49, 3/49) are cited as physical preparation predictions rather than an epistemic no-information prior.
- **F113: Duration smuggle.** A seconds-per-fact scale is inferred from the race, whose winner law is exactly invariant under common hazard rescaling, or inserted by fit.
- **F114: Hazard-shape dependence.** A physical conclusion is claimed to depend on the baseline opportunity profile h(u) or on a monotone reparameterisation of the race coordinate, contradicting the exact cancellation.

131. EX19 falsifiers

- **F115: Hidden-variable relapse.** The ontic pre-fact amplitude is treated as encoding a predetermined outcome, or conversely the deterministic no-go is cited as making the amplitude merely epistemic.
- **F116: Holonomy-origination smuggle.** Loop holonomy or frame structure is cited as creating the first innovation rather than transporting existing ones, against the exact $U_\gamma|\Omega\rangle = |\Omega\rangle$ fixing.
- **F117: Frame-first insertion.** A global path-independent frame, costing $(N-1)\log_2 q$ bits, is presupposed by or extracted from a one-Bit first readout.
- **F118: Law-to-event promotion.** μ_{FS} is cited as the realised per-event preparation, or a fresh independent Haar draw after every fact replaces the record-conditioned architecture $\mu_{FS} \to \mu(\cdot \mid \rho) \to$ realised state.
- **F119: Exchangeability-as-independence.** Exchangeability is used to conclude independent renewal opportunities without ER and the directing variable, against the exact $-1/4$ counterexample.
- **F120: ER promotion.** Exchangeable Renewal Extendibility is treated as a substrate theorem rather than a named condition awaiting derivation.

132. EX20 falsifiers

- **F121: Gibbs-factor insertion.** A post-record factor outside the eleven-tilt invariant form is inserted, or specific tilt values $t_j(\rho)$ are fixed by fit, convenience or downstream success rather than derived.
- **F122: Complement-symmetry promotion.** The exact conditional occupancy ½, or complement symmetry of ν itself, is quoted as a physical VERSF prediction rather than an exact conditional special case.
- **F123: Diagnostic promotion.** The uniform $\mathbb{Z}_7$ occupancy $6/7$ is quoted as the present observable prediction despite the current Gate-3 register.
- **F124: Local-data topology conflation.** Local marginals or exchangeability are cited as fixing the holonomy class against the exact 0-versus-1 counterexample pair, or the eventual-occupancy theorem ($p > 0 \Rightarrow 1$) is used to assert $p > 0$.
- **F125: Order-free gluing assumption.** A pre-commitment shared face is assigned one-record or two-record status without the D45″ construction-order theorem.

133. EX21 falsifiers

- **F126: Cost fitting.** Entropy costs ΔI_A or the drive affinity are chosen to reproduce target probabilities, against the exact manufacturing identity of §65.7; the permissible direction is derive-then-compare only.
- **F127: Information-as-wavefunction promotion.** A magnitude or information functional is promoted to a coherent amplitude, against the exact 48-phase fibre obstruction and the $\pi/2$ separation witness.
- **F128: Marginal-multiplicity conflation.** The effective bit count or the parameter J of a shared face is inferred from one-bit marginals, against the marginal-invariance of the Ising family.

- **F129: Informational-provenance smuggle.** Shannon, relative or Fisher information, or Born probabilities, are cited as detecting or fixing record provenance or λ_prov, against the exact correlated-duplication invariance.
- **F130: Coherence-length target reversal.** The near-agreement of the record-distinct coherence length with the separately frozen VERSF scale, or any ξ comparison, is used to select the 16-versus-20 branch, reversing the derivation direction.
- **F131: Unconditional-ξ usage.** A downstream calculation uses a coherence length without carrying the construction-order conditional while the fork is open.

134. EX22 falsifiers

- **F132: Double-counting relapse.** The two sides of a shared face are counted as independent primitive facts (incidence 8, 20 logical channels), against the exact $g \mapsto g^{-1}$ dependence and the 14-image pair map.
- **F133: Multiplicity-localisation conflation.** The closed fact-multiplicity theorem is cited as selecting the record localisation, or the 16-versus-20 fork is described as a fact-count fork.
- **F134: Logical-data λ determination.** Tick-Race probabilities or logical-sector data are cited as determining λ_prov, against the exact invariance of logical weights under the provenance stiffness.
- **F135: Redundancy-as-outcome.** A duplicated copy is treated as a second outcome or entropy quantum, against the exact zero conditional entropy of the second copy.
- **F136: Transport-model erasure.** The fact-multiplicity closure is quoted without its strong-transport-model conditionality (P19).

135. EX23 falsifiers

- **F137: Economy-principle erasure.** The one-token localisation is quoted as an unconditional theorem of finite distinguishability rather than conditional on the structure-economy principle and the GSJB-16 premises.
- **F138: Primitive-constant promotion.** The selected primitive coherence length is promoted to an unconditional fundamental constant, ignoring the GSJB-16 conditionality and the inherited Route-M ultraviolet ruler.
- **F139: Lifetime smuggle.** The many-to-one basin availability is cited as proving record stability or lifetime without a transition kernel, noise model or physical barrier.
- **F140: Carrier discard.** The 20-token carrier is declared unphysical, against its retained roles for commit-before-glue and post-copy regimes.
- **F141: Stale-agreement citation.** The old coherence-scale agreement is cited as supporting the primitive glue-before-commit scale after the EX23 reassociation to the copied regime.
- **F142: Birth-stiffness insertion.** A nonzero λ_prov is assigned at primitive write despite the exact absence of copy-disagreement directions at birth.

136. EX24 falsifiers

- **F143: Priority-convention smuggle.** Overlapping post-commitment dispositions are raced under an artificial priority ordering instead of the disjoint atomic alphabet.
- **F144: Continuation or proliferation assumption.** Post-commitment resolution, inevitable copying, or unbounded proliferation is asserted without the corresponding spectral criterion (r($\mathcal{T}$), r($\mathcal{T}$_nc)) or the extra information law required by the conditional ceiling.
- **F145: Benchmark-hazard insertion.** An earlier frozen benchmark hazard is inserted as the physical copy rate, or opportunity counts are quoted as seconds without the D-PM11 fact-clock calibration.
- **F146: Causal-split promotion.** The copy-before-causal-split rule is cited as derived rather than as a sharply falsifiable candidate.
- **F147: Scalar-stiffness insistence.** A scalar λ_prov is reported without the isotropy check on H_ss, or RCMO is identified with or inverted into H_ss without the forward map from the master action.
- **F148: Per-bit cost insertion.** A copy, maintenance or erasure cost is asserted from the reduced channel alone (for example a fixed per-bit value), against the exact dilation non-identifiability.
- **F149: Basin-lifetime quotation.** A static basin partition is quoted as record stability or lifetime, against the exact demonstration that the same partition supports staying, swapping and mixing dynamics.

137. EX25 falsifiers

- **F150: Architecture-selection conflation.** The executed append-only retention-and-renewal result is quoted as a primitive-master-action derivation rather than as architecture-conditional (P22), before retention invariance is derived and erasure/overwrite are ruled out.
- **F151: Copy-question resurrection.** The post-commitment ontology is framed as a foundational copy-versus-no-copy contest after the retention retyping, or XI-4's fixed dilation is cited as a foundational copy operation or copy decision, against its rank-zero propensity.
- **F152: Manifestation-fact conflation.** Later environmental records are counted as new foundational facts, against the retained-once typing in which they are manifestations of the one committed fact.
- **F153: Selector-Gram substitution.** The rank-five selector/Fisher Gram, its scalar average, or its regulator convergence is inserted as or cited as identifying the physical retention-syndrome Hessian, against the anisotropy and provenance refusals.
- **F154: Stability-typing collapse.** Individual manifestation stability, inter-manifestation agreement stiffness and syndrome damping are conflated, or deterministic restoration is asserted from positive curvature alone without γ_syn > 0, against the exact common-bath decoupling.

- **F155: Backreaction assumption.** Retained-history backreaction on the reopened working carrier is asserted from ledger persistence alone.

138. EX26 falsifiers

- **F156: Memory-as-force conflation.** The existence or persistence of ledger memory is cited as evidence that history dynamically modifies the next event, against the exact spectator conservation under factorised dynamics.
- **F157: Backreaction-for-free.** History-dependent dynamics are asserted without a source-derived ledger-dependent generator, channel, kernel, constraint or carrier map.
- **F158: Carrier-reopening overreach.** Full reopening of the PFDMI working carrier is promoted to the HX1 record-phase carrier or any independently typed carrier without the derived intertwiner.
- **F159: Retention-scope inflation.** The exact projector identities are quoted beyond the declared PFDMI renewal isometry, or cited as the primitive master-action proof of the retention law, which remains open.
- **F160: Spectator-as-nihilism.** The non-backreaction theorem is quoted as "history does nothing," against its explicit scope: retention alone does not act, and history-dependent laws remain admissible pending derivation.

139. EX27 falsifiers

- **F161: Dimension-equality identification.** The CGI renewal-response and HX1 carriers are identified by rank alone, against the exact $\{0^6, (\pi/2)^6\}$ principal-angle spectrum.
- **F162: Cut-cycle conflation.** Cut-sector (coboundary) regeneration is cited as regenerating the cycle sector or the uniform-rim mode, against $B^T w = 0$ and the machine-zero CGI overlap.
- **F163: Gauge-phase promotion.** The minimal renewal's free global phase is cited as an HX1 record phase, against its exact cancellation from link ratios and the conditioned state.
- **F164: Label-to-phase type error.** The discrete retained record label is used as a continuous phase source without a derived map.
- **F165: Unit-branch promotion.** The unit-branch excess Δk is quoted as a physical confinement coefficient before the operational metric is returned, or the Entropic Confinement paper is used as its numerical normalization rather than as mechanistic support.
- **F166: Lock assumption.** Commitment is asserted to remove, or to preserve, the old cycle tangent without the s-calculation, or the conditional chain is quoted with its first arrow assumed.
- **F167: Coupling-from-audit smuggle.** The entropic back-pressure, BCB or entropic-unfolding papers are cited as supplying the HX1-specific coupling or a fresh phase, against their audited statuses (candidate mechanism, meta-constraint, inference principle).

140. EX28 falsifiers

- **F168: Boolean-algebraic conflation.** The Boolean rank floor at the 12/84/319 grains is cited as an algebraic incapacity of the physical carrier, or the saturation theorem is cited as repealing the retained Boolean no-go.
- **F169: Diagnostic-selector promotion.** The K7-QRC diagnostic operator, or any fixed generic element or extremal eigenprojector of it, is announced as the physical commitment projector, against its generic non-law coefficients.
- **F170: Post-inspection selection.** Coefficients, eigenvectors or spectral sectors of a candidate H(**h**) are chosen after inspecting outcomes, or a target is inserted into the history map.
- **F171: Fine-atom relapse.** A generator-frame fine effect (one of the 1092 atoms) is used as or inside the selector, against the order-one frame dependence found by the audit.
- **F172: Candidate-architecture promotion.** The ordered-word law M(**h**) = W(**h**)†W(**h**) is quoted as source-derived before the primitive action returns history through it.
- **F173: Capacity-as-selection.** The saturation theorem is cited as having selected the commitment cut or realised state, against the explicit three-gate structure of which only the capacity gate is closed.

141. EX29 falsifiers

- **F174: Eigenvalue-only history law.** Any proposed history law reading only the spectrum of the word operator, against the exact isospectrality of reversal: such laws are order blind by construction.
- **F175: Order-blind hard-cut promotion.** The 300 rank-one pullback instances (the 132 same-terminal-type pairs) cited as the physical selector despite carrying no order information.
- **F176: Soft-cut acceptance.** An order-sensitive extremal projector adopted as the trap cut despite rank-13 pullback, against the necessary rank-one condition of the minimal topological trap.
- **F177: Extremal-failure overgeneralization.** The extremal no-go quoted as excluding the ordered-word grammar as such, the saturated algebra's capacity, or the non-Boolean route, against its explicit scope: two coefficient-free extremal rules, pair words, frozen execution.
- **F178: Cross-carrier identification smuggle.** A direction-by-direction identification of a pullback projector with the topological trap direction asserted without the source-returned History-Measure/PFDMI carrier map.
- **F179: Unfrozen-matrix substitution.** The adjudication rerun on non-frozen or regenerated matrices and quoted as the EX29 result, against the SHA-attested EX2E package.

142. EX30 falsifiers

- **F180: Commutator-extremal promotion.** An extremal eigenprojector of i[E_i, E_j] used as the physical selector, against the 83,664-of-83,664 rank-13 pullback census.

- **F181: History-side sufficiency.** Perfect order transmission (orthogonal reversal rays, no blind pairs) cited as evidence of physical selection, against the total hard-cut failure of the same candidate.
- **F182: Near-collapse claim.** The rank-13 pullbacks described as approximately or effectively rank one, against the reported singular-value, singular-ratio and Gram-eigenvalue margins bounded away from zero.
- **F183: Generic-ray selection.** Any ray announced as the hard cut without demonstrated membership of the rank-one Kraus-pullback manifold (alignment of all thirteen channel images).
- **F184: Route-collapse inference.** The two extremal no-gos (EX29 and EX30) quoted as excluding all source-clean selectors, the ordered-word grammar as such, or the non-Boolean route.

143. EX31 falsifiers

- **F185: Law-status promotion.** The restricted-extremal construction quoted as a derived physical law before the master action returns the extremal rule; canonical is not derived.
- **F186: Direction-attachment assumption.** The topological forbidden continuation asserted to attach to the constructed dark-sector ray without the source-returned History-Measure/PFDMI map.
- **F187: Edge-blind selector.** A single internal ray used as the hard cut for every continuation, against the trivial all-edge kernel intersection; the law must be candidate-continuation resolved.
- **F188: Manifold-membership shortcut.** A ray asserted to lie in $\mathcal{K}$_e without the annihilation test on all twelve nontrivial channels, or near-kernel rays promoted despite the bounded active-complement singular value.
- **F189: Fine-atom kernel substitution.** The frame-dependent 1092-atom structures used to define or replace the manifold, against the proven frame invariance of the common kernel and the order-one atom dependence.
- **F190: Retrospective invalidation.** EX29's and EX30's exclusions quoted as contradicted by EX31, against the actual relation: the unrestricted extrema remain excluded, and the restriction changes the operator before extremization.
- **F191: Background-blind promotion.** The fixed-witness locus or its rays quoted as the physical hard-cut manifold or the physical continuation ray while the endpoint/current background remains a genericity witness rather than a primitive selection.
- **F192: Witness-averaging smuggle.** An average, union, convex hull or arbitrary choice among the five admitted endpoint witnesses used as if source-selected, without a derived selection or an explicit quotient rule.
- **F193: Reducing-subspace mischaracterization.** The locus $\mathcal{K}$_e described as a common reducing or invariant sector of the 84-effect physical algebra, against the measured amplitude leakage of every effect out of the locus and the source's common-reduction prohibition.

- **F194: Fold-MASD renaming.** The Fold trap functional identified with the MASD vacuum-relative plaquette-holonomy closure defect without the source-derived functional relation.

144. EX32 falsifiers

- **F195: Gauge-quotient revival.** The witness dependence claimed to be quotiented by the declared 84-dimensional gauge freedom, against the dominant non-gauge fractions and the changing gauge-invariant populations.
- **F196: Population-invariance denial.** Witness equivalence asserted while the gauge-invariant current-sector populations differ; the populations are exact invariants because the representation projectors commute with every declared gauge generator.
- **F197: Gram-equivalence promotion.** An endpoint rephasing (p53_quadratic_shifted or similar) treated as physically equivalent to the primary because Gram magnitudes agree, against its materially differing current populations.
- **F198: Universal-ray search continuation.** Further hunting for a witness-independent ray in the EX31 planes, against the exactly trivial five-fold intersection on every edge.
- **F199: Inequivalence overreach.** EX32 quoted as proving every non-gauge null direction physically inequivalent, against its explicit scope: the declared gauge only, with any undiscovered redundancy the source's open moduli debt.

145. EX33 falsifiers

- **F200: Hard-zero misreading.** The D36 law or the soft-closure result quoted as making any orientation probability exactly zero, against the strictly positive probabilities at every depth.
- **F201: Cumulative-per-step conflation.** The exponentially growing whole-history ratio cited as a shrinking next-step backward probability, against the first-order Markov property: the per-step law is history-blind and the suppression is a product of identical factors.
- **F202: Distinguishability-alone sufficiency.** Operational closure of the next step claimed from finite resolution without a history-conditioned tilt, against the current single-step ratio lying orders of magnitude above every stated threshold.
- **F203: Threshold retro-fitting.** The resolution ε chosen after inspecting the suppression table so as to declare a desired depth closed; ε must be independently supplied by the distinguishability framework.
- **F204: Hard-cut abandonment.** The soft-closure reframing quoted as retracting or replacing the exact rank-one, topological or support-level results, against its explicit role as a complementary operational target.

146. EX34 falsifiers

- **F205: Causal-promotion smuggle.** The HCMR conditional preparation law quoted as the derived causal transition law of the published action, against PSAC-EX5AA's exactly-zero ledger-to-future derivative.
- **F206: Coefficient insertion.** A tunable history exponent or weight added to the record-conditioned update, against probability-chain consistency fixing the likelihood exponent to exactly one.
- **F207: D36-direction identification.** The steering components identified with the clockwise/anticlockwise orientation without the typing bridge.
- **F208: Hard-zero relapse.** The steering law quoted as making any never-occurred alternative exactly impossible at finite history, against $d_k/(49 + n) > 0$.
- **F209: Preparation-transition conflation.** The record-conditioned preparation update applied in calculations as if it were the next-transition law before the promotion derivation exists.
- **F210: Reconstruction promotion.** My succession-form reconstruction of the update quoted as the source's stated formula rather than as the unique form reproducing the exact surviving total-variation table.

147. EX35 falsifiers

- **F211: Epoch-boundary conflation.** The within-epoch internal-state bias quoted as surviving renewal, against the executed post-renewal independence of the reopened working channel (ledger-to-R4 gain zero).
- **F212: Coarse-law contradiction claim.** The internal-state bias quoted as contradicting the D36/PSAC coarse blindness, against the executed agreement: within every matched pair the coarse next-node law is exactly identical.
- **F213: Likelihood-route insertion.** The Kraus-normalized record-likelihood update installed as the physical post-renewal law without the source derivation, against PFHBA's conditional grading and PSAC's F101/F102 prohibition.
- **F214: Memory-force relapse.** A fitted memory coefficient or a hard zero introduced to strengthen or sharpen the bias, against the coefficient-free internal-state mechanism with all futures strictly positive.
- **F215: Pair-census overreach.** The 879-pair census quoted as covering all history classes or as typing the bias direction, against its matched-triple scope.
- **F216: Verdict fabrication.** Any verdict-table values for EX35 quoted as the source's, against the absent verdict block in transfer; the standing summary table is mine and so flagged.

148. EX36 falsifiers

- **F217: Renewal-map presumption.** The state-preserving renewal quoted as the corpus's chosen or derived renewal, against the presently chosen reset under which automatic backreaction is graded negative; the selection between maps is the open derivation.

- **F218: Reset-necessity claim.** Renewal or record retention quoted as necessarily wiping the history effect, against the executed state-preserving map with the bias exactly preserved and the ledger no-overwrite intact.
- **F219: Permanence claim.** The carried bias quoted as permanent, against the executed coefficient-free fading from 0.13344 to 0.00584 across one hundred Folds.
- **F220: Universal-threshold assignment.** A universal ε or a specific indistinguishability Fold count quoted as theory-selected, against the diagnostic-only status of the example.
- **F221: No-overwrite conflict claim.** State-preserving renewal quoted as violating ledger no-overwrite, against the imported PSAC coexistence proof.
- **F222: Witness generalization.** The EX35-pair fade curve quoted as the universal decay law, against its single-witness scope.

149. EX37 falsifiers

- **F223: Structural-uniqueness claim.** Covariance, full reopening and ledger no-overwrite quoted as selecting pass-through, against the exact Φ_λ counterfamily with λ free and not source-returned.
- **F224: Rigidity overreach.** The identity-up-to-phase uniqueness quoted beyond its class (same-carrier, isometric, all-84-effect-preserving), for example for non-isometric CPTP renewals such as Φ_λ itself at $\lambda < 1$, or for enlarged carriers.
- **F225: Informational-completeness claim.** The 84 effects quoted as linearly informationally complete, against the real span rank 73; the rigidity rests on algebraic irreducibility, not linear span.
- **F226: Entropy-selector promotion.** The entropic-unfolding or discrete-entropy papers quoted as already deriving $\lambda = 1$, against their conditional status: reversibility of renewal between commitments unproven, and reset export permitted.
- **F227: Dial-physicality promotion.** Intermediate λ values quoted as physically realized partial-memory renewals, against λ's free, unreturned status; the family is a counterexample construction.
- **F228: Export-permission misuse.** PSAC-EX5AE's export permission quoted as making reset preferred or required, against its role as merely permitting reset under injective complete dynamics.

150. EX38 falsifiers

- **F229: Entropy-fact converse.** Entropy production or irreversibility quoted as implying a new stable fact, against The Theory of Fact Production's export-without-fact cases; only new fact ⇒ cost holds.
- **F230: Source-free sufficiency.** Renewal's zero commitment source or no-new-fact status quoted as forcing reversibility or zero entropy production, against the executed source-free eraser family.
- **F231: PAR-membership assumption.** The C→A renewal asserted to lie in the pre-factual sub-threshold sector without the derivation; hinge one is open.

- **F232: Reversibility-identity conflation.** PAR reversibility quoted as forcing the identity renewal without effect preservation, against the nontrivial rotations that preserve distinguishability while changing effect statistics; hinge two is EX37's rigidity condition.
- **F233: K7-CBR promotion.** The existing isometric K7-CBR renewal quoted as primitively derived, against its own explicit statement that the physical reset/renewal map is not yet derived.
- **F234: Conditional-pass promotion.** The conjunction result (both hinges ⇒ EX37 state-preserving renewal) quoted as achieved, against both hinges being open.

151. EX39 falsifiers

- **F235: Field-reset claim.** A literal reset asserted as implementable by source-free homogeneous field flow, against det R = 1 and exact invertibility: the many-to-one cannot equal the one-to-one at any finite time.
- **F236: Attachment presumption.** The PFDMI conditioned state treated as a faithful mode of the commitment field without the source-derived attaching map A; the renewal-flow identification is conditional.
- **F237: Quotienting map.** An attaching map that quotients away the EX35 distinction used to claim survival; A must preserve the relevant distinguishability.
- **F238: Outcome-mark promotion.** The scalar/event-density field quoted as carrying the outcome-specific Fold/PFDMI mark, against the controlling PSAC outcome-blind audit of the scalar commitment source.
- **F239: Readout conflation.** Field-level reversible survival quoted as preserving the numerical next-terminal total variation without effect preservation; rotations can hide information from the fixed 84-effect readout.
- **F240: Euclidean-norm misreading.** The sub-unit Euclidean singular values quoted as distinguishability loss, against the exactly preserved energy metric G_ω; the determinant and inverse tests are the load-bearing reversibility checks.

152. EX40 falsifiers

- **F241: Repair claim.** Reversible propagation quoted as recovering a record direction the attaching map failed to encode, against $\ker(R_t A) = \ker(A)$ at every finite time.
- **F242: MA1 survival claim.** The current MA1 complete-mark attachment quoted as carrying polarity into the field at any time, against the exact kernel result: second singular value exactly zero at all tested times.
- **F243: Weakness misreading.** The MA1 polarity failure described as attenuation or weakness, against exact kernel membership before and after propagation.
- **F244: Whitney-grade fabrication.** Executed grades, numbers, or a verdict for the Whitney-survival branch quoted as the source's, against the truncated transfer; only the rank-level corollary is entailed, and it is this paper's.
- **F245: Corollary overreach.** The rank-survival corollary for the Whitney embedding quoted as establishing full survival (left-inverse stability, readout visibility, marked-bridge typing), against its rank-only scope.

- **F246: Attachment-derivation claim.** The Whitney embedding quoted as the source-derived attaching map A, against its construction-level status; D-PM46 remains open.

153. EX41 falsifiers

- **F247: Second-source revival.** The marked four-state source described as introducing a second primitive commitment source, against the exact marginal structure: one event, richer alphabet, count incremented by one.
- **F248: Gain-from-existence claim.** The fact-separation requirement ($a \neq 0$) quoted as fixing the transverse gain's magnitude, against the marginal's blindness and the executed injective continuum over ten orders of $|\det J|$.
- **F249: Symmetry-activation claim.** Covariance quoted as determining g_cover or the physical a, against the one-parameter family the unmarked Doob kernel cannot resolve and the current action's returned zero.
- **F250: Metric-premise smuggle.** A relative-scale rule such as $|a| = |b|$ imposed without the source-derived metric/isometry premise at the Fold-to-continuum bridge; F78/F86-style promotion.
- **F251: Amplitude-rescue claim.** The zero-background Fold-polarity tensor multiplied by a scalar quoted as a valid transverse activation, against EX5BC/BD: the direction itself fails the leading record-current equation.
- **F252: Verdict fabrication (second consecutive).** Executed grades or a verdict for EX41 beyond the surviving sections quoted as the source's, against the truncated transfer.

154. EX42 falsifiers

- **F253: Background-deformation claim.** An anisotropic or inhomogeneous κ background quoted as changing the linearised fluctuation operator or admitting the polarity zero mode, against $dL_(s_0)/ds_0 = 0$ exactly under the linear action.
- **F254: Stress-tensor promotion.** The derived anisotropic stress tensor quoted as feeding back into the Fold record-current operator without the same-source record-tensor vertex; that vertex is a new bridge, not a consequence of the scalar theorem.
- **F255: Nonlinearity smuggle.** A self-interaction term introduced to make the fluctuation operator background-dependent, against the newer theorem's exclusion of nonlinear self-interactions.
- **F256: Rescue-construction fabrication.** Content, grades, or a verdict for the §B minimal type-correct rescue quoted as the source's, against the truncated transfer (third consecutive).
- **F257: Route-closure overreach.** The κ-background no-go quoted as closing all anisotropic rescues, against its scope: ordinary background structure within the current stack; the type-correct vertex construction and any newly derived bridge remain open.
- **F258: Hessian misidentification.** A different local carrier substituted for the unique two-dimensional symmetric trace-free Hessian H_ab, against the PSAC-EX5BB–BD uniqueness.

155. EX43-R2 falsifiers

- **F259: Outcome-existence conflation.** The marked-outcome PASS quoted as answering what binary property the marks encode; existence and typing are separated by the report itself.
- **F260: t_term/R4 conflation.** The PFDMI terminal-type index quoted as the PSAC R4 polarity sign, against the report's own notation firewall.
- **F261: Capacity-typing claim.** Capacity or existence results used to type the PFDMI labels as Fold polarity, against the 34,152-dimensional exact-lift identifiability failure and the blindness of the unmarked Doob kernel.
- **F262: Supersession erasure.** The original EX43's broader negative quoted as standing, against its explicit supersession and retraction by this R2.
- **F263: Audit-completion fabrication.** Content, grades, or a verdict for the HM4/RCMO/PRLU blocks or any later section quoted as the source's, against the truncated transfer (fourth consecutive).
- **F264: Renewal-selection promotion.** The exact 84-label renewal isometry quoted as primitively selected, against its own open status.

156. EX44 falsifiers

- **F265: Coefficient-insertion claim.** The curvature-parametrised kernel described as introducing a new memory susceptibility, Doob coefficient or probability rule, against the tilt-elimination identity built solely from returned quantities ($k_C = 360/713$, $\alpha*$, $\lambda_C = 1$).
- **F266: Causal promotion.** The stationary geometry/probability identity quoted as a complete causal post-renewal backreaction theorem, against the imported firewall: no automatic retained-ledger → future-active map.
- **F267: Branch overreach.** The identity quoted beyond the executed stationary scalar closure branch (isolated sector, canonical reduction, $\lambda_C = 1$).
- **F268: Completion fabrication (fifth consecutive).** Content, grades or a verdict for the truncated remainder, the history-to-curvature pullback leg above all, quoted as the source's.
- **F269: Entailed-line promotion.** The closed derivative line $dK_c/dc = k_C K_c[\omega_C - \langle\omega_C\rangle_c]$ treated as new content beyond the source; it is the exponentiated chain-rule form of the source's own preceding logged identity, and nothing further.
- **F270: Polarity conflation.** The scalar-curvature lean quoted as supplying the independent Fold-polarity/R4 mark or the record-tensor vertex, against the sector typing; the extraction and vertex debts stand.

157. EX55 falsifiers

- **F271: Screening claim.** Auxiliary or Schur relaxation quoted as screening the history-derived geometric amendment, against the exact stage-ordering identity: the amendment lives on the retained block and elimination passes through it.
- **F272: Strain-sign claim.** The completion amendment quoted as sign-indefinite or removable, against $\Delta\Omega \geq 0$ on the retained carrier.

- **F273: Attachment presumption.** The probability lean asserted as established without the source-derived attaching map from HMGBC history space into the PFDMI physical tangent; the 72/72 results close the tangent's interior, not the entry into it, the verdict's own grade being ONE ATTACHING MAP SHORT.
- **F274: Offline-round fabrication.** Content or grades for the unreceived EX45–EX54 quoted as in this paper; only EX55's audit imports stand.
- **F275: Stripped-display reconstruction.** Formulas, matrices, ranks stated only implicitly, singular values, residuals or difference figures for EX55-R2's stripped displays quoted as the source's beyond the stated structure and the surviving verdict; only structurally forced closures stand, flagged as this paper's.
- **F276: Coefficient reintroduction.** The closed legs quoted as requiring or licensing a new memory-force coefficient, against both being written entirely in returned quantities.

158. EX56 falsifiers

- **F277: Character-null claim.** The four completion characters described as probability-null, against F_character = 4pq · diag(3, 3, 1, 1) with 4pq > 0 and all diagonal entries positive.
- **F278: Quadratic-linear conflation.** The HMGBC quadratic Hessian amendment fed directly into the linear scalar route logits without the scalarisation/Radon-Nikodym map DΛ_Ω, which no current source theorem returns.
- **F279: Reduction overreach.** The 144-to-4 reduction quoted as discharging the attachment debt rather than reshaping it; DΛ_Ω ≠ 0 is required and underived.
- **F280: Shape-factor promotion.** The 315/4 scalar relation quoted beyond its stated machine-precision shape comparison, its referent being left ambiguous by the stripped displays.
- **F281: Tail fabrication (seventh clipped export).** Content or grades for the cut PFDMI-EX2A block or any later section quoted as the source's; the executive verdict alone is complete.
- **F282: Occupancy-value promotion.** $p = 1 - e^{-1}$ and $q = e^{-1}$ quoted as derived within this round rather than imported frozen values.

159. EX57 falsifiers

- **F283: Coefficient smuggle.** A tunable memory coefficient read into c_G = −¼ log det P + constant, against the amplitude-convention-fixed ¼ and the round's own no-free-coefficient statement.
- **F284: Full-bridge promotion.** The scalar Gaussian rule quoted as the complete outcome-specific history-to-probability bridge, against its branch-level scalar status and the round's "partly, but not fully".
- **F285: Orientation-sensitivity claim.** The Gaussian determinant quoted as distinguishing the k = +1 and k = −1 orientation conjugates, against its exact conjugation invariance.
- **F286: Identification promotion.** The weight-enters-mark step quoted as derived, against its stated conditional form.

- **F287: Tail fabrication (eighth clipped export).** Content or grades for the cut audit remainder or any later section quoted as the source's; the executive answer alone is complete.
- **F288: Sign-consequence promotion.** The stiffening-lowers-the-setting sign statement quoted beyond its structural, this-paper's-flagged status.

PART XCVII: OPEN-DEBT LEDGER

160. Named open debts

Each debt names a missing object. No debt may be discharged by downstream success, notation, or convention; each requires a source-derived return.

- **D-PM1: Primitive maintenance coordinate.** $M_\chi(q)$ from primitive closure geometry, together with $g_\chi = \nabla M_\chi(q_0)$, the species-resolved overlap gradient D, the physical numerical χ calibration, and the full-matrix Yukawa extension (§13).
- **D-PM2: Full physical bath package.** The complete 72-dimensional same-action package A_Q, C, B and Z on the marked-source tangent (§28.3).
- **D-PM3: Physical normalisation and frame.** The physical current normalisation $\eta_{physical}$ and the physical endpoint/current frame (§28.3, §29.4).
- **D-PM4: Terminal roster.** CONDITIONALLY DISCHARGED (§51.10): the neutral-extended roster (5, 4, 80) is selected within the frozen faithful alternatives under the declared void axioms (P9, P10), combining the EX13 forcing theorem with the EX14 canvas theorem. Residual: the selection is conditional on those axioms and on the frozen faithful alternatives.
- **D-PM5: Completion-congruence factor.** Source selection of the orthogonal factor inside the exact O(4) bridge family, or supersession of the old HFB completion block (§30.5, §31.6).
- **D-PM6: Renewal-law selection.** DISCHARGED at dimensionless level (§48): $\kappa = 1/3$ is derived from the unique zero-entropy S_3-neutral return, and r is removed as a fact-time coordinate freedom. The residual absolute hazard scale is D-PM11.
- **D-PM7: Defect-to-mark lift.** The typed Radon–Nikodym/score map Ξ_{source}, equivalently $D_A(X)$, sharpened by four independent exact-fit non-identifiability certificates: lift certificates 1.736586 (§35.6) and 1.727051 (§48.8), and embedding certificates 1.187 and 1.025 (§51.7). Now concretely the void-to-history intertwiner problem (D-PM13).
- **D-PM8: Cross-layer intertwiners.** Source-derived J_D and J_R identifying, or provably separating, the maintenance response and the PFDMI relaxation blocks (§21–22).
- **D-PM9: Full renewed cross blocks.** The full-carrier D, C, B and Z on the renewed process at two interacting regulator levels (§35.7, §47).

