Series-VIII-Enter-A: Grade S Certificates on a Prescribed Cone

Consolidation: measured separations, shortened cosmic reach, parent comparison, and six cross-contract conjectures

Ngo Cheung

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Abstract

We consolidate the documentary Grade S reading of the VIII package. Every local implication is retained: catalogue versus host, non-global hyperbolicity, matching and stale-not-settling, certificate-cut and residual gap 1/2, computational C5 versus deadline, spinless–Ward and incidence/coexistence bounce refusals, classical floor $1 - 1/d$, horizon replacement $1 - 1/d^2$, and the four quantitative theorems of Version 2—robust seam mismatch and finite-promise winding, certificate-fibre risk and diameter one, radial winding deadline, and approximate C5 leakage. Parent labels identify source records rather than hidden premises.

Repeated defect, horizon, vacuum, and stale prose is shortened to local statements with named sibling comparisons; labels are retained. Two one-line corollaries record alias non-uniqueness of nearest-matrix decoding and the coarse-flag risk lower bound. Six Version 2 acquisition bridges are retired as stated and replaced by six cross-contract conjectures that each name the contract they do not close; none is promoted. No spacetime emergence, Einstein dynamics, Page curve, island, bounce, vacuum-energy selection, or Host C is asserted. All standing programme boundaries remain unchanged: declaredPath=null, wired=false.

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Standing boundary, documentary scope, and philosophy

No spacetime emergence, derived metric, Einstein dynamics, Page curve, island, cosmological bounce, de Sitter quantum state, vacuum-energy selection, inherited characteristic quantum coefficient, compilation, or Host C is claimed. O.1 stays NOT_CLOSED. Gate 0 and ST4b stay NOT_SUPPLIED. XV-B is not opened; XVI-N is not discharged; Dom (*T*) stays undetermined; J2 stays unresolved. Problems 6, 7, and 9 remain named, not solved. Programme Host-A stays NAMED_COMPARISON_ONLY. Cited Cheung and OpenAI records are source records, not premises. declaredPath=null; wired=false.

Identity. The sheet family is Series-VIII-Enter-A; this release is Series-VIII-Enter-A-v4. It is a documentary Grade S synthesis, not a registry operation. Its manifest remains

$$\text{declaredPath} = \text{null}, \qquad \text{wired} = \text{false}.$$

Source and proof discipline. VIII-ST already records a unified finite package of affine matching, persistent cellulation, certified commands, complete reporting, and regular transport [15]. This manuscript does not claim to re-unify VIII-A, VIII-B, and VIII-C. It prints the interfaces needed for the cross-framework conclusions and proves those conclusions locally.

The supplied material includes source release statements and selected formulas, but not every parent vertex array, guard, or defect-class definition. Consequently:

1. all mathematical implications below concern the explicitly printed interface contracts;

2. the elementary cellulation and command table below are a nonempty local normal-form witness, not a claimed transcription of unprinted VIII-ST coordinates;

3. parent-specific conclusions beyond those displayed contracts remain documentary records;

4. no statement of equality with an omitted parent apparatus, field domain, source map, or quantum state is inferred. This distinction prevents an existence witness from being mistaken for verification of an entire source manuscript.

Objects that are not imported. We do not re-prove or assume the I-B-G Green identities, the I-B-G-S spin-1/spin-2 decomposition, or the official I-D-v5 Host-B spectral census. No Green realization, Ward identity, or dynamical I-D host is a premise of a matching certificate [9, 10, 11]. This package does not supply a conical Green or a spin-1/spin-2 inverse. A Scholar display reading "ID-v6 Dynamical Spacetime Enter over Two Prescribed Hosts" is a display only; it does not retitle official I-D-v5. No conjecture is used in a proof.

Enter and spacetime Enter

Enter is destructive readout of a declared finite quantum name [1, 3, 8]. It returns a classical code and every unmeasured quantum survivor in its specified output context. It does not return the measured name as a quantum input for later use.