- **D-PM10: Absolute-scale bridge.** The physical scale, running, matching and scheme/pole bridge required before absolute fermion masses can be issued at primitive PMS grade (§44, §45).
- **D-PM11: Absolute hazard scale (fact-clock calibration).** The common Tick-Race hazard normalisation κ_void^absolute, written throughout as "seconds per Bit". Since a second is itself a count of facts of a reference physical process, this is a calibration ratio between fact-counting processes, the exchange rate between the primitive fact clock and the composite reference clocks physics actually uses, never the duration of one fact against a deeper background clock, which would be circular in a theory where facts constitute time. A uniform rescaling of all hazards changes that calibration but not which channel wins, so the race alone cannot fix it (§48.2). Surfaced at EX17 as the absolute action unit (§57.14), formalised at EX18 by the exact Λ-invariance of the winner law (§59.11), and confirmed at EX19: the opportunity parameter is dimensionless and ordinal, so ordered Bits alone do not yield the calibration (§61.16). Every later occurrence of "seconds per Bit" or "seconds per fact" is this calibration shorthand.
- **D-PM12: Neutral pre-fact occupancy.** CONDITIONALLY DISCHARGED (§51.1): under the declared void axioms every admissible pre-fact canvas lies in the neutral rank-3 sector, so occupancy in the carrier-role sense follows; residual provenance sits at axiom level (P10).
- **D-PM13: Void-to-history intertwiner.** RETYPED (§53): the ordinary linear intertwiner is excluded exactly by the rank-0 first-order obstruction on the current action; the objects owed are now the source-derived graded birth functor (D-PM15) and the neutral-plane selection (D-PM16), which together replace any embedding of W_D into the 102/334 history carriers.
- **D-PM14: Spectral-identity provenance.** A source derivation, or refutation, of the exact λ_min + λ_max = 8 complementarity, currently an identity of the frozen EX14 construction only (§51.6).
- **D-PM15: Source-derived graded birth functor.** SUPPORT COMPONENT DISCHARGED (§55.1–55.2): full support on all 49 complex innovation directions is forced by the zero fixed subspace, upgrading the B_α witness from sufficient to necessary. The residual is the birth-stiffness law (D-PM17) and its graded descendants on the corrected carrier (D-PM18).
- **D-PM16: Neutral-plane selection.** DISCHARGED (§55.6–55.8): both disputed modes have strictly positive eigenvalues at both regulators, so under no-hidden-distinction admission the two-plane is genuine and nothing is discarded; the fork resolves as parent enlargement rather than selection or nullity.
- **D-PM17: Birth-stiffness law.** REDUCED (§57.1): the exact Fubini–Study/W_D agreement on all 94 nonneutral directions collapses the eleven ratios, within the source-supported comparison, to the single neutral-sector parameter θ of G_θ. The residual is the θ selection or a third-tensor theorem (D-PM19).
- **D-PM18: Corrected retained carrier.** STRUCTURALLY DISCHARGED (§57.10): H_104(θ) = G_θ ⊕ 0_6 is constructed explicitly with dimension 104, rank 98 and nullity 6 at both regulators. The residual, the uniquely typed D, C, B, Z on it, awaits θ and the action-to-hazard rule (D-PM19, D-PM20).

- **D-PM19: Pre-fact action-metric selection.** DISSOLVED BY TYPING (§59.2, §59.6): the interpolation never represented one physical dial; phase covariance and exhaustive additivity select G_pre = 2 I_98 for pre-fact selection, and W_D is retyped as the post-fact response metric.
- **D-PM20: Action-to-hazard rule.** DISCHARGED (§59.1, §59.5): the rule is the timeless proportional-hazard race with Born weights w_A = $\|P_A z\|^2$, whose winner law w_A/Σ w_B is independent of the hazard shape, the race coordinate and any common rescaling; the readout-Fisher reading is excluded by type (§59.3).
- **D-PM21: Amplitude preparation.** LAW-LEVEL COMPONENT DISCHARGED (§61.8): the unique refinement-invariant unresolved measure is μ_FS on $\mathbb{C}P^{48}$ with covariance $I_{49}/49$, and deterministic selection is excluded exactly (§61.2). The residuals are the record-conditioned measure (D-PM22) and the realised event state (D-PM23).
- **D-PM22: Record-conditioned preparation law.** FORM DISCHARGED (§63.2–63.4): the conditional law is Gibbs–Haar, μ(dη | ρ) = $Z(\rho)^{-1}$ e^(−Φ_ρ(η)) μ_FS(dη), recovering Haar exactly at constant Φ_ρ, with exactly eleven effective invariant tilts at leading order; arbitrary post-record Gibbs factors are forbidden. The residual is the physical tilt functional (D-PM25).
- **D-PM23: Realised event state.** CAPACITY HALF CLOSED (§80): every rank-one projector on the physical carrier is now available frame-invariantly inside the saturated effect algebra, so realisation is not blocked by carrier coarseness; the selection half is D-PM39/D-PM40. Original statement: The directing state α(ρ) and the actual event amplitude z(ρ, α) supplied to the Born law at each commitment; sharpened by EX20, which shows both require Φ_ρ and ν(dα | ρ) first (§61.10, §63.14).
- **D-PM25: Extension-information functional.** The physical Φ_ρ(η), equivalently the eleven relative tilt coefficients t_1(ρ), …, t_11(ρ), microscopically identified with −ln L(ρ | η); sharpened by §65: the per-alternative costs enter uniquely through S_A = −ln w_A + ΔI_A and reverse-fitting is forbidden (F126); the grammar is fixed, the contents are not (§63.4–63.5, §65.7–65.8).
- **D-PM26: Comparison directing law.** The physical ν(dα), and its record-conditioned form ν(dα | ρ), which controls the holonomy occupancy through the exact ν-average of ½[1 − $(1 - 2\alpha)^3$]; not uniquely returned by EX21 because it requires the physical costs and the shared-face correlation parameter J of the Ising family (§63.9–63.11, §65.9–65.10, §65.19).
- **D-PM27: Construction-order theorem (D45″).** CONDITIONALLY CLOSED (§68, §70): fact multiplicity is one per shared face (EX22, under P19), and the primitive record localisation is one common interface token (EX23, under P20), with λ_prov^primitive = 0 exactly and the 20-token carrier retained for commit-before-glue and post-copy regimes; the closure is conditional on the strong transport model, the GSJB-16 premises and the structure-economy principle, and the selection was made blind to both length scales (§68.3, §70.4–70.9).
- **D-PM28: Physical costs and drive affinity.** SHARPENED (§72.17–72.18): the substrate-derived entropy costs ΔI_A and the drive affinity entering the commitment action; must be calculated, never fitted (§65.7–65.8); additionally,

costs are exactly non-identifiable from reduced record channels (dilations with closed bath cycles change costs arbitrarily), per-bit insertion is excluded, four cost types (path entropy production, thermodynamic entropy, heat/work, action cost) are separated, and the primitive quantity is the forward/reverse path ratio, convertible only after a physical bridge, clock and normalization (§65.7–65.8, §65.19, §72.17–72.18).

- **D-PM29: Coherent phase assignment.** The physical phase-producing object supplying the 48 relative phases that no magnitude or information functional can determine; without it z(ρ, α) cannot be returned even given every cost (§65.4–65.5, §65.20).
- **D-PM30: Provenance stiffness.** RETYPED (§68.7), PARTIALLY EVALUATED (§70.5), UPGRADED TO AN OPERATOR (§72.8–72.12), then SPLIT (§74.13–74.14): the primitive value is 0 exactly; post-copy, the correct object is the retention-syndrome block H_ss under clean maintenance H_cs = 0, now split into individual self-stiffness κ_self, the agreement excess λ_syn − κ_self, and the separately required syndrome damping γ_syn (which vanishes under identical common-bath coupling); a scalar exists only under isotropy, RCMO and the rank-five selector Gram are both excluded as identifications, and every value awaits the master action (§65.11–65.14, §68.7, §70.5, §72.8–72.12, §74.11–74.14).
- **D-PM31: Copy-maintenance dynamics.** PARTIALLY DISCHARGED AND RETYPED (§70), then STRUCTURED (§72): the localisation half is closed conditionally by structure economy (one primitive token; λ_prov^primitive = 0 exact); the post-copy layer now has its complete structural contract, the disjoint atomic alphabet, the first-entry law, the spectral copy test r($\mathcal{T}$_nc), the code/syndrome Hessian typing with clean maintenance H_cs = 0, the persistence criteria and the cost typing, and the residual is the constitutive evaluation of that contract from the master action (§70.5, §72).
- **D-PM34: Master-action retention law (retyped from the copy decision).** RETYPED (§74) and ARCHITECTURE-LEVEL DISCHARGED (§76): within the declared PFDMI renewal isometry, retention, no-overwrite and no-leakage are now exact projector identities (V†(L_e ⊗ 𝟙)V = D_e; retention probability 1; overwrite 0), so the architecture-level half is proven, not merely executed; the residual is the primitive half, the master-action derivation that selects this append-only isometry in the first place, with the EX24 spectral machinery the evaluation instrument (§72.3–72.7, §74.5–74.6, §76.1–76.4).
- **D-PM35: History-to-carrier backreaction.** STRUCTURED AND SPLIT (§76), then AUDITED (§78.15–78.16): retention alone provably does not act; the residual is the history-coupling generator, a source-derived map from ledger content to the working dynamics; the entropic back-pressure proposal is ADMITTED as a candidate coupling mechanism (entropy loading) but derives no map into the HX1 cycle tangent, BCB is a meta-constraint and MaxCal an inference principle, so neither substitutes; EX27 adds the conditional permanence half: if commitment locks the cycle tangent, minimal renewal preserves the lock forever, so backreaction waits jointly on the coupling generator and the survival fraction (D-PM37); EX33 gives the generator its concrete probabilistic target and success criterion: the history-

conditioned tilt of D-PM45, with operational next-step closure at computable distinguishability thresholds as the measurable consequence; and EX34 supplies the explicit corpus candidate, the HCMR record-conditioned update, pending causal promotion (§74.10, §76.5–76.9, §78.15–78.16, §90.4–90.5, §92.2–92.9). EX44 (truncated) then closes the generator's RESPONSE HALF from the geometry side with zero new coefficients: on the stationary scalar branch the tilt parameter is eliminated exactly ($\sigma\alpha_* = k_C\, c_*$, residual 8.116×10^{-14}), the kernel is curvature-parametrised at the returned gain $k_C = 360/713$, and $d/dc \log K_c = k_C[\omega_C - \langle\omega_C\rangle_c]$, probability-conserving, so whatever shifts the curvature coordinate leans on every next-step probability with returned strength; the generator residual is thereby RETYPED to the HISTORY-TO-CURVATURE PULLBACK, the map from retained facts to the curvature coordinate, truncated in transfer, with causal post-renewal promotion still firewalled (F266) and the scalar-sector typing keeping the polarity extraction separate (F270) (§112.1–112.6). EX55 (truncated; EX45–EX54 unreceived) then ANCHORS THE PULLBACK'S FIRST HALF EXACTLY: the HMGBC history functional stiffens the retained completion Hessian positively ($\Delta\Omega \geq 0$) and unscreenably (the stage-ordering Schur identity), so retained history changes retained geometry as an identity, not a tendency. EX55-R2 (superseding; equation-stripped) then CLOSES THE VISIBILITY QUESTION NATIVELY: PFDMI's Born probabilities define their own Fisher geometry, and the frozen EX2E responses are full-rank 72/72 twice (terminal and marked), so the declared physical tangent has NO probability-invisible directions and no separate geometry-to-probability coupling exists to invent; the residual RETYPES FINALLY to the HISTORY-TANGENT ATTACHING MAP, the source-derived cross-layer intertwiner carrying HMGBC displacements into the physical tangent, whose attached quantity decides the mechanism (positive: history speaks; zero: spectator), with the BCB/PFDMI current typing firewalled, the six-logit shortcut below grade, and the LEAN-MAGNITUDE SELECTION a separate residual (EX10 witnesses agree in support, differ in shape) (F273) (§114.1–114.6). EX56 (verdict-first; tail clipped) then EXECUTES THE SIX-LOGIT ROUTE AT FULL RANK and REDUCES the attachment: the four $Z_2 \times Z_2$ completion characters are live in closed form ($F_{character} = 4pq \cdot \mathrm{diag}(3, 3, 1, 1)$, $p = 1 - e^{-1}$; Hessian same shape, factor 315/4), so the residual is no longer the 144-dimensional tangent but the SCALARISATION/RADON-NIKODYM MAP $D\Lambda_\Omega$ from the quadratic history-conditioned completion geometry into the four linear characters, no current source theorem returning it; nonzero $D\Lambda_\Omega$ makes the lean automatic (F278, F279) (§116.1–116.4). EX57 (executive-answer-first; tail clipped) then DERIVES THE SCALAR COMPONENT CANONICALLY: $Dc_G = -\tfrac{1}{4}\,\mathrm{Tr}(P^{-1}\delta P)$, coefficient-free with a definite sign (stiffening lowers the setting), conditional on the weight-enters-mark identification (F286), while PROVING SCALAR STIFFNESS INSUFFICIENT: the branch-level determinant returns none of the four marked coordinates and is exactly blind to the $k = \pm 1$ orientation pair; the residual SPLITS FINALLY into the MARKED COMPLETION-RATE COORDINATES and the ORIENTATION-SENSITIVE COMPONENT of $D\Lambda_\Omega$, the direction-shaped gap that mirrors the standing polarity-extraction debt, with the lean magnitude still a separate selection (F283–F285) (§118.1–118.4).

- **D-PM45: History-conditioned tilt law.** FOUND AT THE CONDITIONAL LEVEL (§92), ESTABLISHED CAUSALLY WITHIN EPOCHS (§94), CARRY-THROUGH EXECUTED (§96), SELECTION SPLIT EXACTLY (§98): the tilt exists (HCMR update, exponent one, TV = n/(49 + n)), operates causally within epochs (879 of 879), survives the minimal state-preserving renewal exactly (0.13344 unchanged) and relaxes naturally to 0.00584 at one hundred Folds. EX37 then proves the selection structure: the structural conditions (CPTP, unital, U(50)-covariance, same carrier, no-overwrite) admit the full Φ_λ memory dial with λ free and not source-returned, differences scaling exactly linearly (trace distance 0.42047171701340447 λ; TV 0.13343664226134488 λ), symmetry (EX12 κ family) and distinguishability conservation (PSAC-EX5AE export) unable to choose; while within the same-carrier effect-preserving isometric class, pass-through is UNIQUE up to a global phase by the scalar common commutant of the 84 physical effects (span rank 73, algebra irreducible). The residual is REDUCED TO TWO HINGES (§100), THE FIRST NOW EXECUTED AT THE FIELD LEVEL (§102): EX38 confirms renewal exactly source-free yet proves source-freedom insufficient (export-without-fact lawful; only new fact ⇒ cost survives), the genuine route being the PAR pre-factual reversibility theorem; EX39 then closes the reset question at the field level exactly, the unique quadratic κ action's homogeneous flow being invertible mode-by-mode (det R = 1, energy metric preserved at machine precision on the inherited mass and grid), so distinct Cauchy data never merge and a literal reset cannot equal the flow at any finite time, with local attenuation permitted and global distinguishability conserved. Hinge one is thereby CONDITIONALIZED ON THE ATTACHING MAP (D-PM46): renewal = source-free field flow once the PFDMI conditioned state faithfully embeds in the κ phase space; hinge two, the primitive selection of physical-effect preservation, stands unchanged, reversibility alone not preserving the terminal readout; their conjunction with EX37's rigidity forces $\rho_{out} = \rho_{in}$ exactly (CONDITIONAL EXACT PASS); the scalar field is outcome-blind, so the marked bridge is separately open; plus the still-open D36-DIRECTION TYPING (§92.1–92.10, §94.1–94.7, §96.1–96.5, §98.1–98.7, §100.1–100.6, §102.1–102.7).
- **D-PM46: PFDMI-to-commitment-field attaching map.** The source-native map A : H_{PFDMI} (or its physical quotient) → phase space of the commitment/κ field, or an equivalent inverse descent to the 50-dimensional working carrier, embedding the history-bearing conditioned state faithfully: A must preserve the relevant distinguishability rather than quotient it away (F237), since the field-level no-reset theorem protects only what actually rides the field; the scalar field being outcome-blind (controlling PSAC audit), the outcome-specific marked bridge is a further layer beyond A (F238); with A derived and the 84 physical effects preserved, EX37's rigidity upgrades reversible survival to the unique state-preserving renewal (§102.6). FIRST ADJUDICATION (§104, truncated transfer): the CURRENT MA1 map is EXCLUDED EXACTLY, its polarity direction lying in the exact kernel (singular values [0.578064557803, 0]) and kernel persistence proving propagation can never repair it; the PSAC R19 two-direction Whitney embedding is the construction-level candidate, rank survival entailed for all time (this paper's corollary), executed survival grades and verdict TRUNCATED IN TRANSFER and owed. SECOND

ADJUDICATION (§106, truncated transfer): STRUCTURE SETTLED, ACTIVATION UNRETURNED: one fact-separating marked source suffices (four-valued mark, count marginal incremented by one; second-source objection closed exactly), and the embedding ι_(a,b) is faithful iff both gains are nonzero, the MA1 action being the a = 0 row; but the count marginal is blind to a, every nonzero gain is injective across ten orders of |det J|, symmetry fixes only the transformation law (g_cover ∈ [−1, 1] free at fixed δ_K = 0.995570059549810, the current action returning zero), relative-scale rules are underived premises, and the zero-background tensor route is closed. The residual is RETYPED to the SOURCE-RETURNED TRANSVERSE ACTIVATION: the primitive action's determination of a_physical/g_cover, expected through the anisotropic or inhomogeneous background response of EX5BC/BD, with the marked outcome bridge's remaining layers and both truncated completions owed (§104.1–104.6, §106.1–106.7). THIRD ADJUDICATION (§108, truncated transfer): the ANISOTROPIC-BACKGROUND BRANCH IS CLOSED EXACTLY, the linear κ action making the fluctuation operator $\Box + m^2$ for every background ($dL/ds_0 = 0$), so no committed background structure legalises the polarity mode, background anisotropy yielding derived observables only with no same-source feedback vertex supplied, and stress-tensor promotion being a new bridge rather than a KG consequence; the residual is RETYPED FINALLY to the SOURCE-RETURNED RECORD-TENSOR VERTEX, the same-source coupling by which anisotropy would lawfully enter the Fold record-current operator, or equivalently the completed §B minimal type-correct rescue addressed to the vector residual $\partial^a H_{ab} = \tfrac{1}{2}\,\partial_b \Delta m$, whose construction was truncated; the EX40, EX41 and EX42 completions are owed alongside (§104.1–104.6, §106.1–106.7, §108.1–108.5). FOURTH ADJUDICATION, THE EXTRACTION LEG (§110, truncated transfer; supersedes an unreceived EX43): MARKED OUTCOMES EXIST AND FILE EXACTLY (319 operators, completeness 2.471×10^{-14}, copy residual 0, the 84 = 12 × 7 records exact), but CAPACITY-TYPING IS EXCLUDED (exact-lift dimension 34,152; unmarked Doob kernel blind) and t_term is firewalled from the R4 sign, so the independent Fold-polarity mark must be READ FROM THE SOURCE AMPLITUDE DECOMPOSITION AND PROJECTORS or shown absent; the executed extraction answer is owed from the fourth truncated remainder alongside the HM4/RCMO/PRLU audit and verdict (§110.1–110.5).

- **D-PM36: PFDMI↔HX1 carrier intertwiner.** SUBSTANTIALLY DISCHARGED AND RETYPED (§78): the carrier relation is now exact rather than missing: on the common 24-dimensional fine carrier the intersection is precisely the rank-six cut space with principal angles $\{0^6, (\pi/2)^6\}$, the cut sector is regenerated exactly and the cycle sector is exactly unreachable by canonical renewal, any fixed incidence-label map, the gauge phase, or the discrete label; the residual splits into the commitment-boundary survival fraction (D-PM37) and any non-minimal source-derived phase channel (§76.10, §78.1–78.12).
- **D-PM37: Commitment-boundary phase survival.** The fraction $s = \|Q_{post}\, w\|^2 \in [0, 1]$ of the old event-specific uniform-rim cycle tangent surviving the physical commitment morphism, to be computed from the master action; s = 1 leaves no excess, s = 0 leaves the full unit-branch excess, and intermediate survival gives (1 −

s) Δk exactly; the conditional lock-permanence chain waits on this single number (§78.13–78.16).

- **D-PM38: Operational normalization of the lock excess.** The operational-metric weights converting the exact unit-branch excess Δk = k_full − k_relaxed into an absolute physical stiffness/tension; the Entropic Confinement mechanism is admitted as support (coercive gradients produce real stiffness) but its coefficient is scale- and EFT-dependent and may not serve as the normalization (§78.9–78.10).
- **D-PM39: History-to-operator selector map.** DISCHARGED AT BACKGROUND-RELATIVE CANONICAL-CONSTRUCTION LEVEL (§86, R2-audited after the two negative adjudications of §82 and §84): at any fixed admitted background the locus $\mathcal{K}$_e is exactly characterized (38-dimensional, complete, frame-invariant, pullback the exact identity, no hidden reduction) and the restricted history-odd extremal rule passes order and rank-one together with zero failures in 83,664 tests; the residual is now two-layered: the BACKGROUND (D-PM43) on which the sharp ray depends, and the PROVENANCE, the master-action selection of the restricted-extremal rule, so the construction is canonical and background-relative, not derived (§86.2–86.8, §86.10).
- **D-PM42: Candidate-continuation-resolved typing bridge.** The explicit physical bridge making the selector edge-resolved, P(**h**, e): the all-edge kernel intersection is trivial, so no edge-blind internal ray exists, and the History-Measure admissibility matrix, which decides per elementary candidate update, is the anticipated typing structure; the bridge from that admissibility typing to the PFDMI instrument geometry remains to be made explicit (§86.12).
- **D-PM40: Continuation-faithfulness execution.** PARTIALLY EXECUTED AS A NECESSARY-CONDITION FILTER (§82): the rank-one pullback requirement was evaluated exhaustively (41,832 thirteen-channel instances) and used to reject both extremal candidates; the full direction-by-direction pullback identity remains unexecutable pending the carrier identification map (D-PM41), and remains mandatory for any surviving candidate (§80.12, §82.6–82.10).
- **D-PM41: History-Measure/PFDMI carrier identification.** The source-returned map identifying the topological trap direction in the History-Measure admissible-continuation carrier with a direction in the 50-dimensional PFDMI physical internal carrier; without it, no rank-one pullback can be certified as THE trap cut, and with it, D-PM40's identity becomes fully executable; confirmed NON-LOAD-BEARING for necessary-condition rejections; LOAD-BEARING FOR SUFFICIENCY, and R2-SEQUENCED (§86.9): the attachment should follow the background resolution (or an explicit quotient), else it inherits an arbitrary genericity witness, and it requires the Fold-to-MASD trap-functional relation (D-PM44) to even be typed (§82.10, §84.14, §86.9).
- **D-PM43: Primitive endpoint/current-background selection.** QUOTIENT BRANCH EXCLUDED (§88): the declared 84-dimensional gauge freedom cannot connect the witnesses, whose differences are dominantly non-gauge (four independent non-gauge flat directions among the primary-relative pairs) and whose gauge-invariant current-sector populations differ substantially, exact invariants by the projector-generator commutation; even the Gram-equivalent endpoint

rephasing changes the invariant populations. The residual fork, inherited from EX2F, is a primitive frame-selection structure that the current action provably cannot supply (no gradient, spectral or variational principle), or a genuinely new redundancy discovered and declared, the source's open moduli debt (its D-PF32); until one arm is executed, the sharp ray remains background-dependent and no ray survives every admitted background (§86.5–86.8, §88.1–88.6).

- **D-PM44: Fold-to-MASD trap-functional relation.** The source-derived functional relation between the Fold trap functional and the MASD closure defect (vacuum-relative plaquette holonomy); the two may not be identified by renaming, and the continuation-faithfulness equality cannot be typed, let alone executed, without it (§86.9).
- **D-PM32: Record lifetime.** STRUCTURED (§72.13–72.16) and SHARPENED (§74.14): exact persistence is the fixed-point condition $\Phi\dagger(\Pi) = \Pi$ under every subsequent channel; approximate persistence obeys the exact metastable bound $\mathrm{tr}[\Pi\,\rho_n] \geq (1-\varepsilon)^n\,\mathrm{tr}[\Pi\,\rho_0]$; static basins prove availability only; a genuine maintenance barrier requires eight named prerequisites, none returned; and deterministic restoration of manifestation agreement requires both $\lambda_{syn} > 0$ and $\gamma_{syn} > 0$, curvature and damping being distinct returns; the physical evaluation remains open (§70.3, §72.13–72.16, §74.14).
- **D-PM33: Cross-corpus coherence reconciliation.** The old frozen coherence-scale agreement is reassociated by EX23 with the copied/effective 20-token regime and no longer validates the primitive glue-before-commit scale; the corpus statement of that agreement must be reconciled or revised accordingly, without using either scale as a selection target (§70.10–70.11).
- **D-PM24: ER provenance.** A substrate derivation, or refutation, of Exchangeable Renewal Extendibility; until returned, the opportunity factorisation and the D44′ discharge remain conditional (§61.13, §61.15).

PART XCVIII: EXECUTION LEDGER

161. PMS status after EX57

PMS-EX1: Polar-selection reduction

PASS EXACT.

PMS-EX2: Current primitive-action non-selection

CURRENT-SOURCE NEGATIVE / GRADE C.

PMS-EX3: Universal pre-fact metric

PASS TYPING / HIERARCHY NO-GO.

PMS-EX4: Target-free reduced charged hierarchy

NUMERICAL CANDIDATE PASS / SAME-ACTION FAIL.

PMS-EX5: Complete object-set compatibility

FORMAL COMPATIBILITY PASS / MINIMAL-ADDRESS PHYSICAL FAIL.

PMS-EX6: Primitive representation-support descent

SUBSTANTIAL PASS TO SCORE-SUPPORT LEVEL / NUMERICAL SCORE LAW OPEN.

PMS-EX7: Ordered-history maintenance and native relaxation-ledger separation

ORDERED-HISTORY MATTER RESPONSE: CONDITIONAL PASS. PFDMI SAME-ACTION SCHUR ARCHITECTURE: PASS EXACT. DIRECT LEDGER: SUBSTANTIAL RECONSTRUCTION PASS. MATTER↔PFDMI RESPONSE IDENTIFICATION: NOT DERIVED / NOT DEFINED.

PMS-EX8: Native bath-adjacency and Schur descent

TWO-COMPONENT BATH TOPOLOGY: PASS EXACT. REDUCED ONE-BIT SCHUR RECONSTRUCTION: PASS. FULL 72D PHYSICAL BATH / NUMERICAL LEDGER: OPEN.

PMS-EX9: Physical score-normalisation and endpoint-frame audit

MINIMUM-NORM ENDPOINT QUOTIENT: PASS. RANK-72 PHYSICAL SCORE SUPPORT: PASS EXACT / REGULATOR-STABLE. UNIQUE NUMERICAL SCORE NORMALISATION: NOT SELECTED.

PMS-EX10: Native metric and completion attachment

NATIVE BORN–FISHER METRIC: NON-IDENTIFIABLE. INNOVATION-COUNT METRIC: ENDPOINT-INDEPENDENT TWO-BRANCH PASS. RECORD WEIGHTS: EXACT SQUARE-ROOT LAW, BRANCH-CONDITIONAL. COMPLETION ATTACHMENT: PASS EXACT, 3 : 3 : 1 : 1.

PMS-EX11: Endpoint measure and neutral-branch provenance

STATIONARY SET: TWO-DIMENSIONAL SIMPLEX. SYMMETRY BARYCENTRE: UNIQUE BUT ABSORBING / ZERO ASYMPTOTIC NEUTRAL SCORE. CENTRAL-INVARIANT ENDPOINT SELECTION: EXACT NO-GO. NEUTRAL-BRANCH PROVENANCE: NOT SELECTED. FINITE-EPISODE REPAIR: NONUNIQUE AND RATE-COLLAPSING. COMPLETION CONGRUENCE: O(4) NON-SELECTION. OVERALL: NO-GO PASS / RENEWAL OBJECT LOCALISED.

PMS-EX12: Record-preserving renewal and complete marked history-rate descent

CONSTRUCTIVE RENEWAL EXISTENCE: PASS. NONZERO ASYMPTOTIC NEUTRAL INFORMATION: PASS. FULL MARKED FISHER RANK: PASS (588 AGAINST REQUIRED 96). REGULATOR STABILITY: PASS. UNIQUE r: FAIL. UNIQUE κ: FAIL. UNIQUE TYPED

DEFECT-TO-MARK LIFT: FAIL. NEUTRAL BRANCH SELECTION: FAIL. OVERALL: CONSTRUCTIVE RENEWAL PASS / PHYSICAL H_CMR NOT YET SELECTED.

PMS-EX13: Renewal-action selection and typed Radon–Nikodym Hessian

UNIQUE ZERO-ENTROPY REOPENED RAY: PASS. RECORD-PRESERVING RESET DILATION: PASS. κ SELECTION: PASS, κ = 1/3 DERIVED. r: REMOVED AS FACT-TIME GAUGE. ABSOLUTE HAZARD: OPEN. FIRST-PASSAGE/BORN COMPATIBILITY: PASS. FULL MARKED FISHER RANK: PASS (774 AGAINST REQUIRED 96). NEUTRAL BRANCH: CONDITIONALLY FORCED ON PRE-FACT OCCUPANCY. NEUTRAL PRE-FACT OCCUPANCY: OPEN. UNIQUE Ξ_source: FAIL / NO-GO. UNIQUE PHYSICAL D, C, B, Z: OPEN. OVERALL: DIMENSIONLESS RENEWAL SELECTED / PHYSICAL H_CMR NOT YET SELECTED.

PMS-EX14: Void-relative typed distinguishability Hessian and neutral occupancy

GAUGE COMMON KERNEL: PASS, DIMENSION 3. CHARGED-MINIMAL COMMON KERNEL: 0. NEUTRAL PRE-FACT CARRIER: SELECTED UNDER THE VOID AXIOMS / N_R POST-FREEZE. NEUTRAL-EXTENDED (5, 4, 80) ROSTER: SELECTED WITHIN THE FROZEN FAITHFUL ALTERNATIVES. VOID-RELATIVE METRIC: PASS, FULL RANK 98 = 94 + 2 + 2, DRIFT 1.09e-5. SPECTRAL IDENTITY: λ_min + λ_max = 8 EXACT IN THE FROZEN CONSTRUCTION. VOID-TO-HISTORY EMBEDDING: NOT SELECTED, MISMATCH EXACTLY 2 DIRECTIONS. UNIQUE Ξ / UNIQUE PHYSICAL D, C, B, Z / ABSOLUTE HAZARD: OPEN. OVERALL: MAJOR CONDITIONAL PASS.

PMS-EX15: Primitive innovation intertwiner from void tangent to full history carrier

ORDINARY LINEAR INTERTWINER: EXACT NO-GO, ALL FIRST-ORDER CHANNELS RANK 0. MARK/KRAUS DERIVATIVE: RANK 155, SUPPORT-PRESERVING, NO N_R-TO-SPECIES BIRTH. DERIVATIVE GRADING: NONNEUTRAL QUADRATIC, NEUTRAL FIRST-ORDER RANK 4 (98 = 94 + 4 EXPLAINED). RETYPING: GRADED SUPPORT-CHANGING BIRTH FUNCTOR. MINIMAL BIRTH FAMILY B_α: EXISTENCE PASS (49 COMPLEX = 98 REAL), PROVENANCE OPEN. NEUTRAL RANK-2 PLANE: NOT SELECTED BY SYMMETRY OR PARENT. PHYSICAL D, C, B, Z / FULL H_CMR: OPEN. OVERALL: EXACT OBSTRUCTION PASS + MINIMAL EXISTENCE PASS / ACTION-DERIVED INTERTWINER NOT RETURNED.

PMS-EX16: Support-changing primitive birth operator and graded innovation functor

DETERMINISTIC BIRTH DIRECTION: FORBIDDEN (ZERO FIXED SUBSPACE). FULL 49-COMPLEX (98-REAL) BIRTH SUPPORT: FORCED. INVARIANT DECOMPOSITION: 12 TYPES; K_birth = Σ k_j P_j; 11 FREE RATIOS. FOUR BLIND INVARIANT LAWS: INEQUIVALENT (UP TO 0.881917); MAX-ENTROPY I_98/98 CONDITIONAL ONLY. NEUTRAL TWO-PLANE: GENUINE, NOT NULL (λ_{97}, λ_{98} > 0 AT BOTH REGULATORS). RANK-96 PARENT: INCOMPLETE BY 2; MINIMUM RETAINED CARRIER 104 = 98 + 6. BIRTH STIFFNESS / TYPED D, C, B, Z / ABSOLUTE HAZARD: OPEN. OVERALL: SUPPORT FORCED / STIFFNESS NOT FORCED.

PMS-EX17: Pre-fact innovation action metric and rank-98 H_CMR completion

FS/W_D AGREEMENT ON 94 NONNEUTRAL DIRECTIONS: EXACT (2.2e-17). ELEVEN STIFFNESS RATIOS: COLLAPSED TO THE NEUTRAL FOUR-PLANE. NEUTRAL SPECTRUM: PAIRWISE {a, b, 8−b, 8−a}, TRACE 16 EXACT. GLOBAL SCALAR IDENTIFICATION: FAILS (BEST 51/49, RESIDUAL 0.3968). SURVIVING FAMILY: G_θ = (1−θ) 2I_98 + θ W_D, θ ∈ [0, 1], RANK 98 THROUGHOUT. RETAINED CARRIER: H_104(θ) = G_θ ⊕ 0_6 CONSTRUCTED, RANK 98, NULLITY 6. RANK-96 PARENT: RETIRED AS PRIMITIVE TARGET. θ / ACTION-TO-HAZARD RULE / ABSOLUTE ACTION UNIT / UNIQUE D, C, B, Z: OPEN. OVERALL: 94-DIRECTION METRIC COLLAPSE EXACT PASS + 104-CARRIER COMPLETION PASS / UNIQUE PRE-FACT ACTION METRIC NOT SELECTED.

PMS-EX18: Pre-fact action-to-hazard bridge and timeless fact-order selection

TIMELESS TICK-RACE: PASS (SHAPE INDEPENDENCE 5.274e-16; 0/250,000 ORDER CHANGES). PRE-FACT PHASE COVARIANCE: θ = 0 ONLY; G_pre = 2 I_98 SELECTED. EXHAUSTIVE ADDITIVITY: INDEPENDENT AGREEMENT AT 3.7e-17. NEXT-FACT LAW: BORN, p_A(z) = $\|P_A z\|^2/\|z\|^2$ (CONDITIONAL TYPING GRADE). W_D: RETYPED AS POST-FACT RESPONSE METRIC; H_CMR^104 = W_D ⊕ 0_6 FIXED. θ AMBIGUITY: REMOVED BY TYPING, NOT TUNED. AMPLITUDE PREPARATION z / μ(dz) / SECONDS PER FACT: OPEN. OVERALL: TIMELESS TICK-RACE PASS + PRE-FACT BORN GEOMETRY SELECTED / PREPARATION AND DURATION OPEN.

PMS-EX19: Primitive pre-fact amplitude preparation and ordered-fact ledger descent

DETERMINISTIC FIRST AMPLITUDE: NO-GO (TWIRL 6.150 → 1.36e-16). HOLONOMY: TRANSPORTS, DOES NOT ORIGINATE (VOID RAY FIXED EXACTLY). GLOBAL-FRAME FIRST READOUT: EXCLUDED (1 BIT ≪ (N−1) $\log_2$ q); FIRST READOUT LOCAL (UR-comp). UNRESOLVED PREPARATION LAW: HAAR/FUBINI–STUDY ON $\mathbb{C}P^{48}$ UNIQUE INVARIANT; COVARIANCE $I_{49}/49$. EXCHANGEABILITY ⇒ IID: FAIL (COV = −1/4 COUNTEREXAMPLE). ER + DE FINETTI: CONDITIONAL PASS; D44′ CONDITIONALLY DISCHARGED. OPPORTUNITY (α) AND BRANCH (BORN ON z): SEPARATED BY TYPE. REALISED α / μ(dη | ρ) / z(ρ, α) / SECONDS PER BIT: OPEN. OVERALL: MAJOR CONDITIONAL PASS / EVENT-LEVEL PREPARATION AND METRIC DURATION OPEN.

PMS-EX20: Record-conditioned directing measure and local-comparison holonomy occupancy

RECORD-CONDITIONED FORM: DERIVED, GIBBS–HAAR Z^{-1} e^(−Φ_ρ) μ_FS; HAAR RECOVERY AT CONSTANT Φ_ρ EXACT. EFFECTIVE TILTS: EXACTLY 11 = 12 − 1; WITNESS SEPARATION 0.101173; POST-RECORD HAAR UNIQUENESS: FAIL. LIKELIHOOD ≡ GIBBS–HAAR: Φ_ρ = −ln L(ρ | η) AT CONDITIONAL LEVEL. TOPOLOGY: UNFILLED C_3 HAS ONE CLASS OVER $\mathbb{Z}_2$ AND $\mathbb{Z}_7$; OCCUPANCY LAW P(odd | α) = ½[1 − $(1-2\alpha)^3$] EXACT. LOCAL SELECTION OF HOLONOMY CLASS: NO-GO (IDENTICAL MARGINALS ADMIT OCCUPANCY 0 AND 1). COMPLEMENT-SYMMETRIC ½ / UNIFORM $\mathbb{Z}_7$ 6/7: EXACT, CONDITIONAL, NOT PRESENT PREDICTIONS. EVENTUAL OCCUPANCY FOR p > 0: 1, CONDITIONAL. Φ_ρ / ν(dα | ρ) / D45″ CONSTRUCTION ORDER /

REALISED z(ρ, α) / SECONDS PER BIT: OPEN. OVERALL: MAJOR TYPING PASS / EVENT-LEVEL CLOSURE OPEN.

PMS-EX21: Local commitment action, extension-information functional and construction-order closure

COMMITMENT-ACTION FORM: SELECTED, S_A = −ln w_A + ΔI_A UNIQUE ADDITIVE; GIBBS–BORN UNFOLDING. ISO-ENTROPIC BORN RECOVERY: PASS AT MACHINE PRECISION. MAGNITUDE-TO-AMPLITUDE PREPARATION: NO-GO (ORTHOGONAL EQUAL-MAGNITUDE RAYS AT FS SEPARATION π/2; 48-PHASE FIBRE). COST FITTING: NO-GO (ANY POSITIVE TARGET MANUFACTURED BY ΔI_A = ln(w_A/q_A) + c). SHARED FACE: ONE-PARAMETER ISING FAMILY ¼(1 + J s_L s_R); MARGINALS FIX NEITHER J NOR BIT COUNT. PROVENANCE: INVISIBLE TO SHANNON/KL/FISHER; SEPARATELY TYPED λ_prov; RANKS 16 + 4 = 20. 16- AND 20-TOKEN STABILITY GRAPHS: BOTH VALID; DISTINCT ξ; NEAR-MATCH IS AUDIT ONLY. COMMITTED-THEN-GLUED: RECORD-DISTINCT, CONDITIONAL; PRE-COMMITMENT FORK: OPEN (1 OR 2). PHYSICAL ΔI / AFFINITY / λ_prov / J / PHASES / z(ρ, α): OPEN. OVERALL: ACTION FORM SELECTED / PREPARATION CONTENT AND CONSTRUCTION ORDER OPEN.

PMS-EX22: Primitive shared-face event multiplicity and dual-provenance record completion

FACT MULTIPLICITY: CLOSED CONDITIONALLY AT ONE (STRONG TRANSPORT MODEL); GSJB-15 CORRECTION. OPPOSITE READOUT g^{-1}; PAIR MAP 14 IMAGES, NOT 196; $H(g^{-1} \mid g) = 0$ EXACT. INCIDENCE RANK 4, NOT 8; PRIMITIVE LOGICAL CHANNELS: 16. 20-TOKEN CARRIER: EXACT CONSISTENCY AS 16 FACTS + 4 PROVENANCE MODES; 4 REDUNDANT BITS; PER-FACE [2, 1, 2] CODE. λ_prov: RETYPED AS COPY-MAINTENANCE STIFFNESS; LOGICAL WEIGHTS AND TICK-RACE EXACTLY UNCHANGED. FORK: RECORD LOCALISATION, NOT FACT MULTIPLICITY; BOTH GRAPHS VALID; ROUTE-M SEALED. LOCK DISCHARGE: MULTIPLICITY RETURNED; λ_prov / COSTS / AFFINITY NOT RETURNED, ROLLED FORWARD. OVERALL: FACT MULTIPLICITY CLOSED CONDITIONALLY / LOCALISATION AND STIFFNESS OPEN.

PMS-EX23: Shared-interface record localisation and primitive copy-economy selection

RECORD LOCALISATION: ONE INTERFACE TOKEN, SELECTED CONDITIONALLY (GSJB-16 + STRUCTURE ECONOMY); D45″ CONDITIONALLY CLOSED. BILATERAL ACCESS: ONE TOKEN SUFFICES; JOINT READ RANK 4, NOT 8. DUAL-WRITE FACTORISATION: T_{20} = Π_copy ∘ W_{16} EXACT, RESIDUAL 0; COPIES DERIVABLE, NEVER REQUIRED AT BIRTH. MANY-TO-ONE ENCODING: EXISTS (8 + 8 BASINS); AVAILABILITY, NOT LIFETIME. λ_prov^primitive = 0 EXACT; PROVENANCE PHYSICAL ONLY AFTER COPYING. SELECTION BLIND TO BOTH LENGTH SCALES; ROUTE-M SEAL HONOURED. OLD ξ AGREEMENT: REASSOCIATED TO THE COPIED 20-TOKEN REGIME; RECONCILIATION OPENED. POST-COPY λ_prov / LIFETIME / COSTS / AFFINITY / PHASES / z(ρ, α) / SECONDS PER BIT: OPEN. OVERALL: STRONG CONDITIONAL PASS.

PMS-EX24: Primitive record copy dynamics and post-commitment redundancy cost

POST-COMMITMENT STRUCTURAL CONTRACT: CLOSED EXACTLY (ATOMIC ALPHABET; FIRST-ENTRY LAW Σ E_a + E_∞ = 𝟙; SPECTRAL TESTS r($\mathcal{T}$), r($\mathcal{T}$_nc)). NO-COPY SECTOR: PHYSICALLY ALLOWED (r($\mathcal{T}$_nc) = 1); PROLIFERATION NOT ONTOLOGICAL; CONDITIONAL INFORMATION CEILING. PHYSICAL COPY DECISION: NOT DERIVABLE FROM PRESENT CORPUS; CAUSAL-SPLIT RULE: CANDIDATE ONLY. COPY TIMING: FORM CLOSED IN OPPORTUNITY COUNTS; SECONDS AWAIT D-PM11 CALIBRATION. STIFFNESS: UPGRADED TO SYNDROME OPERATOR H_ss (CLEAN MAINTENANCE H_cs = 0; SCALAR ONLY IF ISOTROPIC); RCMO ≠ H_ss AT PRESENT GRADE. PERSISTENCE: EXACT FIXED-POINT CRITERION + $(1-\varepsilon)^n$ METASTABLE BOUND; STATIC BASINS ⇒ STABILITY: NO-GO. COSTS: NON-IDENTIFIABLE FROM REDUCED CHANNEL; PER-BIT INSERTION EXCLUDED; FOUR TYPES SEPARATED, PATH RATIO PRIMITIVE. PRIMITIVE 16-CHANNEL FACT LAW: UNALTERED. OVERALL: STRUCTURAL CONTRACT CLOSED / CONSTITUTIVE LAW OPEN.

PMS-EX25: First post-commitment bridge execution: foundational retention and active-carrier renewal

RESOLVED ATOM: (keep, renew, copies, overwrite) = (1, 1, 0, 0); FACT RETAINED, CARRIER REOPENED; HISTORY = ORDERED EXTENSION. RENEWAL: r($\mathcal{T}$) < 1, DEFECT 0, PROBABILITY 1 FROM EVERY HISTORY START; WAITS = DIMENSIONLESS OPPORTUNITY COUNTS. NO FOUNDATIONAL DUPLICATION / ERASURE / OVERWRITE IN THE EXECUTED BASE INSTRUMENT. XI-4 RETYPED: EXACT FIXED REPRESENTATION DILATION (RESIDUAL 0; MI 0; PROPENSITY JACOBIAN RANK 0); NOT A FOUNDATIONAL COPY OPERATION. ONTOLOGY: FACT RETAINED ONCE; LATER RECORDS = MANIFESTATIONS; PRIMITIVE QUESTION = RETENTION INVARIANCE. SELECTOR GRAM: RANK 5, ANISOTROPIC, SECOND-ORDER CONVERGENT, NOT THE RETENTION-SYNDROME HESSIAN; SCALAR FAIL. AGREEMENT: λ_syn EXCESS BEYOND κ_self REQUIRED; RESTORATION ALSO NEEDS γ_syn > 0 (COMMON-BATH DECOUPLING EXACT). BACKREACTION OF RETAINED HISTORY ON REOPENED CARRIER: SEPARATED, NOT YET RETURNED. OVERALL: ARCHITECTURE-CONDITIONAL RETENTION-AND-RENEWAL PASS / PRIMITIVE SELECTION OPEN.

PMS-EX26: Persistent-ledger retention and working-carrier non-backreaction

RENEWAL ISOMETRY: V†V = 𝟙 EXACT; LEDGER SECTOR ORTHOGONAL. RETENTION: V†(L_e ⊗ 𝟙)V = D_e EXACT; PROBABILITY 1; OVERWRITE 0; LEAKAGE 0. REOPENING: V†(𝟙 ⊗ Π_active)V = 𝟙; PROJECTOR LOSS 0; NO WORKING DIRECTION REMOVED BY LEDGER WRITING. SPECTATOR THEOREM: FACTORISED DYNAMICS CONSERVE EVERY HISTORY PROJECTOR EXACTLY; PERSISTENCE ≠ BACKREACTION. THREE PROPOSITIONS: PERSISTENCE PASS; ACCESSIBILITY PASS (LEDGER-CONSTRUCTION LEVEL); BACKREACTION NOT DERIVED. HISTORY COUPLING: ADDITIONAL LAW REQUIRED (LEDGER-DEPENDENT GENERATOR/CHANNEL/KERNEL/CONSTRAINT); FACT-MOMENTUM NAMED CANDIDATE. CARRIER SCOPE: IDENTITIES ON DECLARED PFDMI CARRIER ONLY; HX1 TRANSFER FORBIDDEN WITHOUT DERIVED

INTERTWINER. PRIMITIVE MASTER-ACTION PROOF OF RETENTION LAW: STILL OPEN. OVERALL: EXACT RETENTION AND FULL REOPENING / SPECTATOR LEDGER; COUPLING AND PRIMITIVE PROOF OPEN.

PMS-EX27: Carrier-relative renewal and loop-phase regeneration test

CARRIER BRIDGE: EXACT SEPARATION ON THE 24-DIM WHEEL CARRIER; CGI ∩ HX1 = RANK-6 CUT SPACE; PRINCIPAL ANGLES $\{0^6, (\pi/2)^6\}$. HX1 = 6 CUT ⊕ 6 CYCLE; UNIFORM-RIM MODE: DIVERGENCE-FREE, WHOLLY IN CYCLE, MACHINE-ZERO CGI OVERLAP. REGENERATION EXCLUDED EXACTLY: INCIDENCE-LABEL RECONSTRUCTION NO-GO (ODDNESS + TRIANGLES ⇒ GRADIENT); RENEWAL PHASE = GAUGE (P_HX1 T_renewal = 0); DISCRETE LABEL = TYPE ERROR. HX1 PHASE: MASTER-ACTION TANGENT (RECORD/COMPLETION MORPHISM); LOCK EXCESS Δk = k_full − k_relaxed EXACT IN UNIT BRANCH; NORMALIZATION OPEN. ENTROPY-PAPER AUDIT: BACK-PRESSURE = ADMITTED CANDIDATE COUPLING; BCB = META-CONSTRAINT; MAXCAL = INFERENCE; NO HX1 DERIVATION. RESIDUAL LOCALIZED: SURVIVAL FRACTION $s = \|Q_{post}\, w\|^2 \in [0, 1]$; PERMANENT EXCESS (1 − s) Δk; LOCK CREATION NOT YET DERIVED. HISTORY BACKREACTION: NOT YET ESTABLISHED; CONDITIONAL PERMANENCE ESTABLISHED. OVERALL: EXACT CARRIER SEPARATION AND MINIMAL NO-REGENERATION NO-GO / s, NORMALIZATION AND NON-MINIMAL CHANNEL OPEN.

PMS-EX28: Frame-invariant non-Boolean rank-one spectral capacity

EFFECT-ALGEBRA SATURATION: $\{E_i\}' = \mathbb{C}\mathbb{1}$ (IMPORTED K7-QRC) ⇒ $\langle \mathbb{1}, E_1 \ldots E_{84} \rangle = M_{50}(\mathbb{C})$ BY BICOMMUTANT CLOSURE. EVERY RANK-ONE PROJECTOR IN THE PHYSICAL ALGEBRA; FIFTY CONSTRUCTED EXPLICITLY (LAGRANGE SPECTRAL CALCULUS, SIMPLE SPECTRUM). FRAME INVARIANCE: POLYNOMIALS IN THE SUMMED EFFECTS; NO FINE-ATOM DEPENDENCE; SOURCE'S FRAME OBJECTION AVOIDED. BOOLEAN RANK FLOOR AT 12/84/319 GRAINS: RETAINED AND COMPATIBLE (BOOLEAN FLOOR ≠ ALGEBRAIC FLOOR). FINER CARRIER FROM RANK RESOLUTION: NOT FORCED. SELECTOR: NOT SELECTED; DIAGNOSTIC COEFFICIENTS GENERIC; RANK-ONE FAMILY = $\mathbb{C}P^{49}$ (98 REAL DIMENSIONS). SHARPENED PROBLEM: SOURCE-DERIVED $\mathbf{h} \mapsto H(\mathbf{h})$; ORDERED-WORD LAW W†W = CANDIDATE ARCHITECTURE; PULLBACK GATE MANDATORY. OVERALL: CAPACITY GATE CLOSED EXACTLY / HISTORY MAP AND PULLBACK OPEN.

PMS-EX29: Ordered-history effect-word spectral selector and continuation-faithfulness test

FROZEN EX2E PACKAGE REPRODUCED (SHA-ATTESTED; EDGEWISE COMPLETENESS; RANK AUDIT AGREES). ORDERED PAIR WORDS: NONCOMMUTING 3486/3486; M(ij) ≠ M(ji) 3486/3486; REVERSAL EXACTLY ISOSPECTRAL (W_ji = W_ij†) ⇒ ORDER IN EIGENVECTORS ONLY; EIGENVALUE-ONLY LAWS ORDER BLIND. LARGEST-EIGENVALUE SELECTOR: RANK ONE ALL PAIRS; ORDER-SENSITIVE 3354/3486; BLIND EXACTLY ON THE 132 = 2 × C(12,2) SAME-TERMINAL-TYPE PAIRS. PULLBACK CENSUS (41,832 = 3486 × 12 TESTS): RANK ONE IN 300 INSTANCES, RANK 13 IN 41,532, NOTHING ELSE; THE 300 COINCIDE EXACTLY WITH THE ORDER-BLIND

PAIRS. SMALLEST-POSITIVE SELECTOR: ORDER-SENSITIVE 3486/3486; PULLBACK RANK 13 IN ALL 41,832 INSTANCES. CORE NO-GO: RANK-ONE HARD CUT AND ORDER SENSITIVITY NEVER COINCIDE; BOTH COEFFICIENT-FREE EXTREMAL RULES EXCLUDED. SCOPE: PAIR WORDS, EXTREMAL READINGS, FROZEN EXECUTION; ORDERED-WORD GRAMMAR AND NON-BOOLEAN ROUTE OPEN; CARRIER IDENTIFICATION MAP STILL UNRETURNED. OVERALL: EXTREMAL ORDERED-WORD SELECTORS EXCLUDED / NON-BOOLEAN ALGEBRAIC ROUTE OPEN.

PMS-EX30: History-odd commutator spectral selector and hard-pullback test

SAME FROZEN EX2E PACKAGE (SHA-ATTESTED); COMMUTATOR GRAIN C_ij = i[E_i, E_j], HERMITIAN, C_ji = −C_ij EXACT. NONZERO COMMUTATORS 3486/3486; BOTH EXTREMA SIMPLE 3486/3486; TRACELESS ⇒ EXTREMA STRADDLE ZERO. HISTORY SIDE: PERFECT PASS; EXTREMAL RAYS EXACTLY ORTHOGONAL; REVERSAL MAPS TOP RAY TO ORTHOGONAL BOTTOM RAY; NO ORDER-BLIND PAIRS. HARD-CUT SIDE: 83,664 PULLBACK TESTS (BOTH EXTREMA × 41,832); RANK 13 IN ALL; ZERO RANK ONE; GRAM SPECTRA BOUNDED AWAY FROM COLLAPSE. MECHANISM: EVERY EXTREMAL RAY GENERIC W.R.T. THE INSTRUMENT; THIRTEEN CHANNEL IMAGES INDEPENDENTLY SPANNING. BOTH SIMPLEST CANONICAL SPECTRAL RULES NOW ELIMINATED (WORD EXTREMA + COMMUTATOR EXTREMA). SELECTOR PROBLEM RETYPED: THE OBJECT = A HISTORY-SENSITIVE RAY ON THE SOURCE-NATIVE RANK-ONE KRAUS-PULLBACK MANIFOLD. CARRIER IDENTIFICATION: STILL UNRETURNED; CONFIRMED NON-LOAD-BEARING FOR THESE REJECTIONS. OVERALL: COMMUTATOR-EXTREMAL SELECTOR EXCLUDED / NON-BOOLEAN ROUTE OPEN.

PMS-EX31 (R2): Rank-one Kraus-pullback locus, predecessor- and background-audited

HARD STOP RULES FROZEN: ORDER OPERATORS ≠ BACKREACTION WITHOUT CONE CHANGE; TRAP/WORKING SUPPORTS DIFFERENTLY TYPED; FULL EQUALITY THE EVENTUAL TEST. FIXED-BACKGROUND LOCUS: STACK RANK 12 ALL EDGES; $\mathcal{K}$_e DIM 38; $\mathbb{C}P^{37}$ (74 REAL); PULLBACK = EXACT IDENTITY; COMPLETE SOLUTION SET; FRAME-INVARIANT AT FIXED WITNESS. NO HIDDEN REDUCTION: EVERY ONE OF THE 84 EFFECTS LEAKS AMPLITUDE OUT OF $\mathcal{K}$_e; SOURCE'S COMMON-REDUCTION NO-GO PRESERVED. FIXED-BACKGROUND RESTRICTED RULE: NONZERO + SIMPLE EXTREMA 41,832/41,832; EXACT REVERSAL SWAP; RANK-ONE PULLBACKS 83,664/83,664; ZERO FAILURES. BACKGROUND AUDIT: EX2E ENDPOINT CONFIGURATION = DETERMINISTIC GENERICITY WITNESS; FIVE WITNESSES EQUALLY ADMITTED (ALL RANK-72-PRESERVING; GRAMS DIFFER STRONGLY). ROBUSTNESS: DIM 38 AT ALL FIVE WITNESSES (ROBUST PASS); DIRECTIONS SUBSTANTIALLY DIFFERENT; ALL-WITNESS COMMON KERNEL TRIVIAL ON EVERY EDGE. NEW NO-GO: NO RAY IS A RANK-ONE HARD CUT FOR EVERY ADMITTED ENDPOINT BACKGROUND. SEPARATELY OPEN: TRAP ATTACHMENT (DIFFERENTLY TYPED; FOLD ≠ MASD DEFECT WITHOUT DERIVED RELATION); PRIMITIVE EXTREMAL-RULE SELECTION; EQUALITY UNEXECUTED. DEPENDENCY ORDER: RESOLVE OR QUOTIENT THE BACKGROUND BEFORE ATTEMPTING THE ATTACHMENT. OVERALL: FIXED-BACKGROUND CONSTRUCTION STANDS EXACTLY / NOT YET PHYSICAL; BACKGROUND, WARRANT AND ATTACHMENT OPEN.

PMS-EX32: Internal-frame flat-moduli and background-quotient audit

FLATNESS: ALL FIVE WITNESSES SATISFY THE CURRENT RESIDUAL EXACTLY; ALL TEN PAIRWISE DIFFERENCES FLAT; CONSISTENT WITH EX2F (NULLITY > 84-DIM GAUGE ORBIT; ACTION TOO FLAT TO SELECT A FRAME). NON-GAUGE CERTIFICATE: DIFFERENCES DOMINANTLY OUTSIDE THE PUBLISHED GAUGE-NULL SPACE; FOUR PRIMARY-RELATIVE DIFFERENCES LINEARLY INDEPENDENT. INVARIANT TEST: SEVEN REPRESENTATION PROJECTORS COMMUTE EXACTLY WITH TWELVE GAUGE GENERATORS ⇒ CURRENT-SECTOR POPULATIONS GAUGE-INVARIANT; POPULATIONS DIFFER SUBSTANTIALLY ACROSS WITNESSES ⇒ NOT GAUGE-EQUIVALENT. NEAR-MISS AUDITED: p53_quadratic_shifted = VERTEX-PHASE DRESSING (GRAM MAGNITUDES MATCH) YET CURRENT POPULATIONS DIFFER; STILL INEQUIVALENT. EX31 PLANES: PROJECTIVE DIMENSION 37 AT EVERY WITNESS; DIRECTIONS MOVE; FIVE-FOLD INTERSECTION TRIVIAL ON EVERY EDGE ⇒ UNIVERSAL-RAY SEARCH FORMALLY CLOSED. SCOPE: DECLARED GAUGE ONLY; UNDISCOVERED REDUNDANCY = SOURCE'S OPEN MODULI DEBT (D-PF32); NOT EVERY NON-GAUGE DIRECTION PROVED PHYSICALLY INEQUIVALENT. TYPING FIREWALL: HISTORY-MEASURE TRAP STILL UNATTACHED TO ANY INTERNAL RAY. OVERALL: DECLARED-GAUGE QUOTIENT EXCLUDED / FRAME-SELECTION STRUCTURE OR NEW REDUNDANCY OWED.

PMS-EX33: Finite-distinguishability soft-closure test

REFRAME: FROM DELETION TO DISTINGUISHABILITY; "CLOSED" = BELOW-RESOLUTION, LICENSED BY THE IMPORTED FRAMEWORK (TV THRESHOLD ε). D36 LAW: BOTH ORIENTATIONS STRICTLY POSITIVE ALWAYS; LARGE DIRECTIONAL BIAS; SINGLE-STEP DISFAVOURED SHARE 12.81% (RATIO $r \approx 0.147$, RECONSTRUCTED); r^2 REPRODUCES PSAC'S TWO-STEP RATIO. WHOLE-HISTORY SUPPRESSION: EXPONENTIAL, $r^n/(1 + r^n)$: 2.112% AT 2, 0.3160% AT 3, 0.04655% AT 4, 0.006840% AT 5, 0.001005% AT 6. EFFECTIVE CLOSURE DEPTHS: $n(\varepsilon)$ COMPUTABLE: 2 AT 10^{-1}, 3 AT 10^{-2}, 4 AT 10^{-3}, 5 AT 10^{-4}, 8 AT 10^{-6}, 11 AT 10^{-9} (RESOLUTIONS RECONSTRUCTED). NO-GO: D36 FIRST-ORDER MARKOV (IMPORTED PSAC THEOREM); NEXT-STEP LAW IDENTICAL FOR ALL HISTORIES AT THE SAME PRESENT STATE; NEXT BACKWARD SHARE 12.81% EVERY TIME. NEXT-STEP CLOSURE: REQUIRES TILT $\approx \varepsilon$; CURRENT RATIO 15× TO 10^5× TOO LARGE AT SAMPLE THRESHOLDS; DISTINGUISHABILITY ALONE INSUFFICIENT. TARGET RETYPED: SOURCE-NATIVE HISTORY-CONDITIONED TILT p(direction | $\mathbf{h}$): THE PROBABILISTIC FACE OF THE HISTORY-COUPLING GENERATOR. HARD-CUT PROGRAMME: NOT RETRACTED; SUPPORT-LEVEL AND RESOLUTION-LEVEL CLOSURE COMPLEMENTARY. OVERALL: SOFT CLOSURE LICENSED AND COMPUTABLE / HISTORY-DRIVEN TILT ABSENT.

PMS-EX34: Retained history → probability steering

BASELINE CHECKED FIRST: PSAC-EX5AA LEDGER-TO-FUTURE DERIVATIVE EXACTLY ZERO (BOTH REGULATORS, BOTH BRANCHES); PUBLISHED ACTION DOES NOT STEER; = EX33'S MARKOV BLINDNESS, CAUSAL FACE. MECHANISM FOUND: HCMR-P1

RECORD-CONDITIONED UPDATE; EXPONENT EXACTLY ONE BY PROBABILITY-CHAIN CONSISTENCY; NO ADJUSTABLE COEFFICIENT; EXECUTED ON ACTUAL MARKS (XI-2, RSU CHAIN). FORM: q(k | ℏ) = (d_k + n_k)/(49 + n) ON THE 49-DIM PREPARATION CARRIER, TWELVE COMPONENTS (RECONSTRUCTED FROM THE EXACT TV TABLE; F210). STEERING: TYPE-k FACT RAISES q(k), UNIFORMLY SHRINKS THE REST; NOTHING EVER ZERO; TV BETWEEN EQUAL-LENGTH DIVERGENT HISTORIES = n/(49 + n) EXACT: 2.00% AT 1, 9.26% AT 5, 28.99% AT 20, 50.51% AT 50, 67.11% AT 100. OPERATIONAL CLOSURE: NEVER-REALISED COMPONENT d_k/(49 + n) ≤ ε AT DEPTH n ≥ d_k/ε − 49; NO SHARP TRANSITION; CLOSURE(ε, HISTORY) STRUCTURE. FIREWALL: CONDITIONAL PREPARATION LAW, NOT THE CAUSAL TRANSITION LAW; D36-DIRECTION TYPING NOT ESTABLISHED. MISSING MECHANISM MADE PRECISE: PROMOTE THE ALREADY-DERIVED UPDATE INTO THE ACTUAL NEXT-TRANSITION PROBABILITIES. OVERALL: STEERING FOUND, COEFFICIENT-FREE, EXECUTED, CONDITIONAL / CAUSAL PROMOTION AND TYPING OPEN.

PMS-EX35: History-conditioned transition bias

EXECUTED ON FROZEN PFDMI/EX2E AT THE PHYSICAL TERMINAL GRAIN (13 CURRENT-GENERATOR OUTCOMES SUMMED OUT; SEVEN TERMINAL PROJECTORS PER COMPLETED STEP). WITHIN-EPOCH BIAS: MATCHED TRIPLES (SAME START, SAME PENULTIMATE NODE, SAME FINAL TRANSITION) DIFFER IN NEXT TERMINAL DISTRIBUTIONS; CENSUS 879/879 NONZERO; MEDIAN SEPARATION NONZERO [STRIPPED]. CARRIER: THE INTERNAL PFDMI STATE; NO MEMORY COEFFICIENT; NO FUTURE AT ZERO. COARSE CONSISTENCY: WITHIN EVERY PAIR THE D36 NEXT-NODE LAW EXACTLY IDENTICAL; PSAC COARSE BLINDNESS REPRODUCED, NOT CONTRADICTED. RENEWAL BOUNDARY: PUBLISHED ARCHITECTURE REOPENS THE WORKING CARRIER AND FILES THE FACT IN THE LEDGER; PSAC POST-RENEWAL TEST: REOPENED CHANNEL INDEPENDENT OF LEDGER; LEDGER-TO-R4 GAIN ZERO; BIAS DIES. RECORD-LIKELIHOOD ROUTE: KRAUS-NORMALIZED, COEFFICIENT-FREE, HCMR-P1 STRUCTURE; INSERTION FORBIDDEN (PFHBA DOOB DESCENT CONDITIONAL; PSAC F101/F102). RESIDUAL LOCALIZED: RENEWAL-BOUNDARY TRANSMISSION (INTERNAL-STATE CARRY-THROUGH OR DERIVED LEDGER FEEDBACK); D36-DIRECTION TYPING OPEN. SOURCE VERDICT BLOCK ABSENT IN TRANSFER; SUMMARY TABLE MINE (F216). OVERALL: CAUSAL STEERING ESTABLISHED WITHIN EPOCHS / DEAD ACROSS RENEWAL; THE MISSING MECHANISM HAS AN ADDRESS.

PMS-EX36: State-preserving renewal test

COPY ISOMETRY: ONLY THE CLASSICAL MARK COPIED (HCMR-XI-2; RESIDUAL STRIPPED); SYSTEM STATE UNCHANGED. MINIMAL STATE-PRESERVING RENEWAL: CONDITIONED PRESENT STATE CARRIED FORWARD; RECORD FILED; EX35 WITNESS BIAS PRESERVED EXACTLY (TRACE DISTANCE AND NEXT-TERMINAL SEPARATION 0.13344 UNCHANGED IMMEDIATELY AFTER RENEWAL). COMPLETE RESET COMPARISON: BOTH DIFFERENCES ANNIHILATED ⇒ THE EX35 EPOCH-MORTALITY IS THE RESET ASSUMPTION, NOT RENEWAL OR RETENTION. NO-OVERWRITE: INTACT (IMPORTED PSAC COEXISTENCE PROOF). NATURAL FADING UNDER FROZEN

FOLDS, NO FORCE, NO COEFFICIENT: 0.13344 AT 0; 0.09010 AT 10; 0.05967 AT 20; 0.01943 AT 50; 0.00584 AT 100. OPERATIONAL AGE: COMPUTABLE PER ε; DIAGNOSTIC ONLY (0.01 CROSSING BRACKETED 50–100 FOLDS; NO UNIVERSAL ε SELECTED). CORPUS STATUS: PRESENTLY CHOSEN RENEWAL = THE RESET; AUTOMATIC BACKREACTION GRADED NEGATIVE UNDER IT; LATER ACTIVE DYNAMICS LEFT OPEN. PROBLEM RETYPED: NO HISTORY FORCE NEEDED; DERIVE WHY RENEWAL CARRIES RATHER THAN WIPES. SOURCE VERDICT BODY LARGELY STRIPPED; SUMMARY TABLE MINE. OVERALL: WIPE = ASSUMPTION, NOT NECESSITY / RENEWAL-MAP SELECTION OWED.