Destructive naming is an access statement, not annihilation of every microscopic degree of freedom of an

apparatus. Spacetime Enter adds locations, causal routes, operating intervals, and calibration on a *supplied* classical spacetime. Neither the metric nor its causal relation is produced by the readout.

A consumed clock encoding is not a consumed geometric time axis. A history label is not automatically the proper time of the one event where that label is read. Conditional relational evolution needs additional stationarity, covariance, generator, and calibration hypotheses [7, 21, 22].

The Shredder Philosophy

The Shredder Philosophy asks which *complete* outputs remain accessible to a decoder [4, 56]. For

$$\mathcal{M}(\rho) = \sum_h \mathrm{proj}\, h_R \otimes \mathcal{N}_h(\rho),$$

the record-only channel $\mathrm{Tr}_K \mathcal{N}$ is a different contract whenever K is retained.

Thus an informative geometric certificate need not be a quantum decoder, and a classical marginal need not describe the whole instrument. Readout, specified reset, global deletion, and reservoir heat are separate claims [29]. The classical floor proved here is not a thermodynamic law.

The Big Bang Analogy

The Big01–Big05 records compare supplied resource accounts, observer-dependent causal regions, geometric labels, and source or coefficient questions [32, 33, 34, 35, 36, 37]. We use that organization as an analogy and a diagnostic, not a cosmological derivation.

To turn the analogy into a mathematical comparison one must name the observer, background, unknown code, accessible output, clock, future interval, coupling, and map between the objects. A finite causal region is not automatically a finite Hilbert space. An initial allocation is not a cosmological singularity. A cellulation incidence is not a bounce. A deficit label is not a vacuum-energy selector.

Claims of permanent cosmic isolation require future-dynamics hypotheses. Claims of a hidden physical sector require coupling or constitutive hypotheses. Freedom left by past data supplies neither. The horizon comparison in Section is independent of the conical laboratory.

Grade S and catalogue versus laboratory host

Definition (Operational Grade S contract). A package has the operational Grade S scope used here when it supplies:

1. a prescribed time-oriented background and explicit geometric catalogue or marking data;

2. a finite matching interface and accepted certificates for the declared finite presentations;

3. finite-dimensional complete channels, including failures, classical controls, survivors, and any declared environments;

4. a destructive-clock channel and its calibration dictionary;

5. a finite schedule with computational support and a separately checked causal placement for every claimed physical transmission;

6. at least one nonempty regular-part, reference-preserving payload/history transport under the stated operational permissions. An exact continuum-to-apparatus acquisition theorem, physical backreaction law, or metric-emergence map is not included. We reserve the phrase "Grade E" for a stronger emergence claim, which is not asserted.

Fix the catalogue interval

$$I = \left[\frac{\pi}{2} - \frac{\pi}{20}, \frac{\pi}{2} + \frac{\pi}{20}\right].$$

Use two distinct angle symbols:

$$\theta_{\mu} = \frac{2\pi - \mu}{3}, \qquad \alpha_{\mu} = 1 - \frac{\mu}{2\pi}.$$

The first is the opening of each of three developed sectors; the second is the full cone's circumference ratio. Confusing these two quantities would change the geometry.

For $c > 0$, define the regular product

$$M_{\mu} = \mathbb{R}_{T} \times (0,\infty)_{r} \times (\mathbb{R}/2\pi\mathbb{Z})_{\varphi} \times \mathbb{R}_{z}, \qquad g_{\mu} = -c^{2}\mathrm{mathop\,d}T^{2} + \mathrm{mathop\,d}r^{2} + \alpha_{\mu}^{2}r^{2}\mathrm{mathop\,d}\varphi^{2} + \mathrm{mathop\,d}z^{2}.$$

The spatial metric completion adds the cone apex; the product completion has the marked worldsheet

$$\mathscr{W}_{\mu} = \mathbb{R}_{T} \times \{r = 0\} \times \mathbb{R}_{z}.$$

No smooth Lorentzian metric at that worldsheet is declared.