PMS-EX37: Renewal-uniqueness, covariant-memory-family and physical-effect rigidity test

NON-UNIQUENESS: $\Phi_\lambda(\rho) = \lambda\rho + (1-\lambda)\,\mathrm{tr}(\rho)\, I_{50}/50 \otimes$ LEDGER IDENTITY IS CPTP, UNITAL, U(50)-COVARIANT, TARGET-FREE, SAME-CARRIER, NO-OVERWRITE FOR ALL $\lambda \in [0, 1]$; λ FREE, NOT SOURCE-RETURNED. EXACT LINEAR SCALING ON THE EX35 PAIR: $D_{tr}(\lambda) = 0.42047171701340447\,\lambda$; $D_{TV}(\lambda) = 0.13343664226134488\,\lambda$; SEVEN DIAL SETTINGS EXECUTED (0, 0.1, 0.25, 1/3, 0.5, 0.75, 1); FILLS THE EX35-STRIPPED TRACE DISTANCE. PRIOR CONSTRAINTS AUDITED: EX12 S_3-EQUIVARIANT κ FAMILY (SYMMETRY CANNOT CHOOSE); PSAC-EX5AE (DISTINGUISHABILITY CONSERVATION PERMITS EXPORTED RESET); HCMR σ = (1,1,0,0) = LOGICAL DISPOSITION ONLY. **EFFECT AUDIT: 84 EFFECTS, HERMITICITY 9.70e-17, EDGE-COMPLETENESS 1.93e-14; REAL SPAN RANK 73 (NOT LINEARLY INFORMATIONALLY COMPLETE); ALGEBRA IRREDUCIBLE (K7-QRC-1/EX5CE + TARGET-BLIND WITNESS: A-GAP 1.517309468672e-3; ||[A,B]||_F = 5.471345179964). RIGIDITY: SAME-CARRIER ISOMETRY PRESERVING ALL 84 EFFECTS ⇒ U = e^(iθ) I_{50} ⇒ UρU† = ρ; PASS-THROUGH UNIQUE IN THAT CLASS. ENTROPY PAPERS: CONDITIONAL SELECTORS ONLY; DO NOT YET DERIVE λ = 1. VERDICT (SOURCE, COMPLETE): PASS-THROUGH CONSISTENT PASS; STRUCTURAL UNIQUENESS FAIL/NO-GO; COVARIANT FAMILY EXACT CONSTRUCTION PASS; EFFECT-PRESERVING ISOMETRIC RENEWAL UNIQUE (IDENTITY UP TO PHASE); PRIMITIVE CLASS SELECTION OPEN. HEADLINE: EX36 FOUND A VIABLE MECHANISM; EX37 SHOWS THE MISSING ISSUE IS SELECTION, NOT CAPACITY. OVERALL: DIAL FREE BY STRUCTURE / IDENTITY UNIQUE IN THE RIGID CLASS / REVERSIBILITY DERIVATION OWED.**

PMS-EX38: Source-free renewal reversibility test

CORPUS CORRECTION: NEW FACT ⇒ COST (COMMITMENT REQUIRES COST) SURVIVES ONE-WAY ONLY; ENTROPY/IRREVERSIBILITY ⇏ NEW FACT (THE THEORY OF FACT PRODUCTION: EXPORT WITHOUT STABLE FACT). SOURCE-FREE: κ-FIELD CONTINUITY SOURCE ZERO FOR RENEWAL; COMMITTED STRUCTURE TRANSPORTS WITHOUT NEW RECORD; σ = (1,1,0,0); NO NEW FOUNDATIONAL FACT: EXACT PASS. K7-CBR: EXISTING RENEWAL EXPLICITLY ISOMETRIC (FACT FILED, CARRIER REOPENS): EXACT CONSTRUCTION PASS; PHYSICAL MAP NOT PRIMITIVELY DERIVED (ITS OWN STATEMENT). SHORTCUT FAILS: SOURCE-FREE ERASER (CPTP, TARGET-FREE, COVARIANT) SCALES THE EX35 SIGNAL AS $0.13343664226134488\,\lambda$ (0.06671832113 AT ½; 0 AT 0) WITH ZERO COMMITMENT SOURCE THROUGHOUT ⇒ SOURCE-FREE ⇏ REVERSIBLE: FAIL; NO-NEW-FACT ⇏ ZERO ENTROPY: FAIL. PAR

ROUTE: BELOW THE COMMITMENT THRESHOLD NO IRREVERSIBLE COMMITMENT, NO ENTROPY-GENERATING OPERATION, NO DISTINGUISHABILITY LOSS ⇒ SUB-THRESHOLD DYNAMICS REVERSIBLE, CONDITIONALLY UNITARY (INHERITED/CONDITIONAL GRADE). QUALIFICATION: REVERSIBILITY ⇏ IDENTITY (NONTRIVIAL ROTATIONS PRESERVE DISTINGUISHABILITY); EX37 IDENTITY NEEDS EFFECT PRESERVATION. TWO HINGES: (1) RENEWAL ∈ PAR SECTOR: OPEN; (2) EFFECT-PRESERVATION PRIMITIVELY SELECTED: OPEN; CONJUNCTION ⇒ EX37 STATE-PRESERVING RENEWAL: CONDITIONAL EXACT PASS. HEADLINE: THE EXISTING RENEWAL ALREADY HAS EXACTLY THE WANTED FORM; PROVE THE PHYSICS FORCES IT THERE RATHER THAN ALLOWING IT. OVERALL: COSTLESSNESS CONFIRMED AND INSUFFICIENT / TWO PRECISE HINGES OWED.

PMS-EX39: Homogeneous commitment-field renewal and no-reset test

SOURCE INPUT: UNIQUE ADMISSIBLE SCALAR ACTION L = ½$(\partial s)^2$ − ½$m^2 s^2$ + s ρ_committed (INHERITED); SOURCE-FREE EQUATION = HOMOGENEOUS KG; NO INTRINSIC RESET OR DEPOLARISING TERM; FACT-MOMENTUM CONSERVES SOURCE-FREE STRESS-ENERGY. MODE-FLOW THEOREM: v(t) = R_ω(t)v(0); det R = 1; R(−t)R(t) = I; R^TG_ωR = G_ω (G_ω = diag(ω^2, 1)) ⇒ ONE-TO-ONE, ENERGY-PRESERVING; LITERAL RESET (MANY-TO-ONE) ≠ R_ω(t) AT ANY FINITE t. EXECUTION (mξ = √(4/3); kξ ∈ {0, 1, 2, 4}; t/ξ ∈ {0.25, 0.5, 1, 3, 7}): INVERSE RESIDUAL 2.221e-16; ENERGY RESIDUAL 3.565e-15; |det R − 1| ≤ 2.220e-16; MIN EUCLIDEAN SV 0.270781580193 (WEIGHTING ONLY; G_ω IS THE CONSERVED NORM). CONSEQUENCE: $v_1 \neq v_2$ ⇒ R(t)($v_1 - v_2$) ≠ 0 ∀ FINITE t; REDISTRIBUTION/LOCAL ATTENUATION PERMITTED (MEMORY-KERNEL CONSISTENT); GLOBAL ERASURE IMPOSSIBLE. NOT YET PROVED: EX35 CONDITIONED STATE ↔ FIELD CAUCHY DATA (ATTACHING MAP A REQUIRED, DISTINGUISHABILITY-PRESERVING); REVERSIBILITY ALONE ⇏ TERMINAL TV 0.133436642261 PRESERVED (EFFECT PRESERVATION STILL REQUIRED). TYPING FIREWALL: SCALAR COMMITMENT SOURCE OUTCOME-BLIND (PSAC) ⇒ NO FOLD-MARK PROMOTION; "FIELD CANNOT ERASE ITS OWN MEMORY", NOT "50D MEMORY ATTACHED". VERDICT (SOURCE, COMPLETE): ACTION INHERITED; HOMOGENEOUS KG EXACT; INVERTIBILITY EXACT PASS; ENERGY EXACT PASS; LITERAL RESET EXACT FAIL/NO-GO; DISTINCTION SURVIVAL EXACT PASS; RENEWAL = FIELD FLOW CONDITIONAL/MAP OPEN; FAITHFUL EMBEDDING OPEN; OUTCOME MARK FAIL AT SCALAR GRAIN; EX37 UNIQUENESS AFTER EFFECT PRESERVATION CONDITIONAL EXACT PASS. HEADLINE: THE FIELD CANNOT RESET ITSELF; THE GAP MOVES TO THE ATTACHING MAP. OVERALL: FIELD-LEVEL RESET EXCLUDED EXACTLY / ATTACHING MAP A AND EFFECT PRESERVATION OWED.

PMS-EX40: Attaching-map kernel persistence and Whitney-survival test (TRUNCATED TRANSFER)

IMPORTS (CONTROLLING PSAC R19): SCALAR MARKED PROJECTION RANK 6, NULLITY 6 ON THE 12D COUNT+POLARITY CARRIER; TWO-DIRECTION WHITNEY EMBEDDING, EXACT LEFT INVERSE; MA1 PROJECTION OF THE COMPLETE FOLD RECORD RANK 1, SVs [0.578064557803, 0]. KERNEL-PERSISTENCE THEOREM: ker(R_tA) = ker(A), rank(R_tA) = rank(A) FOR EVERY FINITE t, MASS-INDEPENDENT

⇒ REVERSIBLE PROPAGATION NEVER REPAIRS AN UNENCODED RECORD DIRECTION. CURRENT MA1 ATTACHMENT (diag(0.578064557803, 0) ON (ORIENTATION, POLARITY); ORIENTATION IN ONE (q,p) KG PAIR; TWO INDEPENDENT MODES; t/ξ ∈ {0, 0.25, 0.5, 1, 3, 7}): RANK 1 THROUGHOUT; POLARITY OUTPUT 0.000e+00; SECOND SV 0.000e+00 ⇒ COMPLETE-MARK ATTACHMENT EXACT FAIL; POLARITY IN THE EXACT KERNEL BEFORE AND AFTER PROPAGATION. WHITNEY BRANCH: RANK SURVIVAL (rank 2 ∀t) ENTAILED BY KERNEL PERSISTENCE [MY COROLLARY, FLAGGED]; EXECUTED SURVIVAL GRADES, READOUT/TYPING TREATMENT AND VERDICT BLOCK ABSENT: DOCUMENT TRUNCATED MID-SENTENCE. OVERALL (SURVIVING HALF): PROPAGATION NEVER REPAIRS / CURRENT BRIDGE EXCLUDED EXACTLY / FULL-RANK CANDIDATE PENDING ITS ARRIVED-IN-FULL TEST.

PMS-EX41: Fact-separating single-source / transverse-activation audit (TRUNCATED TRANSFER)

IMPORTS (PSAC ADVANCED STACK): EX5BE UNSIGNED-SCALAR SINGLE-SOURCE FACTORISATION IMPOSSIBLE; FACT-SEPARATING MARKED CONFIGURATION REQUIRED, SCALAR COUNT = MARGINAL (§§6.66–6.67); EX5BF–BH MINIMAL RECORD (r, ς), FOUR STATES, BIJECTIVE WITH (b, ω); EX5BI FOUR-STATE COMPLETION INSTRUMENT (CONSTRUCTION LEVEL; ACTIVATION OPEN); EX5BK/BL g_cover ∈ [−1, 1], δ_K = 0.995570059549810, CURRENT ACTION g_cover = 0; EX5BC/BD ZERO-BACKGROUND POLARITY FAILS THE RECORD-CURRENT EQUATION. ONE SOURCE ENOUGH: m = (r, ς); SCALAR MARGINAL INCREMENTS COUNT BY ONE; SECOND-SOURCE OBJECTION CLOSED EXACTLY. EMBEDDING ι_(a,b) = a r e_R + b ς e_O; J = diag(a, b); FAITHFUL IFF a ≠ 0 ∧ b ≠ 0; MA1 = (0, 0.578064557803): RANK 1 (EX40 CONFIRMED). GAIN NOT FIXED: MARGINAL BLIND; SCAN a ∈ [1e-8, 1e2] AT FIXED b: INJECTIVE AT EVERY NONZERO a; |det J| ∈ [5.780645578030e-09, 5.780645578030e+01]; AUDIT ROWS (0, 0.25, 0.578064557803, 1): SEPARATIONS 0/0.5/1.15612911561/2, GRADES NO/YES/YES/YES. SYMMETRY INSUFFICIENT: E[Z_R4] = δ_K g_cover; g_cover FREE; |a| = |b| = UNDERIVED PREMISE (PROMOTION); ZERO-BACKGROUND TENSOR AMPLIFICATION CLOSED. VERDICT BLOCK: ABSENT (SECOND CONSECUTIVE TRUNCATION, MID-WORD AT §5'S CLOSE). OVERALL (SURVIVING CONTENT): STRUCTURE SETTLED / ACTIVATION UNRETURNED / SOURCE-RETURNED TRANSVERSE GAIN OWED.

PMS-EX42: Anisotropic/inhomogeneous background rescue audit (TRUNCATED TRANSFER)

IMPORTS: PSAC-EX5BB–BD UNIQUE LOCAL POLARITY CARRIER H_ab = D_aD_b m − ½γ_ab Δm (2D SYMMETRIC TRACE-FREE; ZERO-BACKGROUND DIVERGENCE GENERICALLY NONZERO; ISOTROPIC INSUFFICIENT); NEWER κ-THEOREM: UNIQUE LINEAR KG ACTION, NONLINEAR SELF-INTERACTIONS EXCLUDED. FUNDAMENTAL TEST: s = s_0 + εh ABOUT ARBITRARY BACKGROUND ⇒ FLUCTUATION OPERATOR L_(s_0) = □ + m^2 FOR EVERY s_0 (ANISOTROPIC/INHOMOGENEOUS INCLUDED); dL/ds_0 = 0 EXACTLY. EXACT NEGATIVE: ORDINARY κ-BACKGROUND STRUCTURE CANNOT TURN THE INADMISSIBLE POLARITY MODE INTO A ZERO MODE; ANISOTROPIC GRADIENTS/STRESS = DERIVED OBSERVABLES ONLY; NO SAME-SOURCE RECORD-TENSOR FEEDBACK VERTEX SUPPLIED; STRESS-TENSOR PROMOTION = NEW

BRIDGE, NOT A KG CONSEQUENCE. OBSTRUCTION CHARACTER: VECTOR RESIDUAL (FLAT IDENTITY $\partial^a H_{ab} = \frac{1}{2}\partial_b \Delta m$, GENERICALLY NONZERO [MY VERIFICATION]). §B MINIMAL TYPE-CORRECT RESCUE: TRUNCATED AT ITS OPENING LINE; CONSTRUCTION, GRADES AND VERDICT ABSENT (THIRD CONSECUTIVE CLIPPED EXPORT). OVERALL (SURVIVING CONTENT): BACKGROUND RESCUE CLOSED EXACTLY / RECORD-TENSOR VERTEX OR COMPLETED RESCUE OWED.

PMS-EX43-R2: Full-predecessor microscopic-mark sufficiency and Fold-polarity extraction audit (TRUNCATED TRANSFER; SUPERSEDES UNRECEIVED EX43)

STATUS: SUPERSEDES PMS-EX43 (never received here); the source retracts that round's broader negative for not consuming the full PFHBA/HCMR/PFDMI/HM4 predecessor chain. CORRECTED QUESTION: does the current source already return the INDEPENDENT Fold-polarity/R4 mark, given the executed 319 microscopic marked operators, exact conditioned-state update, exact 319-label copy map, 319→84 coarse-graining and persistent 84-label renewal? HCMR-P1/XI-2: $z_{(\rho,e)} = M_e \eta_\rho / \sqrt{(p_e(\eta_\rho))}$ UNIQUE UP TO PHASE; 319 MARKED OPERATORS ON $C^7 \otimes C^{50}$; COMPLETENESS 2.471e-14; RECORD-COPY ISOMETRY RESIDUAL 0; COPY LEAVES UPDATE UNTOUCHED ⇒ MICROSCOPIC MARKED OUTCOME + CONDITIONED STATE: PASS (what the marks encode = separate question). **PFDMI: L(e, α, r) = P_r C(e, α) U_e RENAMED t_term; FIREWALL: t_term ≠ PSAC R4 SIGN; 84 = 12 EDGES × 7 TERMINAL TYPES; 84-LABEL RENEWAL ISOMETRY $|e,t\rangle_C \to |e,t\rangle_A \otimes |e,t\rangle_L$ EXACT, PRIMITIVE SELECTION OPEN. PFHBA-7: EXACT-LIFT FAMILY DIMENSION 34,152; UNMARKED DOOB KERNEL BLIND TO THE MARKED DECOMPOSITION ⇒ CAPACITY CANNOT TYPE THE PFDMI LABELS AS FOLD POLARITY; LABELS MUST BE RETURNED BY THE SOURCE AMPLITUDE DECOMPOSITION/PROJECTORS. TRANSFER CUT AT THE HM4/RCMO/PRLU HEADER (FOURTH CONSECUTIVE); REMAINING AUDIT, EXTRACTION EXECUTION AND VERDICT ABSENT. OVERALL (SURVIVING CONTENT): EXISTENCE PASS / CAPACITY-TYPING EXCLUDED / EXTRACTION ANSWER OWED.**

PMS-EX44: History-to-curvature-to-probability pullback test (TRUNCATED TRANSFER)

IMPORTS (CONTROLLING CHAIN, ALL RETURNED): PSAC R19 GATE S: $S_C = d/d\varepsilon \log K^{\varepsilon}|_0 = \omega_C$ ON THE CANONICAL BRANCH; EXPONENTIAL-FAMILY DESCENT $K_{(\sigma,\alpha)} = K_0 \exp[\sigma\alpha\, \omega_C]/Z$ (NO INSERTED TILT); SIGNED CURVATURE RESPONSE $\Gamma_{eff} = \frac{1}{2} k_C c^2 - \sigma\alpha * c$, $c*_\sigma = \sigma\alpha*/k_C$; $k_C = 360/713 = 0.504908835904628$; $\alpha* = 0.959001109719975$; $c* = 1.89935497564000$; $\lambda_C = 1$ (EX1B); EX35/36 CARRIED DISTINCTION; POST-COMMITMENT FIREWALL (NO AUTOMATIC LEDGER → ACTIVE MAP). TILT ELIMINATION: $\sigma\alpha* = k_C c*$ AT RESIDUAL 8.116e-14 ⇒ $K_c(y|x) = K_0 \exp[k_C c\, \omega_C]/\Sigma_z K_0 \exp[k_C c\, \omega_C]$: THE KERNEL A FUNCTION OF THE PHYSICAL CURVATURE COORDINATE ALONE; ZERO NEW MEMORY SUSCEPTIBILITY, DOOB COEFFICIENT OR PROBABILITY RULE. GEOMETRY ⇒ LEAN: $d/dc \log K_c = k_C[\omega_C - \langle\omega_C\rangle_c]$; $dK_c/dc = k_C K_c[\omega_C - \langle\omega_C\rangle_c]$ [LINE CLOSED BY CHAIN RULE, FLAGGED]; $\Sigma_y dK_c/dc = 0$ (PROBABILITY CONSERVED); GAIN k_C ALREADY RETURNED. SCOPE: ISOLATED SCALAR CLOSURE SECTOR, CANONICAL REDUCTION; CAUSAL POST-RENEWAL PROMOTION FIREWALLED. TRANSFER CUT MID-EQUATION IN §2 (FIFTH CONSECUTIVE); HISTORY→CURVATURE PULLBACK LEG, LATER SECTIONS AND VERDICT ABSENT. OVERALL (SURVIVING

CONTENT): RESPONSE HALF CLOSED WITH ZERO NEW COEFFICIENTS / PULLBACK LEG AND VERDICT OWED.**

PMS-EX45–EX54 (EXECUTED OFFLINE, NOT RECEIVED)

Ten executions ran offline between EX44 and EX55 and were never received into this paper; their results enter only through EX55's predecessor audit (the HMGBC history-derived completion functional above all). No content, grades or verdicts for them may be quoted from this paper (F274); their documents are owed.

PMS-EX55 → PMS-EX55-R2: History geometry to native probability geometry (SUPERSEDES EX55; EQUATION-STRIPPED TRANSFER)

SUPERSESSION: EX55-R2 replaces the first EX55 (whose truncated transfer carried items A–B and cut at item C); the curvature-coordinate route is replaced by the NATIVE route; the R1 items A (HMGBC amendment, unscreenable) and B (EX44 constants) remain consistent imports. NATIVE GEOMETRY: PFDMI BORN PROBABILITIES DEFINE THEIR OWN FISHER GEOMETRY [construction display stripped]; DECLARED PHYSICAL RANK 72 (= 84 RECORDS − 12 PER-EDGE NORMALISATIONS). NEW THEOREM (STRUCTURE; DISPLAYS STRIPPED): ATTACHING MAP (HISTORY DISPLACEMENT → PFDMI PHYSICAL TANGENT) + FISHER-METRIC PULLBACK ⇒ ANY DISPLACEMENT REACHING THE TANGENT NECESSARILY CHANGES NEXT PROBABILITIES; NO SEPARATE GEOMETRY→PROBABILITY COUPLING TO INVENT. FROZEN EX2E EXECUTION: TERMINAL PROBABILITY RESPONSE MACHINE PASS 72/72; CONDITIONAL-MARK RESPONSE MACHINE PASS 72/72 [Jacobian, Wilson reduction, smallest SV, reconstruction residual, raw mark rank all stripped] ⇒ NO PROBABILITY-INVISIBLE DIRECTIONS IN THE DECLARED PHYSICAL TANGENT. NEW PAPERS: RECORD-SPACETIME (record probabilities → Fisher geometry; volume-matching closure → conformal scale); FROM CONSERVATION TO GEOMETRY (FISHER-RAO ↔ FUBINI-STUDY; BORN MAP GEOMETRY-PRESERVING UNDER BCB); TYPING FIREWALL: BCB LORENTZ RECORD 4-CURRENT ≠ PFDMI REPRESENTATION-VALUED EDGE CARRIER. OWED OBJECTS: THE ATTACHING MAP (SOURCE-DERIVED CROSS-LAYER INTERTWINER); SIX-LOGIT COMPLETION SHORTCUT BELOW EVIDENTIAL GRADE; LEAN MAGNITUDE NOT YET SELECTED (EX10 WITNESS SHAPES DIFFER [both figures stripped]). VERDICT (SOURCE, COMPLETE, 12 ROWS): history→geometry EXACT PASS; relaxation survival EXACT PASS; Fisher geometry EXACT PASS at fixed rank; terminal response MACHINE PASS 72/72; marked response MACHINE PASS 72/72; nonzero tangent changes probabilities EXACT/MACHINE PASS; separate coupling needed NO; HMGBC attached to tangent OPEN; BCB = PFDMI current OPEN (types); six-logit shortcut OPEN; unique lean magnitude NOT YET SELECTED; full theorem ONE ATTACHING MAP SHORT. CLOSING DICHOTOMY: THE NEXT CALCULATION IS THE ATTACHED QUANTITY: POSITIVE = MECHANISM WORKS; ZERO = HISTORY IS A SPECTATOR.

PMS-EX56: Completion-character native probability descent and HMGBC scalarisation boundary (VERDICT COMPLETE; TAIL TRUNCATED)

FORMAT ADAPTATION: EXECUTIVE VERDICT LED THE DOCUMENT AND SURVIVED THE SEVENTH CLIPPED TAIL (cut at the PFDMI-EX2A audit header; detailed audit and execution sections absent). RESULTS: FROZEN EX2A SIX COMPLETION LOGITS: SOURCE-CONDITIONED PROBABILITY JACOBIAN FULL RANK SIX (UPGRADES EX55-R2'S OPEN SHORTCUT ROW); GSJB-2 SIX-TO-FOUR ROUTE INCIDENCE: RANK-FOUR RESPONSE; GSJB-3 $Z_2 \times Z_2$ CHARACTER BASIS DIAGONALISES EXACTLY. CLOSED FORM: F_character = 4pq · diag(3, 3, 1, 1); $p = 1 - e^{-1}$; $q = e^{-1}$; FROZEN PRIMITIVE COMPLETION HESSIAN SAME 3:3:1:1 SHAPE, SCALAR FACTOR 315/4 AT MACHINE PRECISION ⇒ FOUR PHYSICAL COMPLETION CHARACTERS NOT PROBABILITY-NULL. BOUNDARY: HMGBC AMENDMENT QUADRATIC vs EX2A LINEAR SCALAR ROUTE LOGITS; NO CURRENT SOURCE THEOREM RETURNS THE SCALARISATION/RADON-NIKODYM MAP. REDUCTION: MISSING OBJECT NO LONGER history → 144-DIM PFDMI TANGENT; NOW DΛ_Ω : HISTORY-CONDITIONED COMPLETION GEOMETRY → FOUR COMPLETION CHARACTERS; NONZERO DΛ_Ω ⇒ LEAN AUTOMATIC (PROVED THIS ROUND). AUDIT (SURVIVING): EX55-R2 Fisher-null ⇔ probability-null on positive support + 72-injectivity; HMGBC H_XX(h) = H_XX^MASD + ΔΩ(h), ΔΩ ≥ 0, Schur-surviving; EX2A BLOCK CUT AT HEADER. OVERALL: FOUR LIVE CHARACTERS / ONE TRANSLATION OWED.

PMS-EX57: Gaussian Radon–Nikodym completion scalarisation and orientation-blindness audit (EXECUTIVE ANSWER COMPLETE; TAIL TRUNCATED)

QUESTION: derive DΛ_Ω from the existing HMGBC Gaussian/path-measure law without choosing a trace, determinant, norm or coupling by hand. EXECUTIVE ANSWER: PARTLY, BUT NOT FULLY. CANONICAL RULE: Z_G(P) ∝ det(P)^(−1/2); UNDER THE STATED WEIGHT-ENTERS-MARK IDENTIFICATION, EX2A'S AMPLITUDE-LOGIT CONVENTION FIXES c_G(P) = −¼ log det P + const ⇒ Dc_G[P; δP] = −¼ $\mathrm{Tr}(P^{-1}\delta P)$: NO FREE MEMORY COEFFICIENT (¼ = GAUSSIAN √ × AMPLITUDE √; JACOBI EXACT); STIFFENING (δP = ΔΩ ≥ 0) LOWERS THE SCALAR SETTING [SIGN CONSEQUENCE FLAGGED MINE]. INSUFFICIENCY (PROVED): THE EXECUTED DETERMINANT IS A BRANCH-LEVEL SCALAR OF THE POSITIVE COMPLETION STIFFNESS; DOES NOT RETURN THE FOUR MARKED COMPLETION-RATE COORDINATES; EXACTLY BLIND TO THE k = +1 / k = −1 ORIENTATION-CONJUGATE PAIR (CONJUGATION-INVARIANT). ⇒ CANONICAL GAUSSIAN SCALARISATION RULE CLOSED; SCALAR STIFFNESS ALONE CANNOT BE THE COMPLETE OUTCOME-SPECIFIC HISTORY-TO-PROBABILITY BRIDGE. AUDIT (FRAGMENT): HMGBC = ACTUAL RADON–NIKODYM/LOG-DENSITY CONSTRUCTION; QUADRATIC-ORDER GAUSSIAN BATH ELIMINATION → SCHUR COMPLEMENT FOR THE RE[TAINED…]; TAIL CUT MID-WORD (EIGHTH); REMAINDER AND EXECUTION SECTIONS ABSENT. OVERALL: SCALAR CLAUSE DERIVED, DIAL-FREE / DIRECTIONAL CLAUSE (FOUR MARKED COORDINATES + ORIENTATION EAR) OWED.

PMS-EX40/EX41/EX42/EX43-R2/EX44 COMPLETIONS + EX55-R2 STRIPPED DISPLAYS + EX56/EX57 TAILS + EX45–EX54 RECEIPT / PMS-EX58

OWED: EX40's Whitney-survival grades and verdict; EX41's closing sentence and verdict; EX42's §B minimal-rescue construction and verdict; EX43-R2's HM4/RCMO/PRLU audit, extraction execution and verdict; EX44's history-to-curvature pullback leg and verdict; EX55-R2's stripped displays and executed values (Fisher construction, ranks, frozen Jacobian, Wilson reduction, smallest singular value, reconstruction residual, raw mark rank, BCB current symbol, six-logit display, EX10 difference figures); the EX56 tail (the PFDMI-EX2A audit block and execution sections); the EX57 tail (the audit remainder from the Schur-complement clause onward and any execution sections); and the ten unreceived offline rounds EX45–EX54. NEXT, NOT YET PREREGISTERED. Remaining objects: the marked and orientation-sensitive components of DΛ_Ω (the scalar clause being derived canonically and proved insufficient alone), the source-returned record-tensor vertex (the same-source coupling feeding background anisotropy into the Fold record-current operator, or the completed minimal type-correct rescue), the Fold-polarity extraction from the source amplitude decomposition/projectors, and the primitive selection of physical-effect preservation (jointly upgrading reversible survival to the unique state-preserving renewal via the EX37 rigidity), the D36-direction typing of the steering, the primitive frame-selection structure (or a newly discovered and declared redundancy resolving the source's moduli debt), the master-action derivation of the restricted-extremal rule, the direction attachment through the History-Measure/PFDMI carrier identification map with the Fold-to-MASD trap-functional relation derived, the explicit candidate-continuation-resolved typing bridge, the commitment-boundary survival fraction s, the operational-metric normalization of Δk, the retention-invariance primitive proof, λ_syn and γ_syn, the path-ratio costs and drive affinity, the coherent phases, the realised event state, the fact-clock calibration, and the cross-corpus coherence reconciliation.

Blind RRHF recovery

LOCKED.

Post-freeze phenomenological comparison

OPEN FOR REPORTING / LOCKED AS A SOURCE SELECTOR. Existing conditional and target-free numerical returns may be compared with measurement and graded accordingly (Part XXI). No empirical comparison may select r, κ, Ξ, a terminal roster, endpoint frame, source coefficient or any other unresolved primitive object.

PART XCIX: MACHINE-READABLE CONTRACT

```text designation: PMS-1-R55-INTEGRATED date: 2026-08-17 central_execution: PMS-EX57_executive_answer_complete_tail_truncated review_pass_R50: applied: external_reviewer_corrections fixes: - abstract_and_central_result_scope_labels_EX11_to_EX57 - grs_born_grade_conditional_typing_within_declared_assumptions -
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grs_retention_spectator_qualification_factorised_dynamics - grs_epoch_renewal_reset_gradings_qualified - grs_hmgbc_geometry_typing_added - grs_blindness_scoped_to_declared_72_dim_tangent_and_four_characters - grs_ex57_weight_enters_mark_conditionality_stated - grs_one_principal_missing_bridge_wording - transfer_history_consolidated_into_source_integrity_appendix_partial_source_record_marks - cumulative_verdict_converted_to_table_formatting_error_fixed - abstract_reduced_to_short_form_with_pointer_to_verdict_table review_pass_R51: applied: second_external_reviewer_corrections fixes: - ex28_unital_star_algebra_line_repaired_unicode_asterisk_operator - math_notation_normalised_alpha_star_c_star_to_asterisk_operator - partial_derivative_and_fluctuation_operator_underscores_escaped - verdict_table_header_hardened - conclusion_claims_typed_to_hmgbc_geometry_and_four_character_scope - conclusion_transfer_narrative_moved_to_source_integrity_appendix - angles_phrase_corrected_to_right_angles - references_extended_17_to_27_all_load_bearing_sources - review_process_wording_removed_from_title_block toc_added_R52: table_of_contents_inserted_after_general_reader_summary_two_levels_parts_and_sections editorial_fixes_R53: - verdict_and_appendix_table_separators_hardened_docx_cells_verified_separate - toc_regenerated_with_section_sign_prefixes_ordered_list_reparse_cured - refs_2_and_18_merged_same_pfdmi1_document_refs_renumbered_18_to_26 editorial_fixes_R54: - quadratic_bold_pair_repaired_r51_c_star_pass_casualty - unital_star_subalgebra_normalised_to_asterisk_operator condensation_R55: - conclusion_condensed_to_fourfold_endpoint_plus_audit_pointer_per_round_narrative_deleted - historical_parts_I_to_LXXVIII_compressed_theorems_flags_and_section_anchors_retained - grades_and_executed_values_remain_in_verdict_table_execution_ledger_and_contract - section_numbering_1_to_163_unchanged_all_cross_references_resolve cumulative_base: PMS-1-R7

EX7: ordered_history_matter_response: conditional_pass PFDMI_Schur_architecture: pass_exact direct_ledger: [6, 6.5, 378] matter_to_PFDMI_identification: not_derived_not_defined

EX8: bath_components: - [Q,u,d] - [L,e,N] bath_topology: pass_exact reduced_one_bit_Schur: pass full_72D_AQ_C_B_Z: open eta_physical: open endpoint_frame: open

EX9: min_norm_current_residual: 9.86e-16 raw_Gram_max_drift: 1.4185 quotient_support_max_residual: 1.81e-11 prescription_support_max_residual: 1.49e-7 physical_score_rank: 72 regulators: [3,4,5,6] Gram_drift: 0 derivative_spectrum_drift_max: 9.1e-16 unique_numerical_metric: false

EX10: born_fisher_metric_unique: false max_metric_shape_drift: 1.521423 max_trace_normalized_drift: 1.139704 innovation_branches: charged_minimal: [5,3,60] neutral_extended: [5,4,80] record_weight_law: sqrt_count_over_sqrt_total branch_plane_angle_deg: 2.0226022 branch_plane_angle_exact: acos((5 + 42*sqrt(3)) /

*(2*sqrt(1513))) completion_attachment: g_diag_3_3_1_1 completion_attachment_status: pass_exact old_HFB_scalar_bridge_residual: 0.641689

EX11: closed_record_orbits: 3 stationary_simplex_dimension: 2 symmetry_barycentre: [1/3,1/3,1/3] barycentre_absorbing: true asymptotic_neutral_score: 0 central_species_weights: [3,3,6,2,9,9,18]/50 invariant_twirl: I_50/50 branch_metric_difference: 0.246211 branch_metric_difference_trace_normalized: 0.097484 finite_episode_rank: 210 long_history_rate_rank: 24 lift_relative_difference: 1.503919 completion_congruence_family: O(4) completion_congruence_family_dimension: 6 endpoint_measure_unique_physical_response: false neutral_branch_selected: false verdict: no_go_pass_missing_renewal_localised

EX12: reopening_kernel: R(kappa) = kappa*I3 + ((1 - kappa)/2)*(J3 - I3) kappa_range: [0, 1] kernel_eigenvalues: [1, (3*kappa - 1)/2, (3*kappa - 1)/2] append_isometry_rank: 84 append_isometry_residual: 0 completion_probability_p: 1 - exp(-1) renewal_probability_range: (0, 1] stationary_masses: mu_A = mu_S = r/(2r + p), mu_C = p/(2r + p) event_rate: Gamma = p*r/(2r + p) canonical_witness: {r: 1, kappa: 1} canonical_mu_A: 0.379921807398160 canonical_mu_C: 0.240156385203680 canonical_Gamma: 0.240156385203680 canonical_witness_selected: false generator: cone_positive_Metzler_pass neutral_fisher_rank: 6 full_marks: 651 full_fisher_rank: 588 parent_required_rank: 96 full_rank_obstruction: closed lift_residuals: [1.54996e-15, 3.05426e-15] lift_relative_difference: 1.736586 typed_lift_unique: false r_selected: false kappa_selected: false key_memory_mutual_information_max_nats: 1.09861228866811 key_memory_mutual_information_min_nats: 2.2e-16 neutral_fisher_memory_sensitivity: 8.17e-11 level3_neutral_fisher_trace_range: [0.0071320, 0.1766989] branch_metric_difference: 0.246210754 branch_metric_difference_trace_normalized: 0.097483761 neutral_branch: admissible_not_forced regulator_levels: [3, 4] max_fisher_drift: 2.7341e-7 max_transition_drift: 5.9734e-8 verdict: constructive_renewal_pass_physical_selection_no_go

EX13: premises: [zero_entropy_prefact_return, record_separation, S3_neutrality, fact_indexed_time] invariant_ray: (1,1,1)/sqrt(3) ray_entropy: 0 S3_ray_residual: 0 reset_dilation_isometry_residual: 3.85e-16 classical_reset_shadow: uniform_J3_over_3 kappa_key: 1/3 kappa_selection: derived_zero_entropy_S3_neutral_return old_new_key_mutual_information: 0 r_status: removed_as_fact_time_gauge r_canonical_representative: 1 absolute_hazard_kappa_void: open stationary_mu_A: 0.379921807398160 stationary_mu_C: 0.240156385203680 Gamma_D_R_renewal: 0.240156385203680 stationary_residuals: [5.37e-17, 7.21e-17] first_passage_born_residuals: [1.10e-15, 1.84e-15] first_passage_born: pass mean_neutral_absorption_time: 2/(1 - exp(-1)) = 3.163953413739 product_marks: 837 carrier_null_directions: 63 full_fisher_rank: 774 parent_required_rank: 96 neutral_block_rank: 6 neutral_isotropy_ratio: 1.000046 regulator_drifts: {neutral: 2.72e-7, full: 7.19e-8, stationary: 6.41e-16} neutral_branch: conditionally_forced_on_prefact_occupancy neutral_prefact_occupancy: open lift_residuals: [8.119e-16, 9.972e-16] lift_relative_difference: 1.727051 typed_Xi_unique: false unique_physical_D_C_B_Z: open verdict: dimensionless_renewal_selected_typed_hessian_open

EX14: premises: [zero_entropy_pure_canvas, full_gauge_invariance, S3_neutrality, representation_anonymity_until_freeze] carrier_dimension: 50 faithful_gauge_generators: 12 stacked_generator_rank: 47 common_kernel_dimension: 3 kernel_in_rank3_neutral_central_projector: true invariance_residuals: 0 charged_minimal_carrier_dimension: 47 charged_minimal_common_kernel: 0 neutral_carrier_selected: true post_freeze_identification: N_R roster_selected: [5,4,80] roster_selection_grade: conditional_on_void_axioms_within_frozen_alternatives projective_tangent: TCP49 real_tangent_dimension: 98 nonneutral_rank: 94 species_neutral_orthogonality_residual: 2.5e-15 neutral_key_rank: 2 neutral_phase_rank: 2 completion_unitarity_residual: 1.1e-15 void_metric_rank: 98 regulator_drift: 1.09e-5 spectral_identity: lambda_min + lambda_max = 8 spectral_pairs: [[7.999990553807, 9.446193e-6], [7.999990678825, 9.321175e-6]] parent_rank: 96 embedding_problem: 98_to_96 embedding_residuals: [6.9e-12, 2.9e-13] embedding_relative_differences: [1.187, 1.025] void_to_history_intertwiner: open missing_directions: 2 unique_Xi: open unique_physical_D_C_B_Z: open absolute_hazard_kappa_void: open verdict: major_conditional_pass

EX15: evaluation_frame: [frozen_faithful_carrier, neutral_singlet_void_ray, current_PFDMI_action] gauge_generator_annihilation: G_a|Omega> = 0, [G_a, rho_Omega] = 0 gauge_link_jacobian_shape: 98x144 gauge_link_jacobian_rank: 0 representation_current_orbit_rank: 0 central_population_first_derivative_rank: 0 first_order_obstruction: dPhi_Omega = 0 exact mark_kraus_derivative_rank: 155 mark_kraus_support: 45_dimensional_charged_support_preserving nonneutral_birth_order: quadratic nonneutral_hessian_rank: 94 neutral_first_order_rank: 4 grading: {amplitude_birth: O(eps), probability_casimir: O(eps^2), bosonic_completion: O(eps^2_mixed), CAR_Fock_completion: O(eps^3_mixed)} birth_family: B_alpha = |v_alpha><Omega| birth_alphabet: 49_complex_98_real birth_split: 47 + 2 birth_jacobian_rank: 98 birth_orthogonality_residual: 1.0e-17 birth_status: existence_pass_provenance_open neutral_plane_location: two_S3_standard_doublet_copies invariant_plane_family: continuous_one_parameter plane_commutator_residual: 0 parent_pullback_max_residual: 2.9e-10 plane_selected_by_symmetry: false plane_selected_by_parent: false unique_physical_D_C_B_Z: open verdict: exact_obstruction_pass_graded_birth_retyping

EX16: admission_rule: no_hidden_distinction birth_operator_form: B_r_alpha = P_r B P_void joint_symmetry: gauge_faithful x S3 fixed_subspace_dimension: 0 deterministic_birth: forbidden birth_support: full_49_complex_98_real_forced birth_split: 47 + 2 invariant_components: 12 projector_completeness_residual: 1.9e-16 equivariance_residual: 4.2e-16 birth_covariance_form: K_birth = sum_j k_j P_j free_stiffness_ratios: 11 blind_candidate_laws: [microstate_blind, role_blind, isotypic_blind, equal_distinguishability_flux] max_candidate_covariance_difference: 0.881917 candidates_role_probabilities: inequivalent maxent_covariance: I_98/98 maxent_entropy: ln(98) = 4.584967478671 maxent_status: conditional_not_derived lambda_min_levels: [9.446193e-6, 9.321175e-6] second_smallest_levels: [7.33e-5, 7.23e-5] soft_mode_neutral_support_residual: 3.9e-16 soft_mode_curvature_share: 4.0e-7 rank96_truncation_trace_retained: 0.99999959 neutral_two_plane: genuine_not_null physical_response_rank_min: 98 rank96_parent: incomplete_by_2

persistent_record_nulls: 6 minimum_retained_carrier: 104 inherited_H_CMR: to_be_enlarged_or_superseded fact_momentum_capacity: common_kernel_and_hazard_only birth_stiffness_law: open unique_typed_D_C_B_Z: open verdict: support_forced_stiffness_not_forced

EX17: comparison_frame: [Fubini_Study_projective, EX14_void_Hessian_W_D] G_FS: 2*I_98 nonneutral_agreement_directions: 94 nonneutral_agreement_residual: 2.2e-17 cross_term_residual: 1.9e-15 stiffness_ratio_collapse: 11_to_neutral_four_plane neutral_spectrum_L3: [9.446193e-6, 7.326474e-5, 7.999926735, 7.999990554] neutral_pairwise_law: {a, b, 8-b, 8-a} neutral_pair_sums: [8, 8] neutral_trace: 16 Tr_W_D: 204 Tr_G_FS: 196 best_global_scalar: 51/49 best_scalar_residual: 0.3968 surviving_family: G_theta = (1-theta)*2*I_98 + theta*W_D theta_range: [0, 1] family_status: minimal_lower_bound_nonuniqueness_witness family_rank: 98_for_all_theta role_weight_N_R_FS: 4/98 = 2/49 role_weight_Q_L_FS: 36/98 = 18/49 role_weight_N_R_WD_trace: 16/204 = 4/51 role_weight_Q_L_WD_trace: 72/204 = 6/17 role_weight_N_R_WD_inverse: 0.999607 FS_implies_maxent_inverse: I_98/98 retained_carrier: H_104(theta) = G_theta (+) 0_6 carrier_dimension: 104 carrier_rank: 98 carrier_nullity: 6 rank96_parent: retired_as_primitive_target fact_momentum_theta_capacity: none_scalar theta_selected: false action_to_hazard_rule: open absolute_action_unit: open unique_typed_D_C_B_Z: open verdict: metric_collapse_exact_carrier_complete_action_metric_not_selected

EX18: package: [proportional_hazards, quadratic_amplitude_weight, exhaustive_orthogonal_branch_algebra, frozen_faithful_alternatives] winner_law: P(A next) = w_A / sum_B w_B hazard_shape_independence_residual: 5.274e-16 reparameterisation_races: 250000 reparameterisation_order_changes: 0 common_rescaling_invariance: exact phase_covariance_condition: J^T G J = G phase_covariance_in_G_theta: theta = 0 only pre_fact_geometry: G_pre = 2*I_98 additivity_completeness_residual: 3.7e-16 additivity_metric_agreement: 3.7e-17 next_fact_law: p_A(z) = |P_A z|^2 / |z|^2 born_law_grade: conditional_typing_theorem W_D_status: retyped_post_fact_response_metric readout_fisher_as_selection_metric: rejected_by_type theta_status: removed_by_typing_not_tuned response_carrier: H_CMR_104 = W_D (+) 0_6 response_carrier_dimension: 104 response_carrier_rank: 98 response_carrier_nullity: 6 active_block_drift: 1.086e-5 pairwise_8_trace_16_status: survives_as_post_fact_property isotropic_role_weights: {H: 2/49, L_L: 6/49, N_R: 2/49, Q_L: 18/49, d_R: 9/49, u_R: 9/49, e_R: 3/49} isotropic_role_weights_status: epistemic_prior_not_preparation prepared_amplitude_z: open preparation_measure: open seconds_per_fact: open verdict: timeless_race_pass_born_geometry_selected_preparation_and_duration_open

EX19: typing_sources: [RAL, Entanglement_Through_the_Void, Quantum_Measurement_as_Commitment, Ordered_Records_Realised_Event_States] amplitude_typing: ontic_unresolved_not_hidden_variable raw_birth_norm: 6.150 twirled_birth_norm: 1.36e-16 block_scalar_residual: 1.1e-13 deterministic_first_amplitude: no_go D7_relations_residual: 0 Z7_holonomy_rank_on_nonuniform: 6 void_ray_holonomy_fixing: exact birth_witness_covariance_residual: 2.3e-16 global_frame_bits: (N-1)*log2(q) binary_three_site_bits: 2 Z7_three_site_bits: 5.614709844 first_commitment_bits: 1

first_readout: UR_comp_local_comparison unresolved_measure: Haar_Fubini_Study_on_CP48 measure_mean: 0 measure_covariance: I_49/49 haar_audit_draws: 60000 haar_audit_mean_norm: 0.00413 haar_audit_expected_scale: 0.00408 haar_audit_covariance_residual: 2.8e-2 ensemble_born_means: dimension_fractions exchangeability_implies_iid: false counterexample_covariances: [0.0316, -1/4] ER_condition: exchangeable_projectively_consistent_extendible ER_projective_residual: 1.7e-17 de_finetti_conditional_covariance: 0 beta_mixture_normalisation_residual: 4.4e-16 D44_prime_factorisation: conditionally_discharged_under_ER opportunity_vs_branch: alpha_vs_born_separated_by_type opportunity_parameter: dimensionless_ordinal realised_directing_state: open record_conditioned_measure: open realised_event_amplitude: open seconds_per_Bit: open verdict: major_conditional_pass_event_preparation_and_duration_open

EX20: frame: [frozen_CP48_tangent, Haar_base_law, ER_conditional_factorisation, declared_local_comparison_topology] conditional_law: mu(d eta | rho) = Z(rho)^-1 * exp(-Phi_rho(eta)) * mu_FS(d eta) law_class: Gibbs_Haar haar_recovery_at_constant_Phi: exact leading_response_form: Phi_rho = sum_j t_j(rho) * |P_j eta|^2 invariant_components: 12 common_shift_gauge: absorbed_by_normalisation effective_tilts: 11 component_covariance_rank: 11 = 12 - 1 witness_laws: 5 witness_covariance_separation: 0.101173 post_record_haar_uniqueness: fail likelihood_identification: Phi_rho = -ln L(rho | eta) microscopic_functional: open unfilled_C3_betti: 1 H1_Z2: Z2 H1_Z7: Z7 filled_triangle_H1: 0 occupancy_law: P(odd | alpha) = (1 - (1 - 2*alpha)^3)/2 occupancy_law_status: exact local_selection_of_class: no_go counterexample_occupancies: [0, 1] counterexample_marginals: 1/2 ER_occupancy: nu_average_of_exact_law complement_symmetric_occupancy: 1/2_exact_conditional uniform_Z7_diagnostic: 6/7_diagnostic_only eventual_occupancy_p_positive: 1_conditional construction_order_D45pp: open physical_nu: open realised_alpha: open realised_amplitude: open seconds_per_Bit: open verdict: major_typing_pass_event_level_closure_open

EX21: assumptions: [independent_composition, regularity, iso_entropic_neutrality, thermodynamic_additivity] action_form: S_A = -ln(w_A) + Delta_I_A action_form_status: unique_additive_selected unfolding: p_A = w_A * exp(-Delta_I_A) / sum_B w_B * exp(-Delta_I_B) iso_entropic_recovery: exact_Born magnitude_to_amplitude: no_go phase_witness: orthogonal_equal_magnitude_rays FS_separation: pi/2 relative_phase_fibre: 48_torus cost_manufacturing_identity: Delta_I_A = ln(w_A/q_A) + c cost_fitting: forbidden shared_face_family: quarter*(1 + JsLsR) shared_face_free_parameters: 1 marginals_fix_bit_count: false provenance_metric: G_common (+) lambda_prov* G_diff common_rank: 16 provenance_rank: 4 duplication_invariance: [shannon, relative_entropy, fisher] preserved_exactly_for_correlated_copies independent_duplication: doubles_all_three one_record_quotient: lambda_prov = 0, 16_tokens record_distinct: lambda_prov > 0, 20_tokens stability_graphs: both_valid_distinct_xi xi_near_match_status: audit_observation_not_selection committed_then_glued: record_distinct_conditional pre_commitment_fork: open_1_or_2 physical_costs_affinity: open lambda_prov_value: open J_value: open phases: open realised_amplitude: open stripped_in_transfer:

[graph_degrees, relation_counts, spectral_radii, xi_values, reproduction_residuals, xi_gap_percentage] verdict: action_form_selected_preparation_and_construction_open

EX22: model: strong_closure_frame_transport interface_relation_group: D7 group_order: 14 opposite_side_readout: g_inverse pair_map_images: 14 independent_combinations_excluded: 196 conditional_entropy_H_ginv_given_g: 0 mutual_information: I(g, g_inv) = H(g) inverse_pair_injectivity: exact orientation_parity: exact double_inversion: exact shared_faces: 4 incidence_rank: 4_not_8 primitive_logical_channels: 16 fact_multiplicity: one_closed_conditionally gsjb_correction: GSJB-15 twenty_token_sequence: 0 -> K4 -> T20 -> L16 -> 0 logical_rank: 16 provenance_kernel_rank: 4 logical_configurations: 65536 joint_entropy_bits: 16 naive_marginal_sum_bits: 20 redundant_bits: 4 per_face_code: [2, 1, 2] syndrome_order: O(eps) undetected_order: O(eps_squared) lambda_prov_type: copy_maintenance_stiffness logical_weights_lambda_dependence: none tick_race_lambda_dependence: none record_localisation: open_one_interface_vs_dual_copies committed_then_glued: dual_records_retained_conditional_A2star route_M_scale: sealed_as_target lock_discharge: {multiplicity: returned, lambda_prov: not_returned, costs: not_returned, affinity: not_returned} verdict: fact_multiplicity_closed_conditionally_localisation_and_stiffness_open

EX23: model: shared_interface_incidence_plus_GSJB16_premises selector: minimum_distinction_structure_economy gsjb_execution: GSJB-16 bilateral_access_one_token: pass individual_read_ranks: [4, 4] joint_read_rank: 4_not_8 second_side_information: deterministic_relabelling_zero_new dual_write_factorisation: T20 = Pi_copy o W16 factorisation_residual: 0 many_to_one_encoding: 16_states_two_8_basins encoding_status: availability_not_lifetime primitive_record_token_count: 1 primitive_carrier: 16_token lambda_prov_primitive: 0_exact provenance_onset: after_actual_copying selection_ordering: blind_before_scale_evaluation route_M_seal: honoured twenty_token_carrier: retained_commit_before_glue_and_post_copy old_xi_agreement: reassociated_to_copied_regime primitive_length_status: conditional_on_GSJB16_and_route_M_ruler_not_fundamental_constant D45pp: conditionally_closed D44p_line: unchanged_open record_lifetime: open post_copy_lambda_prov: open stripped_in_transfer: [graph_spectral_data, route_M_exponents, xi16, xi20, percentage_comparisons, fifteen_digit_cross_scale_identity] verdict: strong_conditional_pass

EX24: event_space: disjoint_atomic_operation_alphabet dispositions: [retention, renewal, copying, proliferation, erasure] instrument_split: unresolved_T_plus_resolved_R_a_trace_preserving first_entry_effect: E_a = sum_n (T_dual)^n (R_a_dual(identity)) effect_completeness: sum_a E_a + E_infinity = identity resolution_criterion: r(T) < 1 copy_criterion_conditioned: r(T_nc) < 1 no_copy_sector: allowed_iff_r(T_nc) = 1 proliferation: not_ontological copy_decision: not_derivable_from_present_corpus capability_vs_performance: isometries_prove_capability_only causal_split_rule: candidate_only_falsifiable copy_timing_form: S(n) = tr(T_nc^n rho), mean = sum S(n) copy_timing_seconds: open_pending_D-PM11 maintenance_hessian: code_syndrome_decomposition

clean_maintenance: H_cs = 0 stiffness_object: H_ss_signed_spectrum scalar_lambda_condition: isotropy_only RCMO_status: not_established_as_H_ss_no_inversion persistence_exact: Phi_dual(Pi) = Pi_all_subsequent_channels persistence_metastable_bound: (1 - eps)^n static_basins: availability_not_stability barrier_prerequisites: [quasipotential, noise_law, basin_metric, basin_boundary, escape_functional, clock_scale, regulator_covariance, branch_covariance] cost_identifiability: non_identifiable_from_reduced_channel per_bit_insertion: excluded cost_types: [path_entropy_production, thermodynamic_entropy, heat_work, action_cost] primitive_cost_quantity: ln(P_forward/P_reverse) proliferation_ceiling: N_fragments <= I_max/iota_conditional primitive_fact_law: unaltered_16_channels stripped_in_transfer: [RCMO_blocking_order, RCMO_level6_spectrum, benchmark_hazard_identity] verdict: structural_contract_closed_constitutive_law_open

EX25: frame: inherited_F2F_PFDMI_append_only_architecture atomic_signature: (keep, renew, copies, overwrite) resolved_atom: (1, 1, 0, 0) unresolved_map: seven_self_history_marks unresolved_radius: strictly_below_one never_resolved_defect: 0 renewal_probability: 1_every_history_start waits: dimensionless_opportunity_counts_hub_boundary_stationary history_growth: ordered_extension foundational_duplication: none_in_executed_base_instrument foundational_erasure: none_in_executed_base_instrument foundational_overwrite: none_in_executed_base_instrument XI4_typing: fixed_representation_dilation XI4_isometry_residual: 0 XI4_copy_flag_mutual_information: 0 XI4_propensity_jacobian_rank: 0 ontology: fact_retained_once_later_records_are_manifestations primitive_question: retention_invariance_not_copy_vs_no_copy required_condition: committed_label_invariant_under_full_instrument_erasure_overwrite_excluded architecture_selection: open_master_action_not_yet_shown_to_select selector_gram: rank_5_positive_one_normalization_null selector_gram_isotropy: fails_scalar_reduction selector_gram_convergence: approx_second_order_not_identification gram_equals_retention_hessian: excluded_at_present_grade stiffness_split: [kappa_self, lambda_syn_minus_kappa_self, gamma_syn] common_bath_decoupling: syndrome_spectral_density_0_exact restoration_requires: lambda_syn > 0 and gamma_syn > 0 backreaction: ledger_persistence_does_not_imply_carrier_backreaction_open stripped_in_transfer: [unresolved_radius_value, hub_boundary_stationary_waits, XI4_source_mark_count_and_dims, gram_level6_eigenvalues, condition_number, best_scalar, isotropy_residual, convergence_orders] verdict: architecture_conditional_retention_and_renewal_pass_primitive_selection_open

EX26: frame: declared_PFDMI_renewal_isometry isometry: V_dag_V = identity_exact ledger_sector: orthogonal retention_identity: V_dag(L_e ox I)V = D_e retention_probability: 1 overwrite_probability: 0 leakage: 0 reopening_identity: V_dag(I ox Pi_active)V = identity projector_loss: 0 spectator_theorem: factorised_dynamics_conserve_every_history_projector propositions: {persistence: pass, accessibility: pass_ledger_construction_level, backreaction: not_derived} memory_as_force: excluded history_coupling_requirement:

additional_ledger_dependent_generator_channel_kernel_constraint_or_map named_candidates: fact_momentum_history_memory carrier_scope: declared_PFDMI_working_carrier_only HX1_transfer: forbidden_without_derived_intertwiner HX1_carrier_dimension: 12 primitive_retention_proof: open verdict: exact_retention_full_reopening_spectator_ledger_coupling_and_primitive_proof_open

EX27: fine_carrier: 24_dim_directed_nonself_history_wheel_W7 wheel: 7_vertices_12_edges_6_spokes_6_rim HX1_typing: reversal_odd_subspace_dim_12 CGI_response_rank: 12 intersection: rank_6_cut_space_Im_incidence incidence_rank: 6 principal_angles: six_zero_six_half_pi HX1_decomposition: cut_6 (+) cycle_6 uniform_rim_mode: divergence_free_wholly_cycle CGI_overlap_with_rim_mode: machine_zero incidence_label_reconstruction: no_go_oddness_plus_triangles_force_gradient incidence_label_count: 14 renewal_free_phase: gauge_only_cancels_link_ratios_and_state renewal_tangent_into_HX1: 0_exact discrete_label_to_phase: type_error HX1_physicality: master_action_tangent_record_completion_morphism couplings: [polar_bond_compatibility_defect, record_composition_defect] lock_excess: Delta_k = k_full - k_relaxed_unit_branch_exact physical_normalization: open_operational_metric_not_returned entropic_confinement_status: mechanistic_support_only back_pressure_status: admitted_candidate_coupling_no_HX1_derivation BCB_status: meta_constraint maxcal_status: inference_principle survival_fraction: s = norm_Q_post_w_squared_in_0_1 residual_excess: (1 - s) * Delta_k conditional_chain: if_commitment_locks_cycle_tangent_then_lock_survives_minimal_renewal history_backreaction: not_yet_established non_minimal_phase_channel: open stripped_in_transfer: [hessian_entries_eigenvalues, k_relaxed, k_full, Delta_k_value, least_squares_residual_value, weighted_excess_formula] verdict: exact_carrier_separation_and_minimal_no_regeneration_no_go_s_and_normalization_open

EX28: frame: imported_PSAC_K7QRC_on_frozen_50_dim_carrier physical_effects: 84_source_invariant_PFDMI_terminal_effects boolean_rank_no_go: retained_12_84_319_grains commutant: scalar_C1_imported_K7QRC commutant_premises: [simple_spectrum_50_distinct, complete_offdiagonal_connectivity] bicommutant_closure: unital_star_algebra = M50(C) rank_one_availability: all_of_them_in_physical_algebra explicit_construction: fifty_lagrange_spectral_projectors frame_invariance: polynomials_in_summed_effects_no_fine_atom_dependence boolean_vs_algebraic: boolean_floor_not_algebraic_floor finer_carrier: not_forced_by_rank_resolution selector: not_selected_diagnostic_coefficients_generic rank_one_family: CP49_98_real_dimensions sharpened_problem: source_derived_history_map_h_to_H candidate_architecture: ordered_effect_word_M = W_dag_W candidate_properties: [physical_effects_only, order_retained, frame_invariant, positive, noncommutative_order_dependence, projectors_in_algebra] pullback_gate: mandatory_EX5CD_criterion_not_executed selector_gates: {history_map: open, capacity: closed, pullback: open} stripped_in_transfer: [rank_floors_12_84_319, rank_one_fine_effect_count, min_eigenvalue_gap, connectivity_threshold,

frame_audit_change_magnitudes] verdict:
capacity_gate_closed_exactly_history_map_and_pullback_open

EX29: frame: frozen_PFDMI_EX2E_package_SHA_attested arrays: [84_terminal_effects, 12x13_current_Kraus_family] reproduction:
pass_edgewise_completeness_rank_audit_agrees word_grain: pair_words_W_ij = E_i_E_j noncommutation: 3486_of_3486 M_order_dependence: 3486_of_3486 reversal_identity: W_ji = W_ij_dagger_exactly_isospectral order_location: eigenvectors_only eigenvalue_only_laws: order_blind_by_construction largest_selector: rank_one: all_pairs_isolated_gap order_sensitive: 3354_of_3486 order_blind: 132 = 2xC(12,2)_same_terminal_type_pairs pullback_census: {rank_1: 300, rank_13: 41532, other: 0} coincidence: rank_one_pullbacks_exactly_the_order_blind_pairs smallest_positive_selector: order_sensitive: 3486_of_3486 pullback_census: {rank_13: 41832, rank_1: 0} pullback_mechanism:
ray_through_13_channels_rank_13_generic_rank_1_iff_aligned core_no_go:
order_sensitivity_and_rank_one_hard_cut_never_coincide scope:
[extremal_readings_only, pair_words_only, frozen_execution_only] open_routes:
[non_extremal_rules, longer_weighted_words, other_history_functionals, non_boolean_algebra] carrier_identification_map:
unreturned_History_Measure_to_PFDMI stripped_in_transfer: [package_sha256, frobenius_difference_range, spectrum_discrepancy_value, weakest_eigengap, invariance_level, concentration_idempotency_values, order_blind_projector_difference_bound, smallest_selector_separation_and_gap] verdict:
extremal_ordered_word_selectors_excluded_non_boolean_route_open

EX30: frame: same_frozen_PFDMI_EX2E_package_SHA_attested grain: commutator_C_ij = i_commutator_E_i_E_j hermitian: yes reversal_identity: C_ji = -C_ij_exact nonzero_commutators: 3486_of_3486 extrema_simple: {largest: 3486_of_3486, smallest: 3486_of_3486} traceless: extrema_straddle_zero reversal_ray_map: P_plus(j,i) = P_minus(i,j)_orthogonal order_blind_pairs: 0 history_sign_transmission: exact_pass pullback_census: positive_extremal: {tests: 41832, rank_13: 41832, rank_1: 0} negative_extremal: {tests: 41832, rank_13: 41832, rank_1: 0} total_tests: 83664 rank_mechanism:
thirteen_channel_images_independently_spanning_gram_bounded_from_zero comparison_to_EX29: history_weakness_removed_hard_cut_worse both_canonical_spectral_rules: eliminated problem_retyped:
membership_of_rank_one_Kraus_pullback_manifold carrier_identification:
unreturned_confirmed_non_load_bearing_for_rejections stripped_in_transfer:
[package_sha256, commutator_frobenius_range, isolation_gaps_positive_negative, max_squared_reversal_overlap, projector_distance_value, singular_and_gram_minima_both_extrema] verdict:
commutator_extremal_selector_excluded_non_boolean_route_open

EX31_R2: frame:
same_frozen_PFDMI_EX2E_package_SHA_attested_predecessor_and_background_audited hard_stop_rules: [order_operator_not_backreaction_without_cone_change, trap_and_working_supports_differently_typed_no_descent, full_pullback_equality_required_rank_alone_insufficient] channel_structure_per_edge:

one_trivial_positive_root_plus_twelve_nontrivial_current_channels fixed_background_locus: stack_rank: 12_all_edges kernel_dim: 38 ray_manifold: CP37_real_dim_74 pullback: exact_identity_Phi_dag_P_equals_P completeness: kernel_is_complete_rank_one_set frame_invariance: pass_at_fixed_witness reduction_audit: common_reducing_subspace: no effect_leakage: every_84_effect_moves_amplitude_out source_common_reduction_no_go: preserved fixed_background_restricted_rule: nonzero_simple_extrema: 41832_of_41832 reversal: exact_swap_orthogonal_rays pullback_census: {tests: 83664, rank_one: 83664, failures: 0} background_audit: endpoint_configuration_status: deterministic_genericity_witness_not_primitive admitted_witnesses: 5 witness_invariant: rank_72_score_preserved_all gram_matrices: differ_strongly dimension_across_witnesses: 38_robust_all_edges direction_across_witnesses: background_dependent_substantially_different_38_planes all_witness_common_kernel: trivial_every_edge new_no_go: no_ray_rank_one_for_every_admitted_background separately_open: [trap_attachment_differently_typed, fold_to_MASD_trap_functional_relation, primitive_extremal_rule_selection, continuation_faithfulness_equality_unexecuted] dependency_order: background_selection_or_quotient_before_attachment law_typing: candidate_continuation_resolved_P_h_e_required grade: fixed_background_construction_stands_not_yet_physical stripped_in_transfer: [pullback_residual_max, effect_leakage_minimum, isolation_gaps, reversal_overlap_max, kernel_projector_distances_max, min_principal_overlaps, primary_alternate_intersection_dims] verdict: background_relative_canonical_construction_background_warrant_attachment_open

EX32: frame: frozen_five_witness_set_with_published_gauge_structure flatness: {witness_residuals: exact_all_five, pairwise_differences_flat: all_ten} ex2f_import: {nullity: exceeds_84_dim_gauge_orbit_value_stripped, frame_selection: no_gradient_spectral_or_variational_principle} gauge_projection: differences_dominantly_outside_gauge_orbit_fractions_stripped independent_non_gauge_differences: 4_linearly_independent invariant_test: commutation: seven_representation_projectors_with_twelve_gauge_generators_exact invariant: current_sector_populations result: populations_differ_substantially_across_witnesses conclusion: witnesses_not_gauge_equivalent near_miss: {witness: p53_quadratic_shifted, type: vertex_phase_dressing, gram_magnitudes: match_primary, current_populations: differ_materially} ex31_planes: {projective_dimension: 37_every_witness, directions: move_substantially, five_fold_intersection: trivial_every_edge} universal_ray_search: formally_closed scope: declared_gauge_only_undiscovered_redundancy_open imported_open_debt: source_D_PF32_frame_structure_or_moduli typing_firewall: history_measure_trap_unattached stripped_in_transfer: [nullity_value, residual_null_count, non_gauge_fraction_range, singular_values, commutation_residual, population_difference_range, gram_frobenius_range, gram_agreement_precision, rephased_population_difference, plane_distance_range] verdict: declared_gauge_quotient_excluded_frame_selection_structure_or_new_redundancy_owed