Fix once and for all a laboratory member $\mu_{\mathrm{H}} \in I$, with metric $g_{\mathrm{H}} = g_{\mu_{\mathrm{H}}}$ and causal relation J_{H}^{+}. A catalogue command may replace a μ-packet in classical memory. It does not update μ_{H}.

Theorem (Catalogue replacement is not host evolution). *Changing a catalogue index or its encoded certificate leaves $M_{\mu_{\mathrm{H}}}, g_{\mathrm{H}}, J_{\mathrm{H}}^{+}$ fixed. An identification of an entire catalogue cone with the laboratory cone is an additional map, not a consequence of a finite report.*

In particular, a transverse isometry of the completed cones that maps apex to apex preserves α_{μ}, and hence μ. Every catalogue member can nevertheless supply sufficiently small regular Euclidean patches that admit local isometric placements in the fixed host.

Proof. The host variables are fixed data in ; an update of a separate register changes none of them.

The distance from the apex to a transverse point is r. The circle at that distance has length $2\pi\alpha_{\mu}r$. An apex-preserving transverse isometry preserves these distances and circle lengths, so preserves α_{μ}.

Away from the apex, the developing coordinates

$$X = r\cos(\alpha_{\mu}\varphi), \qquad Y = r\sin(\alpha_{\mu}\varphi)$$

give $\mathrm{mathop\,d}X^{2} + \mathrm{mathop\,d}Y^{2} = \mathrm{mathop\,d}r^{2} + \alpha_{\mu}^{2}r^{2}\mathrm{mathop\,d}\varphi^{2}$ on a sufficiently small lifted chart. Small convex patches are ordinary Euclidean patches and can be placed in another such chart. That local statement does not identify full cones or their winding.

Theorem (Local Grade S, not Grade E). *Under Definitions , , and , the complete finite-promise realization of Theorem is nonempty and has Grade S scope. It does not contain a derivation of the host metric, its speed c, or its*

causal relation.

Proof. The background is . The finite certificate and normal-form witness are supplied in Sections and . Legal composition and backwards support are proved in Section . The complete clock is proved in Theorem . The buffered reference-preserving realization in Theorem supplies the nonempty transport clause.

These constructions use the metric and speed before any channel is defined. They therefore satisfy the six printed operational clauses and provide no map deriving that prior geometric data.

Retained boundary. A VIII catalogue member is neither programme Host-A nor the dynamical Host A/Host B of I-D. The fixed-host correction is the named parallel with VIII-ST's host specification [15, 8, 11].

The I-B-type conical carrier: support, nonGH, and spinless data

Theorem (The regular product is not globally hyperbolic). *For every $\mu \in I$, the regular spacetime is not globally hyperbolic. Its regularity and local flatness do not supply a global Cauchy or conical Green theorem across the missing worldsheet.*

Proof. Fix $r_* > 0, \varphi_*, z_*$, and $A > r_*/c$. The diamond between

$$p = (-A, r_*, \varphi_*, z_*), \qquad q = (A, r_*, \varphi_*, z_*)$$

contains $x_n = (0, r_n, \varphi_*, z_*)$ for every sequence $r_n$downarrow0. The radial travel length is $r_* - r_n < cA$. There is no convergent subsequence in the regular manifold. The diamond is not compact.

This is a local proof, compared with VIII-ST and I-B-G [15, 9]. It is not the causal verdict for the full axis-filled I-D carrier. Non-global hyperbolicity does not prove nonuniqueness for every equation or mode; it prohibits an unqualified transfer of a globally hyperbolic field theorem [53, 54].

Definition (Supported laboratory). A supported finite laboratory consists of:

1. a finite union of regular developed sectors or chart fragments;

2. a compact spatial footprint K and an open regular tube $\mathscr{U}$ containing it, with $\overline{\mathscr{U}} \cap \mathscr{W}_{\mathrm{H}} = \varnothing$;

3. a finite operating interval $[T_{-}, T_{+}]$;

4. finitely many register ports, gate events, and piecewise smooth transport curves in $[T_{-}, T_{+}] \times \mathscr{U}$;

5. for every physical dependency, a supplied future-causal route and any additional hardware-duration allowance.