EX33: frame: frozen_D36_rim_law_plus_imported_distinguishability_framework reframe: from_deletion_to_below_resolution_closure d36_law: {hub_self: equal_stripped, orientations: strictly_positive_biased, single_step_disfavoured_share: 12.81_percent} orientation_ratio: r = 0.14692_reconstructed_from_surviving_share psac_link: r_squared_reproduces_two_step_forward_reversed_ratio suppression_table_percent: {1: 12.81, 2: 2.112, 3: 0.3160, 4: 0.04655, 5: 0.006840, 6: 0.001005, 8: 2.2e-5_restored, 10: 4.7e-7_restored} closure_depths: {1e-1: 2, 1e-2: 3, 1e-3: 4, 1e-4: 5, 1e-6: 8, 1e-9: 11, resolutions: reconstructed_pattern} closure_semantics: below_resolution_operationally_closed_never_exactly_zero markov_no_go: theorem: D36_first_order_markov_imported_PSAC consequence: next_step_law_identical_for_all_histories_at_same_present per_step_backward_share: 12.81_percent_every_time structure: cumulative_suppression_is_product_of_history_blind_factors next_step_closure_requirement: tilt_r_eff_approx_epsilon_current_ratio_15x_to_1e5x_too_large target_retyped: source_native_history_conditioned_tilt_p_direction_given_history relation: probabilistic_face_of_history_coupling_generator_D_PM35 hard_cut_programme: not_retracted_complementary stripped_in_transfer: [hub_self_probability_values, frozen_branch_values, tv_distance_driven_vs_reversed, resolution_column_values, table_rows_8_and_10, single_step_threshold_numerics] verdict: soft_closure_licensed_and_computable_history_driven_tilt_absent

EX34: frame: imported_HCMR_steering_plus_PSAC_baseline baseline: PSAC_EX5AA_ledger_to_future_derivative_exactly_zero_both_regulators_both_branches mechanism: HCMR_P1_record_conditioned_likelihood_update exponent: exactly_one_by_probability_chain_consistency_no_adjustable_coefficient execution: HCMR_XI_2_actual_mark_instrument_RSU_chain_residuals_stripped carrier: frozen_49_dim_preparation_carrier_twelve_components_dims_stripped form: q_k_given_h = (d_k + n_k)/(49 + n)_reconstructed_from_exact_TV_table steering: type_k_fact_raises_q_k_uniform_renormalization_nothing_zero tv_table_percent: {1: 2.00, 2: 3.92, 5: 9.26, 10: 16.95, 20: 28.99, 50: 50.51, 100: 67.11} tv_law: n_over_49_plus_n_exact never_realised_component: d_k_over_49_plus_n_positive_all_finite_n operational_closure_depth: n_geq_d_k_over_epsilon_minus_49 closure_structure: resolution_relative_history_deepening_no_sharp_transition firewall: conditional_preparation_law_not_causal_transition_law d36_direction_typing: not_established missing_mechanism: promote_update_into_actual_next_transition_probabilities stripped_in_transfer: [xi2_residuals, component_dimension_list, smallest_component_value, distinguishability_thresholds_and_required_histories] verdict: steering_found_coefficient_free_executed_conditional_causal_promotion_and_typing_open

EX35: frame: frozen_PFDMI_EX2E_physical_terminal_grain grain: {current_generator_outcomes: 13_summed_out, terminal_projectors: seven_applied_per_completed_step} census: {matched_triple: same_start_same_penultimate_same_final_transition, pairs: 879,

nonzero_next_terminal_difference: 879_of_879, median_separation: nonzero_stripped} clean_pair: {penultimate_node: 4, final_transition: identical, next_terminal_tv: nonzero_stripped, internal_trace_distance: nonzero_stripped} carrier: internal_PFDMI_state additions: {memory_coefficient: none, hard_zeros: none} coarse_consistency: D36_next_node_law_exactly_identical_within_pairs_PSAC_blindness_reproduced renewal_boundary: architecture: working_carrier_reopened_fact_filed_in_persistent_ledger psac_post_renewal_test: reopened_channel_independent_of_ledger ledger_to_R4_gain: zero_precision_stripped consequence: bias_dies_across_renewal candidate_route: {form: kraus_normalized_record_likelihood_post_renewal_law, normalization: automatic_by_completeness, coefficient: none, structure: HCMR_P1, insertion: forbidden_PFHBA_conditional_F101_F102} residual: {localized_to: renewal_boundary, doors: [internal_state_carry_through, derived_ledger_feedback], typing: D36_direction_open} source_verdict_block: absent_in_transfer_summary_table_mine stripped_in_transfer: [pair_tv_value, internal_trace_distance, median_separation, post_renewal_precisions, ledger_to_R4_gain_value] verdict: causal_steering_established_within_epochs_dead_across_renewal_transmission_owed

EX36: frame: HCMR_conditioned_state_return_plus_frozen_D36_PFDMI_folds copy_isometry: {scope: classical_mark_only, system_state: unchanged, residual: stripped} tested_map: minimal_state_preserving_renewal_state_carried_record_filed witness: EX35_clean_pair_same_start_penultimate_4_identical_final_transition preservation: {internal_trace_distance: unchanged_value_stripped, next_terminal_separation: 0.13344_unchanged_immediately_after_renewal} reset_comparison: both_differences_annihilated cause_of_epoch_mortality: reset_assumption_not_renewal_or_retention no_overwrite: intact_imported_PSAC_coexistence fading_table: {0: 0.13344, 10: 0.09010, 20: 0.05967, 50: 0.01943, 100: 0.00584} fading_character: coefficient_free_natural_relaxation_decelerating operational_age: computable_per_epsilon_diagnostic_only_no_universal_epsilon corpus_status: {chosen_renewal: reset, automatic_backreaction: graded_negative_under_reset, later_active_dynamics: open} problem_retyped: derive_renewal_map_selection_carry_forward_vs_reset source_verdict_body: largely_stripped_summary_table_mine stripped_in_transfer: [copy_isometry_residual, ex35_pair_trace_distance, reset_comparison_values, epsilon_example_value, indistinguishability_fold_count] verdict: wipe_is_assumption_not_necessity_renewal_map_selection_owed

EX37: frame: covariant_counterfamily_plus_frozen_84_effect_rigidity counterfamily: form: Phi_lambda_rho_equals_lambda_rho_plus_one_minus_lambda_trace_rho_I50_over_50_tensor_ledger_identity properties: [CPTP, unital, U50_covariant, target_free, same_carrier, exact_no_overwrite] lambda_status: free_not_source_returned linear_scaling: witness: EX35_robust_pair trace_distance_full: 0.42047171701340447 next_terminal_tv_full: 0.13343664226134488 law: both_scale_exactly_linearly_in_lambda_reset_term_cancels dial_settings_executed: [0, 0.1, 0.25, 0.3333333, 0.5, 0.75, 1] fills_stripped:

EX35_pair_trace_distance prior_constraints: ex12_kappa_family:
symmetry_cannot_select_memory_retention psac_ex5ae:
exported_reset_permitted_under_injective_complete_dynamics hcmr_signature_1100:
logical_disposition_only effect_audit: count: 84 hermiticity_residual_max: 9.70e-17
edge_completeness_residual_max: 1.93e-14 real_span_rank: 73_of_2500
linear_informational_completeness: no dependency_arithmetic:
84_minus_12_plus_1_equals_73 algebra:
irreducible_scalar_common_commutant_K7QRC1_EX5CE independent_witness:
{A_min_gap: 1.517309468672e-3, B_connectivity_threshold: 1e-3,
commutator_frobenius: 5.471345179964} rigidity: class:
same_carrier_isometric_preserving_all_84_effects result:
U_equals_phase_times_identity_rho_fixed uniqueness: pass_through_unique_in_class
entropy_papers: born_rule_entropic_unfolding:
reversible_between_observations_conditional_support discrete_entropy:
reset_is_export_event_not_impossibility status: do_not_yet_derive_lambda_equals_one
verdict_table: source_complete_this_round stripped_in_transfer:
[none_material_boxed_latex_recovered] verdict:
dial_free_by_structure_identity_unique_in_rigid_class_reversibility_derivation_owed

EX38: frame: source_free_reversibility_audit_plus_PAR_route corpus_correction: holds:
new_stable_fact_implies_entropy_cost fails: entropy_or_irreversibility_implies_new_fact
blocking_source: theory_of_fact_production_export_without_stable_fact
source_free_audit: kappa_field_continuity: renewal_source_term_zero transport:
committed_structure_without_new_record_creation hcmr_typing: sigma_1_1_0_0 grade:
no_new_foundational_fact_EXACT_PASS k7_cbr: form:
explicit_isometric_renewal_fact_filed_carrier_reopens grade:
EXACT_CONSTRUCTION_PASS status:
physical_map_not_primitively_derived_own_statement shortcut_failure: eraser:
covariant_family_CPTP_target_free_source_free_all_lambda signal_scaling:
0.13343664226134488_lambda examples: {half: 0.06671832113, zero: 0.0} grades:
{source_free_forces_reversibility: FAIL, no_new_fact_implies_zero_entropy: FAIL}
par_route: theorem: pre_factual_reversibility_below_commitment_threshold content:
no_irreversible_commitment_no_entropy_operation_no_distinguishability_loss
consequence: sub_threshold_dynamics_reversible_conditionally_unitary_with_metric
grade: PASS_inherited_conditional qualification:
reversibility_admits_nontrivial_rotations_identity_needs_effect_preservation hinges: one:
renewal_in_PAR_sector_OPEN two: primitive_effect_preservation_selection_OPEN
conjunction: forces_EX37_state_preserving_renewal_CONDITIONAL_EXACT_PASS
stripped_in_transfer: [continuity_equation_form, k7_cbr_isometry_formula,
threshold_condition, family_formula_recovered_from_EX37] verdict:
costlessness_confirmed_insufficient_two_hinges_owed

EX39: frame: unique_commitment_field_action_plus_mode_flow_execution action:
L_equals_half_ds_sq_minus_half_m2_s2_plus_s_rho_committed_inherited
source_free_equation: homogeneous_klein_gordon_no_reset_or_depolarising_term
fact_momentum: source_free_stress_energy_conserved mode_flow: matrix:
R_omega_cos_sin_over_omega_minus_omega_sin_cos determinant: exactly_one inverse:

R_minus_t_exact energy_metric: G_omega_diag_omega2_1_exactly_preserved execution: mass: m_xi_sqrt_4_over_3_inherited grid: {k_xi: [0, 1, 2, 4], t_over_xi: [0.25, 0.5, 1, 3, 7]} inverse_residual_max: 2.221e-16 energy_residual_max: 3.565e-15 det_deviation_max: 2.220e-16 min_euclidean_singular_value: 0.270781580193 singular_value_status: weighting_only_G_omega_is_conserved_norm reset_no_go: many_to_one_reset_cannot_equal_invertible_flow_any_finite_time history_consequence: distinct_cauchy_data_never_merge_local_attenuation_permitted_memory_kernel_consistent conditionalities: attaching_map_A: PFDMI_to_kappa_phase_space_faithful_distinguishability_preserving_OPEN effect_preservation: still_required_rotations_hide_from_84_effect_readout outcome_blindness: scalar_source_outcome_blind_no_fold_mark_promotion verdict_table: source_complete stripped_in_transfer: [none_material_equations_survived_as_plain_text] verdict: field_level_reset_excluded_exactly_attaching_map_and_effect_preservation_owed

EX40: frame: attaching_map_adjudication_TRUNCATED_TRANSFER transfer_status: document_ends_mid_sentence_mid_word_whitney_execution_and_verdict_absent imports_psac_r19: scalar_marked_projection: {rank: 6, nullity: 6, carrier: 12D_count_plus_polarity} whitney_embedding: two_direction_construction_level_exact_left_inverse ma1_projection_of_complete_record: {rank: 1, singular_values: [0.578064557803, 0]} kernel_persistence: statement: ker_RtA_equals_ker_A_rank_preserved_all_finite_t mass_dependence: none consequence: propagation_never_repairs_unencoded_direction ma1_adjudication: map: diag_0578064557803_0_on_orientation_polarity embedding: orientation_in_one_qp_pair_polarity_column_zero_two_independent_KG_modes grid: {t_over_xi: [0, 0.25, 0.5, 1, 3, 7]} rank: 1_throughout polarity_output_norm_max: 0.000e+00 second_singular_value_max: 0.000e+00 grade: complete_mark_attachment_EXACT_FAIL_exact_kernel_membership whitney_branch: rank_survival: rank_2_all_t_entailed_by_kernel_persistence_MY_COROLLARY executed_grades: ABSENT_truncated verdict_block: ABSENT_truncated request: complete_EX40_document_re_upload_for_in_place_revision stripped_in_transfer: [whitney_survival_execution, readout_and_typing_treatment, verdict_block, closing_sentence_of_section_2] verdict: kernel_persistence_exact_current_bridge_excluded_exactly_whitney_pending_full_transfer

EX41: frame: fact_separating_single_source_transverse_activation_audit_TRUNCATED_TRANSFER transfer_status: document_ends_mid_word_at_close_of_section_5_verdict_absent_second_consecutive imports_psac: ex5be: {unsigned_scalar_single_source: impossible, requirement: fact_separating_marked_commitment_configuration_scalar_count_marginal} ex5bf_bh: {minimal_record: r_varsigma_four_states, bijection: with_b_omega_given_orientation_attachment} ex5bi: four_state_completion_instrument_construction_level_activation_open ex5bk_bl: {g_cover_range: [-1, 1], delta_K: 0.995570059549810, current_action_g_cover: 0, unmarked_doob_kernel: cannot_determine} ex5bc_bd:

zero_background_polarity_fails_record_current_equation_anisotropic_response_required single_source: label: m_equals_r_varsigma_pm1_squared marginal: scalar_count_increments_by_one_forgets_marks grade: second_source_objection_CLOSED_EXACTLY embedding: form: iota_ab_equals_a_r_eR_plus_b_varsigma_eO jacobian: diag_a_b faithful_iff: a_nonzero_and_b_nonzero ma1_normal_form: {a: 0, b: 0.578064557803, rank: 1, consistency: EX40_confirmed} gain_scan: range_a: [1e-8, 1e2] b_fixed: 0.578064557803 injectivity: every_nonzero_a det_span: [5.780645578030e-09, 5.780645578030e+01] audit_rows: - {a: 0, b: 0.578064557803, rank: 1, min_separation: 0, injective: NO} - {a: 0.25, b: 0.578064557803, rank: 2, min_separation: 0.5, injective: YES} - {a: 0.578064557803, b: 0.578064557803, rank: 2, min_separation: 1.15612911561, injective: YES} - {a: 1, b: 1, rank: 2, min_separation: 2, injective: YES} conclusion: fact_separation_requires_a_nonzero_but_does_not_select_magnitude symmetry_audit: readout: E_Z_R4_equals_delta_K_times_g_cover delta_K: 0.995570059549810 g_cover: free_current_action_zero relative_scale_rule: underived_premise_F78_F86_style_promotion tensor_route: closed_direction_fails_record_current_equation_amplitude_changes_only_residual stripped_in_transfer: [closing_sentence_of_section_5, verdict_block] request: complete_EX40_and_EX41_documents_re_upload verdict: structure_settled_activation_unreturned_source_returned_transverse_gain_owed

EX42: frame: anisotropic_inhomogeneous_background_rescue_audit_TRUNCATED_TRANSFER transfer_status: document_cut_at_opening_line_of_section_B_third_consecutive_clipped_export imports: psac_ex5bb_bd: carrier: H_ab_equals_DaDb_m_minus_half_gamma_ab_laplacian_m properties: [two_dimensional, symmetric, trace_free] zero_background_divergence: generically_nonzero isotropic_background: insufficient kappa_theorem: unique_linear_KG_action_nonlinear_self_interactions_excluded fundamental_test: perturbation: s_equals_s0_plus_epsilon_h_about_arbitrary_background fluctuation_operator: box_plus_m2_for_every_background background_derivative: dL_ds0_equals_zero_exact grade: EXACT_NEGATIVE_background_cannot_legalise_polarity_mode feedback_status: anisotropic_gradients_stress: derived_observables_only same_source_record_tensor_vertex: not_supplied_by_present_stack stress_tensor_promotion: new_bridge_not_KG_consequence obstruction_character: vector_residual_flat_identity_div_H_equals_half_grad_laplacian_m_my_verification section_B_minimal_rescue: {construction: ABSENT, grades: ABSENT, verdict: ABSENT} stripped_in_transfer: [section_B_construction, verdict_block] request: complete_EX40_EX41_EX42_documents_re_upload_export_pipeline_clips_tails verdict: background_rescue_closed_exactly_record_tensor_vertex_or_completed_rescue_owed

EX43_R2: frame: microscopic_mark_sufficiency_and_fold_polarity_extraction_audit_TRUNCATED_TRANSFER supersession: {supersedes: PMS-EX43_never_received, reason: broader_negative_retracted_full_predecessor_chain_not_consumed} transfer_status: cut_mid_word_at_HM4_RCMO_PRLU_header_fourth_consecutive_clipped_export

corrected_question: does_current_source_return_independent_fold_polarity_R4_mark imports: hcmr_p1_xi2: conditioned_update: z_equals_Me_eta_over_sqrt_pe_unique_up_to_phase marked_operators: {count: 319, carrier: C7_tensor_C50, completeness_residual: 2.471e-14} record_copy_isometry_residual: 0 copy_invariance: orthogonal_label_copy_leaves_update_untouched grade: microscopic_marked_outcome_plus_conditioned_state_PASS pfdmi: detailed_mark: L_equals_Pr_C_ealpha_Ue_renamed_t_term firewall: t_term_not_equal_PSAC_R4_sign coarse_graining: {records: 84, structure: 12_edges_times_7_terminal_types} renewal_isometry: exact_construction_primitive_selection_open pfhba_7: exact_lift_family_dimension: 34152 doob_kernel: blind_to_marked_decomposition_and_kraus_partial_isometries consequence: capacity_cannot_type_pfdmi_labels_as_fold_polarity requirement: labels_returned_by_source_amplitude_decomposition_projectors stripped_in_transfer: [hm4_rcmo_prlu_audit_blocks, extraction_execution, verdict_block] request: complete_EX40_EX41_EX42_EX43R2_documents_re_upload_export_pipeline_clips_tails verdict: existence_pass_capacity_typing_excluded_extraction_answer_owed

EX44: frame: history_to_curvature_to_probability_pullback_test_TRUNCATED_TRANSFER transfer_status: cut_mid_equation_in_section_2_fifth_consecutive_clipped_export imports: gate_S: score_equals_log_derivative_of_deformed_kernel_omega_C_on_canonical_branch exponential_family: K_sigma_alpha_equals_K0_exp_sigma_alpha_omega_over_Z_no_inserted_tilt curvature_response: gamma_eff: half_kC_c2_minus_sigma_alpha_star_c stationarity: c_star_equals_sigma_alpha_star_over_kC k_C: {fraction: 360/713, decimal: 0.504908835904628} alpha_star: 0.959001109719975 c_star: 1.89935497564000 normalisation: lambda_C_equals_1_EX1B firewall: no_automatic_retained_ledger_to_future_active_map_stationary_not_causal tilt_elimination: identity: sigma_alpha_star_equals_kC_c_star residual: 8.116e-14 kernel: K_c_equals_K0_exp_kC_c_omega_over_Z_curvature_parametrised new_coefficients: none probability_lean: log_derivative: kC_times_omega_minus_mean_omega derivative_line: closed_by_chain_rule_flagged_F269 conservation: sum_y_dK_dc_equals_zero gain: k_C_already_returned scope: isolated_scalar_closure_sector_canonical_reduction stripped_in_transfer: [history_to_curvature_pullback_leg, later_sections, verdict_block] request: complete_all_five_truncated_documents_re_upload_export_pipeline_clips_tails verdict: response_half_closed_zero_new_coefficients_pullback_leg_and_verdict_owed

EX55_R2: frame: history_geometry_to_native_probability_geometry_SUPERSEDES_EX55_equation_stripped supersession: {supersedes: PMS-EX55_first_version, r1_items_A_B: retained_consistent, curvature_route: replaced_by_native} offline_gap: EX45_through_EX54_executed_offline_not_received_enter_via_audit_only transfer_status: tail_and_verdict_COMPLETE_mathematical_displays_STRIPPED native_geometry: source: pfdmi_born_probabilities_define_own_fisher_geometry construction_display: STRIPPED physical_rank: 72_equals_84_records_minus_12_per_edge_normalisations new_theorem: structure: attaching_map_history_to_tangent_plus_fisher_pullback_implies_necessary_lean displays:

STRIPPED coupling_needed: NO frozen_ex2e_execution: terminal_response: MACHINE_PASS_72_of_72 marked_response: MACHINE_PASS_72_of_72 stripped_values: [jacobian, wilson_reduction, smallest_singular_value, reconstruction_residual, raw_mark_rank] conclusion: no_probability_invisible_directions_in_declared_physical_tangent new_papers: record_spacetime: fisher_geometry_from_record_probabilities_volume_matching_fixes_conformal_scale conservation_to_geometry: fisher_rao_to_fubini_study_born_map_geometry_preserving_under_BCB typing_firewall: bcb_lorentz_record_4current_not_pfdmi_representation_valued_edge_carrier owed: attaching_map: source_derived_cross_layer_intertwiner_history_to_physical_tangent six_logit_shortcut: below_evidential_grade_kraus_derivative_not_promotable lean_magnitude: not_yet_selected_ex10_witness_shapes_differ_figures_stripped verdict_table: source_complete_12_rows closing_dichotomy: attached_quantity_positive_mechanism_works_zero_history_spectator request: five_truncated_completions_plus_R2_stripped_displays_plus_EX45_EX54 verdict: native_geometry_blind_spot_free_one_attaching_map_short

EX56: frame: completion_character_native_probability_descent_and_scalarisation_boundary format: executive_verdict_first_SURVIVED_seventh_clipped_tail transfer_status: tail_cut_at_PFDMI_EX2A_audit_header_detailed_sections_absent results: ex2a_six_logits: source_conditioned_probability_jacobian_full_rank_six_upgrades_ex55r2_open_row gsjb2_descent: six_to_four_route_incidence_rank_four_response gsjb3_basis: Z2xZ2_characters_diagonalise_exactly fisher_geometry: form: F_character_equals_4pq_diag_3_3_1_1 p: 1_minus_exp_minus_1 q: exp_minus_1 hessian_relation: {shape: same_3_3_1_1, scalar_factor: 315/4, precision: machine, referent: ambiguous_in_stripped_displays} conclusion: four_physical_completion_characters_not_probability_null boundary: hmgbc_quadratic_amendment_vs_ex2a_linear_scalar_route_logits missing_map: D_Lambda_Omega_history_conditioned_completion_geometry_to_four_characters reduction: from_144_dim_tangent_to_four_characters dichotomy: nonzero_D_Lambda_Omega_implies_lean_automatic_proved_this_round surviving_audit: [ex55r2_fisher_null_iff_probability_null_plus_72_injectivity, hmgbc_amendment_schur_surviving] stripped_in_transfer: [pfdmi_ex2a_audit_block, remaining_audit, execution_sections] request: completions_stripped_displays_ex56_tail_and_EX45_EX54 verdict: four_live_characters_one_translation_owed

EX57: frame: gaussian_radon_nikodym_completion_scalarisation_and_orientation_blindness_audit format: executive_answer_first_SURVIVED_eighth_clipped_tail transfer_status: tail_cut_mid_word_in_predecessor_audit_remainder_and_execution_absent question: derive_D_Lambda_Omega_from_HMGBC_gaussian_law_without_hand_choices executive_answer: partly_but_not_fully canonical_rule: weight: Z_G_proportional_det_P_to_minus_half identification: raw_weight_enters_EX2A_completion_mark_STATED_CONDITIONAL logit:

c_G_equals_minus_quarter_log_det_P_plus_const derivative: Dc_G_equals_minus_quarter_trace_Pinv_deltaP free_coefficients: none_quarter_fixed_by_gaussian_and_amplitude_square_roots sign_consequence_flagged_mine: stiffening_lowers_scalar_setting insufficiency: status: branch_level_scalar_of_positive_completion_stiffness marked_coordinates: not_returned orientation_pair_k_plus_minus_1: exactly_blind_conjugation_invariant conclusion: scalar_stiffness_alone_cannot_be_complete_outcome_specific_bridge surviving_audit: hmgbc_actual_radon_nikodym_log_density_gaussian_bath_elimination_schur_clause_cut stripped_in_transfer: [audit_remainder_from_schur_clause, execution_sections] request: completions_stripped_displays_ex56_ex57_tails_and_EX45_EX54 verdict: scalar_clause_derived_dial_free_directional_clause_owed

record_condition_number_exact: 13/7 premise_ledger: [P1, P2, P3, P4, P5, P6, P7, P8, P9, P10, P11, P12, P13, P14, P15, P16, P17, P18, P19, P20, P21, P22, P23, P24, P25, P26, P27, P28, P29, P30, P31, P32, P33, P34, P35, P36, P37, P38, P39, P40, P41, P42, P43, P44] falsifier_range: F45-F288 debt_ledger: [D-PM1, D-PM2, D-PM3, D-PM4, D-PM5, D-PM6, D-PM7, D-PM8, D-PM9, D-PM10, D-PM11, D-PM12, D-PM13, D-PM14, D-PM15, D-PM16, D-PM17, D-PM18, D-PM19, D-PM20, D-PM21, D-PM22, D-PM23, D-PM24, D-PM25, D-PM26, D-PM27, D-PM28, D-PM29, D-PM30, D-PM31, D-PM32, D-PM33, D-PM34, D-PM35, D-PM36, D-PM37, D-PM38, D-PM39, D-PM40, D-PM41, D-PM42, D-PM43, D-PM44, D-PM45, D-PM46]

phenomenology: status: open_for_reporting_locked_as_source_selector mu_over_e: {versf: e^(16/3) = 207.13, empirical: 206.77, discrepancy_pct: 0.17, grade: strong_conditional_postdiction} tau_over_mu: {versf: e^(16/3)/12 = 17.26, empirical: 16.82, discrepancy_pct: 2.6, grade: conditional_postdiction_structural_1_12} u_over_d: {versf: 6/13, empirical: 0.47, grade: conditional_prediction} s_over_d: {versf: 20, empirical: 20, grade: import_not_independent_evidence} c_over_s: {versf: 11.76, grade: match_awaiting_chi_law} b_over_s: {versf: e^(16/3)/4 = 51.8, empirical: 54, tension_pct: 4, grade: conditional_structural_prediction} t_over_b: {versf: 59.4, grade: match_by_product} chi_halving_audit: {rho: 0.50, uncertainty: 0.02, grade: empirical_gate_passed_conditional} target_free_hierarchy: {orders_of_magnitude: 5, light_over_heavy: 2.39e-5, middle_over_heavy: 4.85e-3, cross_sector_spread_pct: <1, max_CY3_prime: 0.493124, same_action_admission: fail} rrhf_charged_benchmark: {u_over_t: 7.42e-6, c_over_t: 3.81e-3, d_over_b: 9.65e-4, s_over_b: 1.93e-2, e_over_tau: 2.79e-4, mu_over_tau: 5.79e-2, internal_consistency: 1e-14} rrhf_ckm: {jarlskog_magnitude: 1.86032934918e-5, empirical_comparison: inadequate, status: definite_conditional_prediction} absolute_fermion_masses: open

next_execution: designation: PMS_completions_and_receipts_then_PMS-EX58 status: completions_stripped_displays_ex56_ex57_tails_and_ten_offline_rounds_owed_EX58_pending remaining_objects: - marked_and_orientation_sensitive_components_of_D_Lambda_Omega - source_returned_record_tensor_vertex_or_completed_minimal_rescue - fold_polarity_extraction_from_source_amplitude_decomposition_projectors - primitive_effect_preservation_selection - D36_direction_typing_of_steering - primitive_frame_selection_structure_or_new_declared_redundancy_D_PF32 - master_action_derivation_of_restricted_extremal_rule -

direction_attachment_with_fold_to_MASD_relation_derived - candidate_continuation_resolved_typing_bridge - commitment_boundary_survival_fraction_s - operational_metric_Delta_k_normalization - history_coupling_generator_ledger_to_dynamics_map - retention_invariance_primitive_proof - retention_syndrome_stiffness_and_damping_lambda_syn_gamma_syn - path_ratio_costs_and_drive_affinity - coherent_phase_assignment - realised_event_state - fact_clock_calibration - cross_corpus_coherence_reconciliation sealed_targets: [route_M_coherence_comparison] downstream_comparison_locked_until_freeze: true blind_RRHF_recovery: locked standard_model_comparison: open_for_reporting_locked_as_source_selector ```

PART C: VERIFICATION NOTES

162. Independently re-derived checks

The following statements were re-derived independently of the executing run and hold at the displayed precision.

1. **Final-record nullity.** $F(H) = F(H^{\leftarrow})$ together with reversal-oddness gives $\chi(F(H)) = -\chi(F(H))$, hence $\chi(F) = 0$ (Theorem 25).
2. **Maintenance response.** Differentiating stationarity of $F(q \mid m) = F_0 - m M_\chi + O(m^2)$ at $m = 0$ gives $H q'(0) = g_\chi$; with $D = 2 g_\chi$ and the exact half in $B_q = \tfrac{1}{2} D^{T} M^{-1} b_m$, the conditional reduction $B_q = g_\chi^{T} H^{-1} g_\chi > 0$ follows for $H > 0$ and $g_\chi \neq 0$ (Theorem 27).
3. **Scalar Schur.** $Z_A = d_A - b_A^2/r_A$ is the exact 2×2 Schur complement, and $Z_A = d_A - r_A$ holds precisely when $b_A^2 = r_A^2$ (Theorem 30).
4. **Bath-graph rank.** Two components on three addresses each, with two channels each, are trees; the incidence rank is $(3 - 1) + (3 - 1) = 4$, matching the stated rank-four incidence space (§28.1).
5. **Bath softening.** $C^{\dagger} A_Q^{+} C \succeq 0$ implies $W_{prim} \preceq W_{core}$, so the bath can only soften admitted core directions (§28.2).
6. **Weight normalisations.** $5 + 3 + 60 = 68$ and $5 + 4 + 80 = 89$, so a_C and a_N are exactly unit vectors; the central species weights (3, 3, 6, 2, 9, 9, 18) sum to 50 (§30.3, §31.3).
7. **Branch-plane angle.** $\langle a_C, a_N \rangle = (5 + 2\sqrt{3} + \sqrt{4800})/\sqrt{6052} = (5 + 42\sqrt{3})/(2\sqrt{1513}) = 0.999376980$, giving $\theta = 2.0226022°$ to the displayed precision; the simplifications $\sqrt{4800} = 40\sqrt{3}$ and $\sqrt{6052} = 2\sqrt{1513}$ are exact (§30.3).
8. **Record condition number.** $(91/2)/(49/2) = 91/49 = 13/7$ exactly (§29.3).
9. **Completion eigenvalues.** The displayed pair (219.754229, 73.251410) is consistent at full precision: $219.754229 = 3 \times 73.2514097$, which rounds to the displayed $g = 73.251410$ (§30.4).

10. **Trace comparison.** diag(3, 3, 1, 1) and {3 − √7, 1, 1, 3 + √7} both have trace 8, and their spectra are distinct, so no scalar renormalisation maps one to the other (§30.5).
11. **Congruence family.** S_O = A^(−1/2) O B^(1/2) satisfies S_O^{T} A S_O = B for every O ∈ O(4), and dim O(4) = 6 (§31.6).
12. **Stationary simplex.** The convex hull of three extremal stationary measures has affine dimension 2, and the key-permutation-invariant point is the barycentre (1/3, 1/3, 1/3) (§31.1).
13. **Corpus consistency of the flat count.** The 836 post-gauge endpoint-flat tangent directions agree with the independently recorded corpus census in which 836 = 920 − 84 (§29.1).
14. **Renewal kernel.** Every row of R(κ) sums to κ + 2·(1 − κ)/2 = 1, and entrywise nonnegativity holds exactly for 0 ≤ κ ≤ 1, confirming the stated generality class; via the spectrum {3, 0, 0} of J_3, the kernel eigenvalues are 1 on the uniform key state and (3κ − 1)/2 doubly on its complement, so κ = 1 preserves keys exactly and κ = 1/3 gives complete one-step loss (§35.1).
15. **Stationary law.** Solving p x = r y with 2x + y = 1 returns exactly μ_A = μ_S = r/(2r + p), μ_C = p/(2r + p) and Γ = p x = pr/(2r + p) (§35.2).
16. **Canonical witness.** $1/(3 - e^{-1}) = 0.379921807398160$ and $(1 - e^{-1})/(3 - e^{-1}) = 0.240156385203680$ to all displayed digits; the three masses sum to 1 exactly; the equality Γ = μ_C at r = 1 is the flux identity Γ = p μ_A evaluated at r = 1 (§35.3).
17. **Key-memory extremes.** ln 3 = 1.09861228866811 to the displayed precision, the exact mutual information of a preserved uniform three-key state (§35.9).
18. **Cone positivity.** For stochastic nonnegative P, the generator L = P − I has nonnegative off-diagonal entries and zero row sums, hence is Metzler and probability conserving (§35.4).
19. **Rank margin and carrier consistency.** 588 ≥ 96 with margin 492; the rank-84 append isometry matches the corpus 84-class executed-record ledger (§35.1, §35.5).
20. **Branch-difference consistency.** The EX12 values 0.246210754 and 0.097483761 refine the EX11 roundings 0.246211 and 0.097484 (§31.4, §35.10).
21. **Charged-lepton chain.** e^(16/3) = 207.127 and e^(16/3)/12 = 17.2606, matching the displayed 207.13 and 17.26; the discrepancies against the quoted empirical 206.77 and 16.82 are 0.17% and 2.6%; the hierarchy 1 : e^(16/3) : (1/12)e^(32/3) is internally consistent, its third-to-second ratio being exactly e^(16/3)/12 (§38).
22. **Quark grid.** 6/13 = 0.4615; 3 · (1/12) = 1/4 and e^(16/3)/4 = 51.78 (4.1% below 54); the grid-internal ratios are 235/20 = 11.75, 1040/20 = 52 and 61500/1040 = 59.1 against the stated 11.76, 51.8 and 59.4, the differences reflecting the rounding of the grid entries themselves (§39).
23. **Target-free candidate.** The light/heavy ratios of the three supplied σ triples are 2.377, 2.383 and 2.400 ($\times 10^{-5}$) and the middle/heavy ratios 4.841, 4.848 and 4.868 ($\times 10^{-3}$), confirming the quoted $\simeq 2.39 \times 10^{-5}$ and $\simeq 4.85 \times 10^{-3}$ with cross-sector spreads 0.95% and 0.56%, below the stated 1%; the maximum of the three CY3′ discrepancies is 0.493124 as displayed (§41).

24. **CKM normalisation.** Every row and column of the displayed |V_CKM^cond| is unit-normalised to within 9×10^{-7}, i.e. exactly at the displayed six-digit precision (§43).
25. **Reset-kernel identification.** $R(1/3) = J_3/3$ equals the uniform classical shadow to machine precision; the entrywise conditions $\kappa = 1/3$ and $(1 - \kappa)/2 = 1/3$ have the single common solution $\kappa = 1/3$, so the identification is unique; and the EX12 spectrum $(3\kappa - 1)/2$ vanishes exactly there, consistent with zero retained key mutual information (§48.1).
26. **Invariant ray.** The S_3-invariant subspace of the three-key carrier is one-dimensional, spanned by $(1, 1, 1)/\sqrt{3}$, and the rank-one pure state on it has entropy exactly zero (§48.1).
27. **Stationary law at r = 1.** The EX13 canonical stationary values reproduce the EX12 canonical-witness digits exactly (0.379921807398160, 0.240156385203680, masses summing to 1), and $\Gamma = \mu_C$ is the flux identity $\Gamma = p\,\mu_A$ at $r = 1$ (§48.3).
28. **Mean neutral absorption.** Two successive geometric stages of success probability p have mean 1/p each, so $E[T] = 2/(1 - e^{-1}) = 3.163953413739$ to all displayed digits (§48.5).
29. **Rank arithmetic.** $837 - 63 = 774$, with margin 678 over the required 96; the mark count grows 651 → 837 from EX12 to EX13 with the fact-selection structure incorporated (§48.6).
30. **Lift-certificate consistency.** The EX13 two-lift discrepancy 1.727051 lies 0.55% from the independent EX12 certificate 1.736586, confirming a structural rather than numerical non-identifiability of Ξ (§35.6, §48.8).
31. **Kernel arithmetic.** $50 - 47 = 3$ and $50 - 3 = 47$; the twelve faithful generators match the $8 + 3 + 1$ dimension of the $SU(3) \times SU(2) \times U(1)$ gauge algebra; and the 50-dimensional carrier is the same frozen faithful carrier whose central data (weights over 50, twirl I_50/50) appear in §31.3 (§51.1).
32. **Projective tangent.** $\mathbb{C}P^{49}$ has complex dimension 49 and real dimension 98; the closure $94 + 2 + 2 = 98$ and the residues $98 - 94 = 4$ and $98 - 96 = 2$ are exact (§51.3–51.8).
33. **Probability directions.** Three probabilities on the simplex carry exactly two independent real variations, so rank G_neutral,key = 2 is maximal, and its content is the $\kappa = 1/3$ uniform reset re-expressed as distinguishability geometry (§48.1, §51.4).
34. **Spectral identity.** Both displayed pairs sum to 8.000000000000 at the displayed twelve-digit precision: $7.999990553807 + 9.446193 \times 10^{-6}$ and $7.999990678825 + 9.321175 \times 10^{-6}$ (§51.6).
35. **Certificate family.** The embedding certificates 1.187 and 1.025 join the lift certificates 1.736586 and 1.727051 as the fourth and fifth independent instances of exact-fit non-identifiability in this thread; order-one separations at residuals below 10^{-11} cannot be numerical ambiguity (§35.6, §48.8, §51.7).
36. **Trace-8 guard.** The completion spectra of §30.4–§30.5 also carry trace 8 after common scaling; no derivation currently links that value to the $\lambda_{min} + \lambda_{max} = 8$ identity, which is the reason falsifier F93 exists (§51.6).

37. **Commutator identity.** For a self-adjoint generator with G_a|Ω⟩ = 0, the identity [G_a, ρ_Ω] = 0 for ρ_Ω = |Ω⟩⟨Ω| is immediate, so the two stated annihilation facts are one fact (§53.1).
38. **Birth-alphabet arithmetic.** dim_ℂ Ω^⊥ = 50 − 1 = 49 with the exact split 47 + 2 (six nonneutral central sectors totalling 50 − 3 = 47; internal neutral 3 − 1 = 2), and 49 complex directions are 98 real projective directions, matching the EX14 tangent (§53.5).
39. **Birth action.** B_α|Ω⟩ = |v_α⟩ is immediate from B_α = |v_α⟩⟨Ω|, and the family's image spans Ω^⊥ by construction, consistent with real Jacobian rank 98 (§53.5).
40. **Plane family.** For two equivalent real copies of the S_3 standard doublet the commutant is the full 2 × 2 real matrix algebra, so the invariant rank-2 planes mixing the copies form exactly a one-parameter real projective family; direct computation confirms [P_plane, S_3] = 0 at residual exactly zero for sampled members, so "continuous one-parameter family" is the maximal exact statement and symmetry provably cannot select (§53.6).
41. **Corpus consistency.** The 144 columns of the gauge-link Jacobian match the raw score rank 144 recorded in §2, and the seven central populations match the seven-entry central species vector of §31.3 (§53.1).
42. **Grading consistency.** 94 + 4 = 98 agrees with the EX14 split 94 + 2 + 2, the retyping assigning first-order visibility to exactly the four neutral directions whose ranks EX14 measured as 2 + 2 (§51.4, §53.3).
43. **Maximum-entropy value.** ln 98 = 4.584967478671 to the displayed twelve digits (§55.5).
44. **Eigenvalue provenance.** The EX16 smallest eigenvalues 9.446193×10^{-6} and 9.321175×10^{-6} are exactly the soft partners of the EX14 spectral pairs, so the genuineness verdict rests on numbers already frozen at EX14 (§51.6, §55.6).
45. **Soft-fraction consistency.** Retained trace 0.99999959 corresponds to a discarded share of 4.1×10^{-7}, consistent with the stated $\approx 4.0 \times 10^{-7}$ curvature share of the two soft modes (§55.7).
46. **Carrier arithmetic.** 98 + 6 = 104, and the superseded architecture obeys the same rule, 96 + 6 = 102, retroactively explaining the inherited 102-dimensional parent as 96 nonterminal response directions plus 6 record nulls (§55.9).
47. **Fixed-subspace consistency.** The two internal neutral complex directions transform as the S_3 standard-doublet pair (§53.6), which has no invariant vector, and the 47 nonneutral directions are not gauge-fixed (§51.1), so the joint fixed subspace of dimension 0 is consistent with the previously frozen structure; twelve components minus one normalisation gives eleven ratios (§55.1, §55.3).
48. **Magnitude-versus-nullity guard.** The two soft modes sit a factor of about 7.8 below the second-smallest eigenvalues (9.4×10^{-6} against 7.3×10^{-5}) yet are strictly positive at both regulators; under P12 the admission rule, not magnitude, decides physicality, which is the reason F103 exists (§55.6–55.8).
49. **Trace and scalar arithmetic.** The nonneutral W_D trace is 94 × 2 = 188 (forced by the exact agreement with 2 I_98 there), the neutral trace is 16, so Tr W_D = 204

against Tr G_FS = 196, and the optimal scalar is exactly 204/196 = 51/49 = 1.0408163265 (§57.4).

50. **Neutral spectrum structure.** With the displayed level-3 values, $\lambda_1 + \lambda_4 = 8$ and $\lambda_2 + \lambda_3 = 8$ at displayed rounding and the trace is 16.000000000; $\lambda_2 = 7.326474 \times 10^{-5}$ refines EX16's $\approx 7.33 \times 10^{-5}$ and λ_4 is the rounded EX14 partner 7.999990553807 (§51.6, §55.6, §57.2–57.3).
51. **Role-weight rationals.** 4/98 = 2/49, 36/98 = 18/49, 16/204 = 4/51 and 72/204 = 6/17 exactly; and the Q_L trace 72 = 2 × 36 is forced by the nonneutral agreement, an internal consistency between §57.1 and §57.7.
52. **Inverse-weight warning.** $\mathrm{Tr}(W\_D^{-1}) \approx 47$ (nonneutral) + 0.25 (two stiff neutral) + 1.195×10^5 (two soft neutral), so the neutral share of the inverse reading is 0.999607 to the displayed digits, reproducing §57.7.
53. **Fubini–Study/maximum-entropy identity.** $(2\ I\_98)^{-1} = I\_98/2$ normalises to unit trace as I_98/98, so the EX16 maximum-entropy covariance is exactly the Fubini–Study-endpoint inverse; the implication runs only in that direction, which is the reason F108 exists (§55.5, §57.8).
54. **Family positivity and carrier arithmetic.** G_θ is a convex combination of 2 I_98 and the positive-definite W_D, hence positive definite of rank 98 for every $\theta \in [0, 1]$, and $H\_104(\theta) = G\_\theta \oplus 0\_6$ has dimension 104, rank 98 and nullity 6 identically in θ (§57.5, §57.10).
55. **Endpoint-weight spread.** The neutral role weight moves from 2/49 ≈ 0.0408 (Fubini–Study) through 4/51 ≈ 0.0784 (W_D trace) to 0.999607 (W_D inverse), a factor of about 24 between the direct readings and a factor of about 12.7 further to the inverse reading, quantifying why the action-to-hazard rule is decisive (§57.6–57.7).
56. **Race integral.** For λ_A = w_A h(u), substituting H(u) = ∫ h gives P(A next) = w_A ∫₀^∞ e^(−(Σ w) H) dH = w_A/Σ_B w_B exactly, re-derived symbolically; the baseline shape, any monotone reparameterisation of the race coordinate, and any common rescaling $w \to \Lambda w$ all cancel in the closed form, so shape independence, order invariance and the order/calibration separation are corollaries of one identity (§59.1, §59.11).
57. **Affine typing of phase covariance.** $J^T(2\ I\_98)J = 2\ I\_98$ for any orthogonal complex structure, so $J^T\ G\_\theta\ J = G\_\theta$ reduces to $\theta\ (J^T\ W\_D\ J - W\_D) = 0$; given the reported failure for W_D, θ = 0 is the unique compatible member, making the numerical biconditional structurally generic (§59.2).
58. **Additivity and Hessian.** $\Sigma\_A\ \|P\_A\ z\|^2 = \|z\|^2$ is an identity for exhaustive orthogonal projectors, the real Hessian of $\|z\|^2$ in 98 coordinates is exactly 2 I_98, and consequently $\Sigma\_A\ p\_A(z) = 1$ (§59.4–59.5).
59. **Role-weight closure.** The real projector dimensions 4 + 12 + 4 + 36 + 18 + 18 + 6 = 98 and the weights (2 + 6 + 2 + 18 + 9 + 9 + 3)/49 = 1 exactly; N_R = 2/49 and Q_L = 18/49 reproduce the §57.6 Fubini–Study values (§59.9).
60. **EX13 compatibility explained.** The 10^{-15} first-passage/Born residuals of §48.4 are the numerical shadow of the exact §59.5 law: the earlier compatibility pass is now a consequence, not a coincidence (§48.4, §59.5).

61. **Drift consistency.** The active-block drift 1.086×10^{-5} refines the EX14 value 1.09×10^{-5} (§51.5, §59.7).
62. **Typing guard.** Duplicating a downstream readout changes Fisher information but cannot change pre-record fact probabilities; this single observation is the content of the type rejection of W_D as a selection metric, and the reason F111 exists (§59.3).
63. **Twirl no-go as a Schur shadow.** With the refinement action irreducible on the tangent and fixing the void ray, the twirled operator's birth block is an invariant tangent vector, which §55.1 proved is zero; the $6.150 \to 1.36 \times 10^{-16}$ collapse is therefore the operator-level shadow of the EX16 zero fixed subspace (§55.1, §61.2).
64. **Frame-bit arithmetic.** $2 \log_2 7 = 5.614709844$ to the displayed digits, and $(N - 1) \log_2 q$ at $N = 3$, $q = 2$ gives exactly 2 bits; both exceed the 1 Bit of a first commitment (§61.6).
65. **$\mathbb{Z}_7$ decomposition.** The seven-point permutation action splits as $1 \oplus 6$, fixing the uniform ray and acting with rank 6 on the complement, matching the reported holonomy structure; the D_7 relations are the standard dihedral presentation (§61.4).
66. **Monte Carlo scale.** $1/\sqrt{60000} = 0.004082$, so the audited mean norm 0.00413 sits at $1.01 \times$ the exact isotropic noise scale, and the covariance residual 2.8×10^{-2} is likewise finite-sample scale (§61.9).
67. **The −1/4 counterexample.** For the exactly-one-of-two pair, $X_1 + X_2 = 1$ with symmetric marginals gives $E[X_i] = 1/2$ and $E[X_1X_2] = 0$, hence $\mathrm{Cov} = -1/4$ exactly: the canonical finite-exchangeable counterexample to de Finetti, which is why ER must include extendibility (§61.12–61.13).
68. **Law-level Born means.** Under μ_FS, $E[\|P_A z\|^2/\|z\|^2] = \dim_A/98$, reproducing 2/49 and 18/49 and giving the §59.9 isotropic weights their law-level derivation while leaving the event-level caveat of F112 intact (§59.9, §61.11).
69. **Conditional independence.** Given α, $\mathrm{Cov}(X_i, X_j \mid \alpha) = 0$ identically for iid Bernoulli, matching the exact 0 (§61.13).
70. **Projective typing.** Rays in the 49-complex innovation space form $\mathbb{C}P^{48}$, consistent with the tangent dimensions of §51.3 and the EX18 amplitude typing (§61.1, §61.8).
71. **Betti arithmetic.** $b_1(C_3) = 3 - 3 + 1 = 1$, giving one loop class over any coefficient group, $\mathbb{Z}_2$ and $\mathbb{Z}_7$ alike; attaching one two-cell kills it, $H^1 = 0$ (§63.6).
72. **Occupancy law.** $3\alpha(1 - \alpha)^2 + \alpha^3 = 3\alpha - 6\alpha^2 + 4\alpha^3 = \tfrac{1}{2}[1 - (1 - 2\alpha)^3]$, verified symbolically; my independent cyclic-convolution and character-sum evaluations agree with the closed form at 1.11×10^{-16} over a 101-point α grid (§63.7).
73. **Tilt gauge.** With $\Sigma_j P_j = I$ (§55.3) and $\|\eta\|$ projectively fixed, $t_j \to t_j + c$ multiplies the density by $e^{(-c)}$, absorbed by $Z(\rho)$; hence exactly $12 - 1 = 11$ effective tilts, matching the reported covariance rank (§63.3).
74. **The 0-versus-1 pair.** The uniform laws on even-parity and odd-parity triples both have exchangeable marginals ½ (verified by enumeration) and occupancies 0 and 1 respectively, so local data provably cannot select the class (§63.8).
75. **Complement symmetry.** $\alpha \leftrightarrow 1 - \alpha$ sends $(1 - 2\alpha)^3$ to its negative, so any complement-symmetric ν gives P(odd) = ½ exactly (§63.10).
76. **$\mathbb{Z}_7$ diagnostic.** Seven equiprobable classes with one trivial give 6/7 and 1/7 exactly (§63.11).

77. **Eventual occupancy.** (1 − p)^n → 0 for every fixed p > 0 (§63.12).
78. **Likelihood/Gibbs identity.** Φ_ρ = −ln L(ρ | η) converts the §61.18 Bayes conditioning into the Gibbs–Haar form identically, so the HCMR-P1 likelihood law and the EX20 typing are one law at conditional level (§63.5).
79. **Additive-form uniqueness.** Multiplicative readiness and additive costs force $f(w_1 w_2) = f(w_1) + f(w_2)$ for the readiness contribution, whose regular solutions are k ln w, and a linear cost response; the action S_A = −ln w_A + ΔI_A is unique up to the two absorbed scales (§65.2).
80. **Iso-entropic recovery.** A constant ΔI cancels in the Gibbs–Born ratio, returning p_A = w_A/Σ w_B and, for normalized amplitudes, the exact EX18 Born law; verified numerically at 2.8×10^{-17} (§65.3, §59.5).
81. **Phase-blindness witness.** The all-ones ray and the 49th-roots-of-unity ray have identical component magnitudes $1/\sqrt{49}$ and inner product exactly zero, so their Fubini–Study separation is arccos 0 = π/2; the fibre count is 49 − 1 = 48 (§65.4–65.5).
82. **Manufacturing identity.** ΔI_A = ln(w_A/q_A) + c gives w_A e^(−ΔI_A) = q_A e^(−c), hence p = q after normalization for every strictly positive q, with c ≥ max_A ln(q_A/w_A) making all costs nonnegative; verified over four targets and three readiness laws at 1.11×10^{-16} (§65.7).
83. **Ising family.** ¼(1 + J s_L s_R) is exchange- and complement-invariant with marginals exactly ½ for every |J| ≤ 1, and the joint entropy moves from 2 bits at J = 0 to 1 bit at |J| = 1 at fixed marginals, so marginals fix neither J nor the effective bit count (§65.9–65.10).
84. **Duplication invariance.** H(X, X) = H(X), matched relative entropies are equal, and the duplicated score is redundant so Fisher information is unchanged, while independent duplication doubles all three; verified exactly on binary examples, which is the content of the provenance no-go and the reason F129 exists (§65.13).
85. **Rank arithmetic.** 16 + 4 = 20; λ_prov = 0 annihilates exactly the four side-difference directions, realising the one-record quotient, and any λ_prov > 0 resolves all twenty (§65.11–65.12).
86. **Near-agreement guard.** The coherence-length comparison of §65.17 is an audit observation; using it to select the branch would reverse the derivation direction, which is the reason F130 and F131 exist, and the EX22 lock seals it as a target (§65.17, §67).
87. **D_7 inversion structure.** $|D_7| = 14$ and $g \mapsto g^{-1}$ is a bijection, so the pair map has exactly 14 images rather than 196, with the identity and the seven reflections self-inverse and the six rotations in three inverse pairs; $H(g^{-1} \mid g) = 0$ identically and $I(g; g^{-1}) = H(g) = \log_2 14 \approx 3.8074$ bits under the uniform law; double inversion and orientation parity are exact, all verified by enumeration (§68.1).
88. **Incidence and channel arithmetic.** Four shared faces contribute rank 4 rather than 8, and 20 − 4 = 16 logical channels, consistent with the EX21 ranks 16 + 4 = 20 (§65.11, §68.2, §68.4).

89. **Entropy accounting.** 2^{16} = 65536 configurations give joint entropy 16 bits while the naïve 20-token marginal sum is 20 bits; the 4-bit difference is one redundant bit per shared face, with $H(copy_2 \mid copy_1) = 0$ and I = 1 bit per pair (§68.5).
90. **Code parameters.** The per-face [2, 1, 2] repetition code has distance 2, so it detects one corruption (syndrome at $O(\varepsilon)$) and corrects none, with undetected failure at $O(\varepsilon^2)$; this is exactly the stated robustness and its stated limit, two copies cannot say which is wrong (§68.6).
91. **Sequence and invisibility.** $0 \to K_4 \to T_{20} \to L_{16} \to 0$ is exact with 4 + 16 = 20, and λ_prov weights only the kernel, so logical weights and Tick-Race probabilities are λ_prov-independent by construction, the reason F134 exists (§68.4, §68.7).
92. **Fork retyping consistency.** Both §65.15 graphs survive verbatim; only their reading changes, one fact stored twice versus once, and the branches carry identical sixteen-fact logical content (§68.8–68.9).
93. **Lock-discharge accounting.** Of the four locked EX22 returns, the multiplicity is returned (conditionally on P19); λ_prov, the costs and the affinity are not, and roll forward to EX23 with the Route-M target still sealed (§67, §68.13, §68.14).
94. **Joint-rank redundancy.** A deterministic function of a readout generates no new information: the second side reads the same tokens through the $g \mapsto g^{-1}$ bijection, so the joint information rank equals the individual rank 4, the linear shadow being that stacking an identical row space leaves rank 4, not 8; verified on explicit matrices (§68.1, §70.1).
95. **Basin encoding.** Sixteen microstates in two disjoint eight-state basins encode one macrobit many-to-one; availability is immediate, and the lifetime caveat is a genuine gap, the reason F139 exists (§70.3).
96. **Factorisation consistency.** $T_{20} = \Pi\_copy \circ W_{16}$ is the EX22 sequence read constructively: composing a copy map onto the 16-write gives image rank 16 inside 20 with the four disagreement directions created only by the copying, so 20-token birth is never required (§68.4, §70.2).
97. **Structural vanishing.** With a single token there are no separately addressable copies, hence no disagreement directions for G_diff to weight; λ_prov^primitive = 0 is structural and exact, and a nonzero birth value would require the very copies whose absence was selected, the reason F142 exists (§70.5).
98. **Carrier identity.** The selected 16-token primitive carrier coincides exactly with the sixteen logical fact channels of §68.2, so the primitive graph is the logical graph with no redundant modes (§68.2, §70.7).
99. **Blind-ordering audit.** The localisation selection precedes both scale evaluations in the execution order, honouring the Route-M seal of §67 and §68.13; the reassociation of the old agreement to the copied regime is a consequence of the selection, not a target of it, the reason F141 exists (§70.7, §70.10).
100. **First-entry identity.** On a finite instrument with $r(\mathcal{T}) < 1$, the effects $E_a = \Sigma_n (\mathcal{T}\dagger)^n(\mathcal{R}_a\dagger(\mathbb{1}))$ satisfy $\Sigma_a E_a = \mathbb{1}$ at machine precision (1.6×10^{-15} on a rank-four toy) with disposition probabilities summing to one exactly (§72.2).

101. **Survival identities.** S(n) = tr[$\mathcal{T}$_nc^n(ρ)] with hazard h(n) = [S(n) − S(n+1)]/S(n) gives E[N] = Σ S(n), exact on the geometric toy (Σ (1−h)^n = 1/h); the index is an opportunity count, the reason F145 exists (§72.6).
102. **Invariant-sector demo.** A substochastic unresolved map with a unit eigenvalue leaves a permanent no-copy sector, realising r($\mathcal{T}$_nc) = 1; resolution and copying may not be assumed, the reason F144 exists (§72.3–72.4).
103. **Persistence bounds.** Φ†(Π) = Π conserves the record exactly under every subsequent channel; iterating a positive dual map with Φ†(Π) ≥ (1 − ε)Π gives tr[Π ρ_n] ≥ (1 − ε)^n tr[Π ρ_0], a rigorous minimum survival law before any noise model (§72.13–72.14).
104. **Basin no-go.** The identical 8 + 8 partition equipped with staying, swapping and mixing dynamics shows basin-escape rates 0, 1 and intermediate respectively: partition data carry no stability content, the reason F149 exists and the sharpening of F139 (§70.3, §72.15).
105. **Cost non-identifiability.** Two dilations of the same reduced copy channel differing by a closed ancillary bath cycle have identical record channels and arbitrarily different work and entropy budgets, so per-bit cost insertion is excluded and the path-ratio primitive is the only channel-level invariant candidate, the reason F148 exists (§72.17–72.18).
106. **Ceiling arithmetic.** N_fragments ≤ I_max/ι is a conditional information bound, with ι = 1 bit a special case only; unconstrained proliferation additionally requires the extra law named in F144 (§72.19).
107. **Renewal completeness.** For a substochastic unresolved map with spectral radius below one, the fundamental matrix gives first-renewal probability exactly one from every start (deviation 2×10^{-16} on a seven-state hub-and-boundary toy), with start-dependent mean waits in dimensionless opportunity counts, the structure of §74.2–74.3 (§74.2–74.3).
108. **Dilation structure.** The map m ↦ (m, m) over N source marks is an exact isometry of dimensions 2N × N with exactly 2N nonzero entries (residual 1.6×10^{-15} at N = 49); being source-independent, its copy flag carries zero mutual information and its propensity Jacobian has rank zero, so it cannot constitute a decision, the content of the XI-4 retyping (§74.7–74.8).
109. **Signature exclusivity.** The four-component atomic signature separates terminal retention, renew-only, copy-only and copy+renew as distinct atoms; the executed base instrument realises (1, 1, 0, 0) and contains no erasure or overwrite atom, so the observed transition is unambiguous at the declared grain (§74.1, §74.5).
110. **Stiffness split.** For two manifestations with self-stiffness κ_self and coupling κ_×, the Hessian eigenmodes are the common mode at κ_self and the syndrome mode at κ_self + 2κ_×, so the agreement excess is exactly the coupling contribution and individual stability carries no agreement content, the reason F154 exists (§74.13).
111. **Common-bath decoupling.** With identical coupling of both manifestations to every bath mode, the syndrome coordinate is exactly orthogonal to the coupling vector (overlap 0 at machine precision), so the syndrome spectral density vanishes and

disagreement is undamped despite positive curvature: λ_syn and γ_syn are independent returns (§74.14).

112. **Conditionality audit.** Every EX25 pass is stated within the inherited append-only architecture (P22); the retention-invariance condition that would promote it to a primitive derivation is named but not derived, the reason F150 exists, and the manifestation typing keeps the 16-channel primitive fact law untouched (§74.6, §74.9).
113. **Projector identities.** On an explicit block renewal isometry (three label sectors, active-plus-closed working codomain), $V^\dagger V = \mathbb{1}$ at 7×10^{-16}, $V^\dagger(L_e \otimes \mathbb{1})V = D_e$ at 5×10^{-16} per label, and $V^\dagger(\mathbb{1} \otimes \Pi_{active})V = \mathbb{1}$ at 7×10^{-16}: retention, no-overwrite and full reopening are identities, not approximations (§76.1–76.4).
114. **Retention probabilities.** A state committed to label e returns ledger probability exactly 1 on L_e and exactly 0 on L_f for $f \neq e$, by the orthogonality $D_e D_f = 0$ (§76.3–76.4).
115. **Spectator conservation.** For factorised dynamics $\mathrm{id}_{ledger} \otimes \Phi_{work}$ with Φ_{work} completely positive and trace-preserving, the dual conserves $\Pi_{hist} \otimes \mathbb{1}$ exactly (4×10^{-15} numerically), since $\Sigma K^\dagger K = \mathbb{1}$ tensors through, the reason F156 exists (§76.6).
116. **Backreaction contrast.** A ledger-controlled unitary (working rotation conditioned on the stored label) produces an order-one response of working observables to the ledger, exhibiting the shape a genuine history coupling must take and confirming that the factorised and controlled cases are dynamically distinct, the content of F157 (§76.7).
117. **Scope audit.** The reopening identity is proven on the declared PFDMI working carrier; no statement about the 12-dimensional HX1 record-phase carrier follows without an intertwiner, the reason F158 exists (§76.10).
118. **Wheel arithmetic.** The seven-vertex wheel has 6 + 6 = 12 undirected edges and 24 directed; its incidence matrix has rank 7 − 1 = 6 by connectedness, giving the exact 6 + 6 cut/cycle split, all verified by direct construction (§78.1–78.2).
119. **Principal angles.** The overlap of the twelve-dimensional reversal-odd space with a $\mathrm{cut}(6) \oplus \mathrm{even}(6)$ response carrier has singular values six ones and six zeros exactly: half-identical, half-orthogonal, the reason F161 exists (§78.3).
120. **Cycle-mode obstruction.** The uniform rim circulation satisfies $B^T w = 0$ identically (each vertex has equal in- and out-flow), and its projection onto the cut sector is machine zero (10^{-16}), so $P_{CGI}\, w = 0$, the reason F162 exists (§78.5).
121. **Reconstruction no-go.** The fourteen-label map $\varphi(i \to j) = a_i + b_j$, restricted by reversal-oddness, has image of rank exactly 6 (the cut space): oddness gives $a_v + b_v$ constant on edges, the wheel's triangles force that constant to zero, hence a pure gradient; numerically the least-squares residual on the cycle mode equals the mode's full norm, total unreachability (§78.7).
122. **Schur excess.** For a positive two-by-two link/phase Hessian, the relaxed stiffness is the Schur complement $k_{ll} - k_{l\theta}^2/k_{\theta\theta}$, the full-lock stiffness is k_{ll}, and the excess interpolates as $(1 - s)\,\Delta k$ under partial survival, the structure of §78.9 and §78.13 (§78.9, §78.13).

123. **Gauge cancellation.** A single global phase multiplying the renewed state cancels from every nearest-neighbor link ratio and from the conditioned density state, so its HX1 tangent projection is zero by construction, the reason F163 exists (§78.11).
124. **Audit typing.** The three entropy/capacity papers enter as candidate mechanism, meta-constraint and inference principle respectively; none supplies a map into the cycle tangent, so the obstruction stands and F167 guards the smuggle (§78.15).
125. **Bicommutant closure.** For a random effect family with numerically scalar commutant (commutant dimension 1 by vectorized solve), the span of words in the effects reaches dimension n^2 exactly, the full matrix algebra, confirming the Burnside route on explicit examples (§80.4).
126. **Lagrange projectors.** For a simple-spectrum Hermitian A, the factored Lagrange polynomial p_k(A) is numerically idempotent, Hermitian, of rank exactly one, and equal to the k-th eigenprojector (residuals 10^{-10}), with p_k(λ_j) = δ_kj exact by construction, so fifty mutually orthogonal rank-one projectors follow for any fifty-point simple spectrum (§80.6).
127. **Frame invariance by construction.** Any fixed polynomial in the summed effects E_i inherits their invariance under hidden generator-frame rotations identically, which is why the construction escapes the fine-atom objection, the reason F171 exists (§80.7).
128. **Ray-family dimension.** The rank-one rays on the 50-dimensional carrier form $\mathbb{C}P^{49}$ of real dimension 2 × 49 = 98, all inside the saturated algebra, so capacity is total and selection is a genuine further problem, the reason F173 exists (§80.9).
129. **Order dependence.** For noncommuting effects, W†W differs between orderings on explicit examples, so the ordered-word candidate genuinely carries history order, the structural property claimed for it (§80.11).
130. **Gate accounting.** Of the three selector gates, only capacity is closed by EX28; the history map and the pullback execution remain open, and quoting the closure as selection is exactly F173 (§80.12).
131. **Reversal identity.** For Hermitian effects, W_ji = (E_i E_j)† = W_ij† identically, so M_ji = W_ij W_ij† and the two orderings are exactly isospectral (W†W versus WW†), verified at 8×10^{-17} on explicit examples while the operators and their top projectors genuinely differ: order lives in eigenvectors, the reason F174 exists (§82.3).
132. **Census arithmetic.** C(84, 2) = 3486 pairs, times 12 next-edge instruments gives 41,832 pullback tests; 300 + 41,532 = 41,832 exactly; and 132 = 2 × C(12, 2) is exactly the count of same-terminal-type edge pairs across the two types, so the order-blind set has the stated structure (§82.2, §82.5, §82.7).
133. **Pullback dichotomy mechanism.** The pullback of a rank-one ray through thirteen Kraus channels is a sum of thirteen rank-at-most-one terms, hence rank at most 13, generically exactly 13, and rank one precisely when all thirteen channel images of the ray align; verified on explicit random and aligned families, which explains the exact {1, 13} census with nothing else (§82.7).
134. **Necessary-condition logic.** The rejection of both extremal candidates uses only necessary conditions (rank-one pullback; order dependence), so it is valid without

the History-Measure/PFDMI identification map, whose absence blocks only the final sufficiency comparison, the reason F178 exists (§82.6, §82.10).

135. **Trade-off audit.** The coincidence of the 300 rank-one pullback instances with the 132 order-blind pairs is an exact set identity in the frozen execution, not a statistical tendency: sharpness and order-memory never co-occur, in 41,832 of 41,832 instances (§82.7–82.8).
136. **Scope audit.** The exclusion covers the two coefficient-free extremal spectral rules at the pair-word grain on the frozen EX2E matrices; non-extremal sectors, longer or weighted words, other history functionals and the general non-Boolean route are untouched, the reason F177 exists (§82.9).
137. **Commutator structure.** For Hermitian effects, i[E_i, E_j] is Hermitian, traceless, and exactly antisymmetric under pair reversal, all verified identically on explicit examples; tracelessness forces λ_max > 0 > λ_min whenever the commutator is nonzero (§84.2–84.4).
138. **Orthogonal reversal rays.** Distinct eigenvalues of a Hermitian operator have orthogonal eigenvectors, so $P_+(j, i) = P_-(i, j)$ is exactly orthogonal to $P_+(i, j)$; verified numerically at 10^{-31} squared overlap, with projector Frobenius distance $\sqrt{2}$, which is why order blindness is structurally impossible here, the reason F181 exists in its converse form (§84.3, §84.5).
139. **Census arithmetic.** 2 × 41,832 = 83,664 exactly, both extrema over all pairs and all twelve instruments (§84.10).
140. **Rank mechanism.** The pullback of a ray is Σ_c w_c w_c† with w_c = K_c†v, of rank dim span{w_c} ≤ 13; a generic commutator-extremal ray on a 50-dimensional carrier gives rank exactly 13 with Gram spectrum bounded from zero, verified on explicit families, matching the reported margins and the reason F182 exists (§84.8).
141. **Retyping audit.** With order sensitivity perfect (EX30) and rank-one capacity total (EX28), the surviving obstruction is uniquely the alignment condition, membership of the rank-one Kraus-pullback manifold, the reason F183 exists (§84.11–84.12).
142. **Non-load-bearing audit.** The carrier identification map is unnecessary for these rejections: rank 13 ≠ 1 suffices, so the missing descent blocks only the final sufficiency comparison, confirming the EX29 finding (§84.14).
143. **Kernel arithmetic.** A rank-12 stack on a 50-dimensional carrier leaves a 38-dimensional common kernel, giving the ray manifold $\mathbb{C}P^{37}$ of real dimension 2 × 37 = 74; and for two generic 38-dimensional kernels the intersection is at least 38 + 38 − 50 = 26-dimensional while twelve of them generically share only the zero vector, consistent with the trivial all-edge intersection (§86.2, §86.5, §86.12).
144. **Exact-identity mechanism.** On an explicit orbit-current model (twelve channels supported both sides on a 12-dimensional current sector, trivial channel the positive completeness root), kernel rays are annihilated bilaterally at 10^{-16}, the trivial channel fixes them at 10^{-15}, and the pullback of the ray projector equals the projector at 2×10^{-15} with rank exactly one, the content of §86.3 (§86.3).
145. **Completeness of solutions.** Any ray with an active-sector component pulls back at rank 13 on the same model, never rank one, confirming that the kernel is the complete solution set and the reason F188 exists (§86.4).

146. **Restricted-rule mechanics.** The projected commutator Π C Π inherits reversal antisymmetry exactly, its extrema are simple and orthogonal on explicit examples, the extremal rays lie in the kernel by construction (annihilation at 10^{-16}), and their pullbacks equal the projectors at 10^{-15} with leakage at 10^{-31}: order and sharpness simultaneously, the mechanism of §86.7–86.10 (§86.7–86.10).
147. **Frame-invariance mechanism.** Rotating the twelve channels among themselves leaves their common kernel identical (principal cosines exactly one on explicit examples), since the kernel of a span depends only on the span, the reason F189 exists (§86.6).
148. **Grade audit.** Every mathematical gate passes at fixed background and no fitted coefficient enters, yet the extremal rule is introduced rather than derived, the trap direction is not attached, and the background itself is a genericity witness, so the background-relative canonical grade of §86.10 is the strongest admissible one, the reason F185, F186 and F191 exist (§86.8–86.10).
149. **Reduction audit structure.** A generic 38-dimensional subspace is preserved by none of a generic effect family, and the executed scan confirms every one of the 84 physical effects leaks amplitude out of $\mathcal{K}$_e with bounded margin, so the locus is a null structure of one subinstrument, not a common reduction, the reason F193 exists (§86.3).
150. **Dimension robustness mechanism.** The locus dimension is forced by arithmetic alone: any witness whose twelve stacked nontrivial channels have rank 12 on the 50-dimensional carrier leaves a 38-dimensional kernel, so 38 is invariant across all five witnesses by construction, while nothing constrains the kernels' orientations to agree; explicit five-witness models give pairwise intersections at the generic 26 dimensions with small minimum principal overlaps (§86.6).
151. **All-witness triviality mechanism.** Stacking the nontrivial channels of five witnesses gives 5 × 12 = 60 constraints on a 50-dimensional carrier, generically of full rank 50, so the common kernel is generically trivial; explicit models confirm rank 50 and an exactly zero iterated intersection of the five kernels, matching the executed result on every edge, the mechanism of the new no-go (§86.7).
152. **Dependency-order audit.** Any trap attachment executed before the background is selected or quotiented attaches to one arbitrary witness's ray, which the trivial all-witness intersection shows cannot be re-expressed in any other admitted background, so the R2 ordering (background before attachment) is forced, the reason F192 exists (§86.9–86.10).
153. **Census arithmetic.** Five witnesses give C(5, 2) = 10 pairwise differences and four alternatives relative to the primary, matching the executed counts (§88.2).
154. **Invariance logic.** If every representation projector commutes with every gauge generator, then for any gauge transport of a ray the populations ⟨v|Π_r|v⟩ are exactly unchanged (verified at 10^{-16} on explicit models), so two witnesses whose current populations differ cannot be gauge-related: the discriminator is sound, the reason F196 exists (§88.3).
155. **Flat-but-non-gauge coexistence.** When the residual's null space exceeds the gauge orbit (EX2F's nullity minus 84), differences can be exactly flat yet lie entirely outside

the gauge orbit; explicit models with the stated dimensions realize fraction-one non-gauge flat differences, so the phenomenon is dimensionally generic, not paradoxical (§88.1–88.2).

156. **Plane motion versus dimension.** The projective dimension 37 is forced at every witness by the rank-12 stack arithmetic, while nothing ties the plane orientations together, and the five-fold triviality matches the 60-constraints-on-50 mechanism already verified for the kernels, cross-referencing note 151 (§88.5).
157. **Scope audit.** The exclusion covers the declared gauge only; a yet-undiscovered redundancy remains logically possible and is exactly the source's open moduli debt, so quoting EX32 as full physical inequivalence is F199 (§88.6).
158. **Table reconstruction.** The single surviving 12.81% fixes the orientation ratio r = 0.1281/0.8719 = 0.14692, and $r^n/(1 + r^n)$ then reproduces every surviving table row to all printed digits (2.113%, 0.3161%, 0.04657%, 0.006845%, 0.0010058%), fixing the two stripped rows at 2.2×10^{-5} % and 4.7×10^{-7} % and giving $1/r^2 \approx 46.3$ for the PSAC two-step ratio (§90.1–90.2).
159. **Depth formula.** The smallest n with $r^n/(1 + r^n) < \varepsilon$ reproduces the surviving depth column 2, 3, 4, 5, 8, 11 exactly at $\varepsilon = 10^{-1}, 10^{-2}, 10^{-3}, 10^{-4}, 10^{-6}, 10^{-9}$, my reconstruction of the stripped resolution column, flagged as such (§90.3).
160. **Markov-blindness structure.** A first-order Markov law with constant per-step orientation share yields whole-history weight ratios $(1/r)^n$ that grow exponentially while every next step remains 12.81%, verified by direct product construction: cumulative suppression and per-step blindness coexist without tension, the reason F201 exists (§90.4).
161. **Next-step closure requirement.** For the next step's disfavoured share to fall below ε the effective tilt must satisfy $r_{eff} \approx \varepsilon/(1 - \varepsilon)$: at 10^{-2}, 10^{-4} and 10^{-6} the current r = 0.147 is respectively 15, 1.5×10^3 and 1.5×10^5 times too large, so distinguishability alone cannot close the next move, the reason F202 exists (§90.5).
162. **Complementarity audit.** Soft closure operates on probability resolution while the hard-cut and topological results operate on support and admissibility; neither implies nor retracts the other, and the reframing adds an operational target rather than replacing an exact one, the reason F204 exists (§90.5–90.6).
163. **Form identification.** The exact surviving table is reproduced row for row by n/(49 + n) (2.00%, 3.922%, 9.259%, 16.95%, 28.99%, 50.51%, 67.11%), which is precisely the total-variation distance between two succession updates of equal length concentrated in different components, fixing the update as $q(k \mid \mathbf{h}) = (d_k + n_k)/(49 + n)$; the identification is mine and F210 guards its status (§92.3, §92.5).
164. **Exponent-one mechanism.** Chaining the update through two marks reproduces the joint mark probability, $P(m_1)P(m_2 \mid m_1) = P(m_1, m_2)$, exactly at exponent one (residual 0 on explicit models) and fails at any other exponent (6×10^{-3} at 0.7), so probability-chain consistency does fix the exponent, the reason F206 exists (§92.2).
165. **Steering direction.** From the succession form, a retained type-k fact strictly raises q(k) and shrinks every other component by the common factor (49 + n)/(49 + n + 1), verified on explicit counts, the content of §92.4 (§92.4).

166. **Never-zero and depth.** d_k/(49 + n) is positive for every finite n and falls below ε exactly at n ≥ d_k/ε − 49: at d_min = 1 this gives 51, 951 and 9,951 records for ε = 10^{-2}, 10^{-3} and 10^{-4}, the structure of the stripped example table (§92.6–92.7).
167. **Baseline consistency.** The exactly-zero ledger-to-future derivative (PSAC-EX5AA) and EX33's first-order Markovity are the same physical fact at causal and distributional levels respectively, so the two rounds' baselines corroborate rather than duplicate (§92.1).
168. **Firewall audit.** Conditional preparation law versus causal transition law is a derivation-status distinction, not a formula distinction, and using the update as if promoted is F209 while claiming it derived is F205; the D36-orientation identification additionally needs the typing bridge, F207 (§92.9).
169. **Matched-triple logic.** Fixing the start, the penultimate node and the final transition removes every coarse degree of freedom in which two histories could differ at the last step, so any difference in the next terminal distribution must be carried by the retained internal state; on explicit models with non-commuting transition Kraus branches, middles-only-different pairs give nonzero internal trace distance and nonzero next-terminal total variation, the mechanism of §94.2 (§94.2–94.4).
170. **Coexistence structure.** A coarse law depending only on the current node is exactly identical within every matched pair while the terminal POVM resolves the internal difference: coarse blindness and internal sensitivity are simultaneously realizable and executed, the reason F212 exists (§94.4).
171. **Census status.** The 879-pair count and the median separation are source-reported at the matched-triple scope; the scope covers same-start, same-penultimate, same-final-transition pairs only, so no claim about other history classes or about bias direction follows, the reason F215 exists (§94.3).
172. **Renewal-boundary logic.** If the reopened working channel is independent of the retained ledger, post-renewal next-terminal distributions coincide for all prior histories, so the within-epoch bias cannot cross the boundary; this is the causal restatement of the exactly-zero ledger-to-future derivative, and the executed gain confirms it, the reason F211 exists (§94.5).
173. **Likelihood-route normalization.** For any completeness-satisfying Kraus family the record-likelihood weights sum to one automatically (verified at 10^{-15} on explicit families), so the candidate post-renewal law needs no fitted coefficient; its status is nonetheless candidate-only, the reason F213 exists (§94.6).
174. **Fade-table structure.** The surviving fading table is strictly monotone with decelerating per-Fold log-rates (0.039, 0.041, 0.037, 0.024), the signature of mixed spectral relaxation under a fixed channel with the slowest mode dominating late, and an ε = 0.01 crossing bracketed between fifty and one hundred Folds (≈ 78 by local-rate interpolation, diagnostic only), the reason F219 and F220 exist (§96.3–96.4).
175. **Copy-isometry logic.** Copying a classical label to a fresh orthogonal register leaves the reduced system state exactly unchanged (partial trace identical at machine zero on explicit models), so record filing and state preservation are compatible by construction (§96.1).

176. **Preserve-versus-reset dichotomy.** Carrying the state forward leaves every pairwise distinguishability measure exactly unchanged at the crossing, while resetting both states to the same reopened state sends every such measure exactly to zero; on explicit models the carried TV is identical before and after and the reset TV is exactly zero, the executed structure of §96.2 and the reason F218 exists (§96.2).
177. **No-overwrite coexistence.** Appending the completed record to the ledger while the active state evolves cannot alter prior ledger entries, so state-preserving renewal and exact no-overwrite are structurally compatible, matching the imported PSAC proof, the reason F221 exists (§96.2).
178. **Stripped-value recovery.** The zero-Fold entry 0.13344 of the fading table identifies the EX35 clean pair's next-terminal total-variation separation, filling one value stripped from the EX35 transfer (§94.2, §96.2).
179. **Linear-scaling mechanism.** For $\Phi_\lambda \otimes \mathrm{id}$ the common reset term cancels between any two inputs, $\Phi_\lambda(\rho_A) - \Phi_\lambda(\rho_B) = \lambda(\rho_A - \rho_B)$, so every distinguishability measure built linearly on the difference scales exactly by λ; the seven executed dial rows match λ times the full-precision values to all printed digits (the 0.333333 row being exactly $\lambda = 1/3$), and the full trace distance 0.42047171701340447 fills the value stripped from the EX35 transfer (§98.2–98.3).
180. **Counterfamily properties.** The depolarizing form is completely positive and trace preserving, unital in its trace-factored form, and U(50)-covariant (residual 10^{-16} on explicit models), so every λ satisfies the declared structural conditions, the reason F223 exists (§98.2).
181. **Span-rank arithmetic.** Twelve per-edge completeness relations, each summing seven effects to the same identity, impose exactly eleven independent dependencies beyond one, giving $84 - 12 + 1 = 73$, matching the reported rank exactly; verified numerically on edge-structured models (4×3 effects giving rank $12 - 4 + 1 = 9$), so the deficiency is fully accounted for and the effects are not linearly informationally complete, the reason F225 exists (§98.4).
182. **Rigidity mechanism.** A same-carrier isometry on $\mathbb{C}^{50}$ is square, hence unitary; a unitary commuting with every member of an irreducible Hermitian family lies in the scalar commutant (commutant dimension 1 on explicit generic pairs), so $U = e^{(i\theta)}I$ and $U\rho U^\dagger = \rho$, the content of §98.4 and the reason F224's class boundaries matter (§98.4).
183. **Irreducibility witness.** The target-blind pair (simple-gapped A, connecting B, nonzero commutator) is exactly the K7-QRC certificate structure, so the scalar-commutant premise has an independent in-round check (§98.4).
184. **Selector-status audit.** Reversible-between-observations kinematics selects the rigid class only if renewal is shown to lie between commitments with no new irreversible event, while the export permission keeps reset lawful, so neither entropy paper yet derives $\lambda = 1$, the reason F226 exists (§98.5).
185. **Implication-asymmetry logic.** From (new fact ⇒ cost) together with exhibited cost-without-fact cases, the converse (cost ⇒ fact) fails as a matter of logic, so

irreversibility cannot be used to certify fact creation, the reason F229 exists (§100.0).

186. **Source-free eraser arithmetic.** The eraser family carries zero commitment source at every λ while the EX35 signal scales as 0.13343664226134488 λ, giving 0.06671832113 at one half (matching the EX37 table row) and exact zero at λ = 0, recovering the stripped example values and demonstrating source-freedom without reversibility, the reason F230 exists (§100.3).
187. **Two-hinge separation.** A nontrivial unitary preserves every trace distance exactly while changing the statistics of a fixed physical effect (verified on explicit models), so PAR reversibility (hinge one) does not imply the EX37 identity without effect preservation (hinge two), and their conjunction runs through the scalar-commutant rigidity, the reason F232 exists (§100.4).
188. **Architecture cross-reference.** The K7-CBR isometric renewal is exactly the class of the EX36 tested map (fact filed by a classical-mark-only copy, carrier reopened), so the wanted form is already the executed form, while its primitive underivation is the source's own statement, the reason F233 exists (§100.2).
189. **Grade audit.** The conjunction row is an implication with both antecedents open, so its CONDITIONAL EXACT PASS licenses no unconditional claim, the reason F234 exists (§100.6).
190. **Mode-flow exactness reproduced.** At the inherited mass and the full tested grid, the inverse, energy-form and determinant residuals reproduce at 2.220×10^{-16}, 3.553×10^{-15} and 2.220×10^{-16} respectively, matching the reported magnitudes, so the flow's invertibility and energy preservation are machine-exact as executed (§102.3–102.4).
191. **Minimum singular value reproduced.** The reported 0.270781580193 reproduces to all twelve digits, attained at $k\xi = 4$, $t/\xi = 0.5$, confirming it as pure (q, p)-weighting of the Euclidean norm at the largest tested frequency, with the energy metric preserved exactly there, the reason F240 exists (§102.4).
192. **Reset-impossibility logic.** A literal reset is many-to-one with zero Jacobian on differences, while det R = 1 makes the flow injective at every finite time, so $R(t)(v_1 - v_2) \neq 0$ whenever $v_1 \neq v_2$, verified on explicit Cauchy pairs across the grid, the content of the no-go and the reason F235 exists (§102.3, §102.5).
193. **Hinge-map disambiguation.** The attaching map A (PFDMI ↔ κ-field phase space) is a different object from D-PM41's History-Measure/PFDMI identification (different arenas), and the readout condition is EX38's two-hinge separation (note 187): field reversibility without effect preservation can hide the memory from the 84-effect readout, the reasons F236 and F239 exist (§102.6).
194. **Outcome-blindness audit.** The scalar/event-density field carries commitment density, not outcome identity, per the controlling PSAC audit, so the no-reset theorem protects that-a-fact-happened memory and not yet which-fact memory, the reason F238 exists (§102.6).
195. **Kernel-persistence proof.** R_t invertible gives R_t A v = 0 iff A v = 0 directly, so kernel and rank are preserved at every finite time regardless of the mass; verified

numerically on explicit maps with kernel directions across the EX39 flow, the reason F241 exists (§104.2).

196. **MA1 propagation reproduced.** Embedding diag(0.578064557803, 0) with the orientation column in one (q, p) pair and propagating with two independent KG modes over the full tested grid returns rank one, propagated polarity norm 0.000e+00 and second singular value 0.000e+00 at every time, matching the reported maxima exactly (§104.3).
197. **Exact-zero mechanism.** A zero column is carried by any linear flow to the zero column identically, so the MA1 failure is structural rather than numerical: exact kernel membership before propagation and at all later times, the reason F243 exists (§104.3).
198. **Import consistency.** Rank 6 plus nullity 6 equals the 12-dimensional count+polarity carrier, and the MA1 singular values [0.578064557803, 0] are exactly the orientation-only projection of the two-direction record, so the R19 imports are internally consistent as stated (§104.1).
199. **Truncation audit.** The source document ends mid-word part way through its second section; the Whitney-survival execution, readout and typing treatment, and verdict block are absent; the rank-level corollary is the only Whitney statement entailed by the surviving content, and it is this paper's, the reasons F244 and F245 exist (§104.4).
200. **Separation arithmetic.** The four image points of ι_(a,b) on $\{\pm 1\}^2$ differ pairwise in one coordinate or two, so the minimum pairwise distance is 2 min(|a|, |b|); the audit column reproduces exactly (0, 0.5, 1.15612911561 = 2 × 0.578064557803, 2), and injectivity holds iff both gains are nonzero (§106.4).
201. **Determinant-span arithmetic.** |det J| = |a| × 0.578064557803 over $a \in [10^{-8}, 10^{2}]$ spans exactly $[5.780645578030 \times 10^{-9}, 5.780645578030 \times 10^{+1}]$, matching the reported bounds to all digits (§106.4).
202. **MA1 cross-consistency.** The a = 0 normal form with b = 0.578064557803 is EX40's diag(0.578064557803, 0) up to coordinate labelling, so the two rounds' exclusions are one result seen from source and bridge sides (§106.3).
203. **Marginal-blindness logic.** The scalar count marginal is constant across the four marks, so no functional of it depends on a and no equation for a can arise from it; fact-separation is a nondegeneracy condition, not a magnitude selector, the reason F248 exists (§106.4).
204. **Activation and truncation audit.** E[Z_R4] = δ_K g_cover with δ_K = 0.995570059549810 fixed and g_cover = 0 returned gives zero readout, the causal face of the exact MA1 polarity kernel; the document ends mid-word at the close of §5 with the verdict absent, the second consecutive clipped export, the reasons F249 and F252 exist (§106.5–106.6).
205. **Second-variation logic.** For a quadratic action the fluctuation operator is the field-independent second variation, so $L_{(s_0)} = \Box + m^2$ identically; verified numerically on discretized operators about wildly different backgrounds (difference exactly zero), the reason F253 exists (§108.2).

206. **Contrast demonstration.** An excluded quartic self-interaction would give $L_(s_0) = \Box + m^2 + 3\lambda s_0^2$, background-dependent (verified numerically), so the no-go is precisely the linearity theorem's shadow: what the exclusion of self-interactions forecloses is exactly the background's ability to deform the operator, the reason F255 exists (§108.2).
207. **Carrier structure.** The Hessian $H_{ab} = D_a D_b m - (1/2)\, \gamma_{ab} \Delta m$ is exactly symmetric and exactly trace-free in two dimensions ($\gamma^{ab} H_{ab} = \Delta m - \Delta m = 0$), verified numerically at machine precision on generic fields (§108.1).
208. **Divergence identity.** In flat two dimensions $\partial^a H_{ab} = \partial_b \Delta m - \tfrac{1}{2} \partial_b \Delta m = \tfrac{1}{2} \partial_b \Delta m$, verified at 10^{-16} on generic fields: the zero-background obstruction is a generically nonzero vector residual, exactly the clause at which the transfer cuts, so any type-correct rescue must supply a matching vector-source response (§108.1, §108.3).
209. **Truncation and scope audit.** The document ends at the opening line of §B, the third consecutive clipped export; the §B construction and verdict are absent (F256), and the closure proved is of ordinary background structure within the current stack, not of every conceivable rescue, the reason F257 exists (§108.3).
210. **Record-count cross-check.** The 84 persistent records factor exactly as 12 edges × 7 terminal types, consistent with EX37's twelve edge sums in the effect algebra and EX35's seven terminal projectors, so the coarse-graining target is the standing readout structure and not a new object (§110.2).
211. **Conditioned-update invariance.** The update $z_(\rho,e) = M_e \eta_\rho / \sqrt{(p_e)}$ is exactly normalized, and appending an orthogonal classical label leaves the system's reduced update unchanged to machine precision on random instruments, confirming the copy-invariance mechanism as stated (§110.1).
212. **Carrier consistency.** The 319 marked operators live on the 350-dimensional $C^7 \otimes C^{50}$ carrier and coarse-grain onto the 84 labels (319 > 84, a many-to-one filing); the completeness residual 2.471×10^{-14} sits at the corpus's standing exactness scale; the count 319 itself is recorded as imported, no independent derivation existing here (§110.1).
213. **Capacity-versus-typing logic.** Existence and capacity constraints leave a 34,152-dimensional exact-lift family untouched, and no functional constant on that family can select one member, so mark typing must come from the source amplitude decomposition and projectors, the reason F261 exists (§110.3).
214. **Truncation and supersession audit.** The document is cut mid-word at the HM4/RCMO/PRLU header, the fourth consecutive clipped export; the remaining audit, extraction execution and verdict are absent (F263); the original EX43 was never received and its broader negative stands retracted by this R2, the reason F262 exists (§110).
215. **Fraction check.** $360/713 = 0.504908835904628$ to all published digits ($713 = 23 \times 31$), so the curvature stiffness is an exact returned rational (§112.1).
216. **Stationarity residual reproduced.** $|k_C c_* - \alpha_*| = 8.116 \times 10^{-14}$ at the published constants, matching the reported residual exactly, and α_*/k_C reproduces c_* to twelve significant figures, the difference sitting inside that same residual (§112.2).

217. **Score identity verified.** On explicit toy kernels the finite-difference d/dc log K_c matches k_C[ω_C − ⟨ω_C⟩_c] and dK_c/dc matches k_C K_c[ω_C − ⟨ω_C⟩_c] at finite-difference precision, with Σ_y dK_c/dc = 0 identically: the lean redistributes probability and conserves it (§112.3).
218. **Entailed completion.** The truncated derivative line closes as dK_c/dc = k_C K_c[ω_C − ⟨ω_C⟩_c], the exponentiated chain-rule form of the source's own preceding logged identity and nothing further, the reason F269 exists (§112.3).
219. **Truncation and sector audit.** The document is cut mid-equation in §2, the fifth consecutive clipped export; the history-to-curvature pullback leg and verdict are absent (F268); and the scalar-closure sector typing keeps the polarity extraction and record-tensor vertex debts standing, the reason F270 exists (§112.4).
220. **Stage-ordering Schur identity verified.** For an amendment supported on the retained block, the Schur complement over the auxiliary block passes through it exactly, Schur_a(H + E_X ΔΩ E_X†) = Schur_a(H) + ΔΩ on the retained block, verified numerically at machine precision on generic symmetric blocks: the mechanism is simply that the amendment never touches the eliminated block, the reason F271 exists (§114.1).
221. **Amendment sign.** ΔΩ ≥ 0 makes the history amendment a stiffening of the retained completion Hessian, never a loosening or a removable term, the reason F272 exists; the value of ΔΩ(h) itself is imported at the HMGBC/HCMR grade (§114.1).
222. **Constant recurrence.** k_C = 360/713, $c_* = 1.89935497564000$ and $\alpha_* = 0.959001109719975$ recur from EX44 digit for digit, with the same stationarity residual 8.116×10^{-14}, so items A and B compose without renormalisation (§114.2).
223. **Legs-versus-bridge logic.** The two closed legs are static identities, one on the retained Hessian and one on the kernel, and no composition of static identities entails that the next attempt evaluates its law at the amended value; the time-ordering is an independent physical statement, the reason F273 exists (§114.3).
224. **Truncation and offline-gap audit (R1).** The superseded first transfer was cut mid-word at its item C header, the sixth consecutive clipped export; executions EX45–EX54 were never received and enter only through the audit, the reason F274 exists (§114).
225. **Physical-rank cross-check.** The declared 72-dimensional physical tangent is exactly 84 records − 12 per-edge normalisations, verified by construction on per-edge zero-sum Jacobians (rank 72 exactly), and consistent with EX37's real effect span rank 73 = 84 − 12 + 1, the identity present in the effect span and absent from probability responses (§114.3).
226. **Pullback structure.** The new theorem's skeleton is structurally forced: the pullback of a positive metric through a linear attaching map is positive semidefinite, positive exactly off the map's kernel, verified numerically, so the lean is positive for every displacement reaching the tangent and zero for displacements the map annihilates, which is precisely the round's closing dichotomy and the reason the attached quantity decides the mechanism (§114.2, F273).
227. **Descent consistency.** Full-rank terminal and conditional-mark responses at the same physical rank 72 are mutually consistent and consistent with the earlier native

probability-descent certificate, the finer calculation strengthening rather than contradicting the coarser (§114.3).

228. **Supersession and stripped-transfer audit.** The R2 tail and twelve-row verdict are complete, the closing sentence ending naturally; the mathematical displays are stripped and listed, with only structurally forced closures supplied, flagged, the reasons F262-style supersession discipline and F275 exist (§114).
229. **Occupancy partition and Fisher weight.** $p + q = 1$ exactly at $p = 1 - e^{-1}$, and $4pq = 0.930177$ is the variance of a ±1 route-occupancy sign at success probability p, the natural Z_2-character Fisher weight, so the closed form's prefactor is structurally the right object (§116.1).
230. **Rank chain and character count.** Six logits at full rank descend through the six-to-four incidence to a rank-four response, and $Z_2 \times Z_2$ has exactly four characters, its character basis being the abelian Fourier basis that diagonalises any route-symmetric response: the chain's arithmetic is internally forced (§116.1).
231. **Liveness and reduction logic.** F_character is strictly positive (all eigenvalues > 0), so the four characters are not probability-null, and the pullback of a positive metric through any DΛ_Ω is positive exactly off its kernel: nonzero DΛ_Ω ⇒ automatic lean, the round's dichotomy and the reason F279 exists (§116.1).
232. **Shape-factor bookkeeping.** $3 + 3 + 1 + 1 = 8 \neq 6$, so the diagonal weights are an incidence weighting per character rather than a partition of the six routes, consistent as stated; the 315/4 relation is imported at machine precision with its referent ambiguous in the stripped displays, the reason F280 exists (§116.1).
233. **Format and truncation audit.** The executive verdict led the document and is complete; the tail is cut at the PFDMI-EX2A audit header, the seventh clipped export, the detailed audit and execution sections absent, the reason F281 exists; the verdict-first adaptation worked and is worth retaining (§116).
234. **The quarter chain.** det(P)^(−1/2) as weight, its square root as amplitude, and the logarithm as logit compose to $c_G = -\frac{1}{4} \log \det P$, and Jacobi's formula gives $Dc_G = -\frac{1}{4} \mathrm{Tr}(P^{-1}\delta P)$, verified numerically at finite-difference precision on generic positive stiffnesses (§118.1).
235. **Coefficient-freeness.** The ¼ is the product of two convention-fixed square roots, one Gaussian and one amplitude, with nothing tunable anywhere in the chain, the round's own no-free-coefficient statement and the reason F283 exists (§118.1).
236. **Orientation blindness.** The determinant is invariant under any similarity implementing the $k \to -k$ conjugation, verified numerically to all digits, so the scalar rule is exactly deaf to the orientation pair, the reason F285 exists (§118.2).
237. **Sign structure.** [This paper's, flagged.] For a positive amendment $\delta P = \Delta\Omega \geq 0$, $\mathrm{Tr}(P^{-1}\delta P) \geq 0$, so $Dc_G \leq 0$: a stiffening past can only lower the scalar completion setting, a definite dial-free direction, held at its structural scope by F288 (§118.1).
238. **Partial-transfer audit.** The executive answer is complete; the audit is cut mid-word at the Schur-complement clause, the eighth clipped export, the clause as far as stated being consistent with the EX55 stage-ordering identity, the reason F287 exists (§118.3).

PART CI: CONCLUSION

The cumulative sequence through PMS-EX57 has not yet derived the primitive charged matter law, but its endpoint is sharp and fourfold. History changes the retained HMGBC completion geometry, exactly and positively, and that amendment survives auxiliary relaxation. The relevant completion coordinates change probabilities: the probability law carries its own Fisher geometry with no probability-blind directions on the declared 72-dimensional physical tangent, and all four completion characters are probability-visible. The scalar geometry-to-weight map has a coefficient-free Gaussian clause, c_G = −¼ log det P up to a constant under the stated weight-enters-mark identification, so the response side requires no new coefficient. But scalar stiffness cannot distinguish orientation or outcome: the determinant is a branch-level scalar, provably blind to the k = ±1 conjugate pair and unable to return the four marked completion-rate coordinates, so the causal history-to-geometry attachment, the directional half of the scalarisation map DΛ_Ω, remains owed.

Every layer behind that endpoint is graded once and only once: the central result states the forty-one layers in order, the cumulative verdict table gives one row per graded layer or standing obligation, and premises P1–P44, falsifiers F45–F288, the machine-readable contract and verification notes 1–238 carry the complete audit. The standing obligations beside the directional half are the source-returned record-tensor vertex or completed minimal rescue, the Fold-polarity extraction from the source projectors, primitive effect-preservation selection, the D36-direction typing, and the named-number ledger. The material listed in the source-integrity appendix is owed; PMS-EX58, once preregistered, is the calculation of that directional half, that extraction, that vertex, that respect and that tempo.

References / consumed VERSF sources

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2. K. Taylor, *The Primitive Field-Dependent Marked Instrument Programme in VERSF: Identity-Field No-Go, Typed-Carrier Construction and Native Score Closure*, PFDMI-1, including the frozen EX2A, EX2E and EX2I executions.
3. K. Taylor, *The Same-Action Score-Ledger, Maximal-Positivity and Endpoint-Frame Selection Theorem in VERSF*, PFDMI-S1.
4. K. Taylor, *The Ordered-Commitment χ Readout Theorem in VERSF*.
5. K. Taylor, *The Physical Half-Lazy χ Gate Audit in VERSF*.
6. K. Taylor, *The First χ-Increment Magnitude-Bridge and Charm-Hinge Theorem in VERSF*.
7. K. Taylor, *Realised Readout and Charge-Sector Maintenance: a Two-Part Account of Yukawa Structure in VERSF*.
8. K. Taylor, *From Charge-Sector Maintenance to Quark Masses in VERSF*.

9. K. Taylor, *The Microscopic Closure-Hessian and Full Yukawa Evaluation Theorem in VERSF*, MCHY.
10. K. Taylor, *The Representation-Resolved Master Kernel and Conditional Standard Model Boundary Synthesis*, RRMK-1.
11. K. Taylor, *Representation-Resolved History Functional and Frozen Differentiation Test*, RRHF-1.
12. K. Taylor, *The Four-Regulator Commitment-Maintenance Execution and Physical-Admission No-Go Theorem in VERSF*, HCMR-MR1.
13. K. Taylor, *The VERSF–RAL Pre-Entropic/Entropic Boundary Framework: Alignment-Regulated Measurement and Entropic Time*, RAL.
14. K. Taylor, *Entanglement Through the Void*.
15. K. Taylor, *Quantum Measurement as Commitment*.
16. K. Taylor, *Ordered Records, Realised Event States and Fold-to-Fact Promotion*, HCMR-P1.
17. K. Taylor, *Primitive Selection and Attaching-Map Closure*, PSAC-1, execution series through R19 and the EX5 gates.
18. K. Taylor, *PFHBA*, recurrent history-bath capacity series through PFHBA-7.
19. K. Taylor, *K7-QRC-1*, quotient-representation commutant certificate.
20. K. Taylor, *HCMR-M1*, the post-commitment theorem paper.
21. K. Taylor, *HCMR-XI-2*, operator-resolved mark implementation, XI execution series.
22. K. Taylor, *HMGBC*, the history-derived completion functional and Gaussian path-measure law.
23. K. Taylor, *The Commitment-Field Equivalence Theorem*, the unique linear κ action.
24. K. Taylor, *Fact-Momentum*.
25. K. Taylor, *Record Spacetime*, record-probability Fisher geometry with the volume-matching closure.
26. K. Taylor, *From Conservation to Geometry*, Fisher–Rao to Fubini–Study under the BCB assumptions.

PART CII: APPENDIX: SOURCE INTEGRITY AND MISSING-TRANSFER LEDGER

163. Source integrity and missing-transfer ledger

All transfer provenance is consolidated here; results resting on an incomplete source document are marked PARTIAL SOURCE RECORD in the cumulative verdict table, and their execution parts carry the detailed editorial notes. The export/save step producing the source documents repeatedly clipped document tails; leading with an executive verdict (adopted from EX56) preserved each round's conclusions and is worth retaining until the export fault is fixed. Two external review passes, recorded as R50 and R51 in the machine-readable contract, corrected scope labels, general-reader gradings, mathematical notation,

table formatting and the reference list; the review process itself is documented only here and in the contract.

Source document	Transfer status	Missing material (owed)
PMS-EX40	Truncated mid-word	Whitney-survival execution, readout and verdict (F244)
PMS-EX41	Truncated mid-word	Closing sentence and verdict (F252)
PMS-EX42	Truncated at §B opening	Minimal type-correct rescue construction and verdict (F256)
PMS-EX43 (original)	Never received	Superseded by EX43-R2; its broader negative retracted by the source (F262)
PMS-EX43-R2	Truncated at the HM4/RCMO/PRLU header	Audit remainder, extraction execution and verdict (F263)
PMS-EX44	Truncated mid-equation	History-to-curvature pullback leg and verdict (F268)
PMS-EX45–EX54	Executed offline; no source record	Entire documents; results enter only through later audits (F274)
PMS-EX55 (first)	Truncated at item C	Superseded by EX55-R2
PMS-EX55-R2	Tail and verdict complete; displays stripped	Fisher construction, stated ranks, frozen Jacobian, Wilson reduction, smallest singular value, reconstruction residual, raw mark rank, BCB current symbol, six-logit display, EX10 difference figures (F275)
PMS-EX56	Executive verdict complete; tail clipped	PFDMI-EX2A audit block and execution sections (F281)
PMS-EX57	Executive answer complete; tail clipped	Audit remainder from the Schur-complement clause and execution sections (F287)