A geometric certificate may describe an apex or worldsheet in metadata. A quantum register is never placed at a collapsed slot or at the missing worldsheet.

Theorem (Regular operational support and metric containment). *For a laboratory satisfying Definition , there are finite chart and radial bounds on its footprint, with $r \geq \varepsilon_{*} > 0$. Every future-causal route obeys*

$$\left| \frac{\mathrm{mathop\,d}x}{\mathrm{mathop\,d}T} \right|_{h_{\mathrm{H}}} \leq c.$$

In particular a route between spatial ports x, y in elapsed time ΔT requires

$$d_{h_{\mathrm{H}}}(x, y) \leq c\Delta T.$$

These bounds are operational placement tests on a prescribed metric, not field initial-boundary-value or derived-light-cone results.

Proof. Compactness and separation from the worldsheet give a positive minimum radius. A finite regular chart cover supplies the chart bounds. For a causal tangent $u\partial_{T} + w$, $-c^{2}u^{2} + h_{\mathrm{H}}(w, w) \leq 0$, with $u > 0$. Parametrize by T and integrate the speed inequality. The Riemannian distance is no greater than the route length.

In a convex developing reserve, a straight spatial segment traversed in time at least its Euclidean length divided by c is an explicit causal route. An intrinsic distance infimum on the punctured cone need not be attained; equality at an unachieved infimum is not silently treated as a realizable route.

Theorem (Spinless peripheral action). *In developed coordinates (x^{0}, X, Y, z), $x^{0} = cT$, let*

$$J_{\mu}(x^{0}, X, Y, z) = (x^{0}, \cos\mu\, X - \sin\mu\, Y, \sin\mu\, X + \cos\mu\, Y, z).$$

For $0 < \mu < 2\pi$, J_{μ} is a proper time-oriented Lorentz transformation with

$$\mathrm{Fix}\,(J_\mu) = \{X = Y = 0\}.$$

It fixes the transverse time axis and the entire worldsheet pointwise. It contains no time or axial translation.

Proof. The transverse rotation preserves the positive spatial quadratic form and fixes x^0, z. Since $\mu \notin 2\pi\mathbb{Z}$, its only fixed transverse vector is zero. The fixed-point and pointwise statements follow.

This is a geometric seam/peripheral convention, not selection of a Maxwell domain or spin-2 inverse [10, 23]. The sign of a peripheral generator is fixed by the chosen loop orientation.

Complete affine matching certificates

Printed finite matching interface

Use developed rays

$$e_i(\mu) = \begin{pmatrix} \cos(i\theta_\mu) \\ \sin(i\theta_\mu) \end{pmatrix}, \qquad i = 0, 1, 2, 3.$$

The fourth ray is an upper seam copy, not a fourth physical sector. On sector $i = 0, 1, 2$, coordinates $x = \xi e_i + \zeta e_{i+1}$, $\xi, \zeta \geq 0$, have Gram matrix

$$\begin{pmatrix} 1 & \cos\theta_\mu \\ \cos\theta_\mu & 1 \end{pmatrix}.$$

The three openings total $3\theta_\mu = 2\pi - \mu$, and

$$R_\mu e_3 = e_0,$$

where R_μ is the transverse part of J_μ.

Definition (Complete finite certificate). Fix a finite marked cell presentation with:

• ordered vertex lists and shared face identifications;

• developed face embeddings and proper time-oriented Lorentz-affine frame maps A_f;

• oriented dual edges $f \to g$, with integers n_{fg}, $n_{gf} = -n_{fg}$;

• a marked worldsheet, peripheral orientation, and specified normal/metric data for every nondegenerate face. A complete certificate verifies all five clauses:

1. all declared shared vertices and faces match pointwise, including seam heights and orientations;

2. transitions have the supplied canonical form

$$H_{fg} = A_g J_\mu^{n_{fg}} A_f^{-1},$$

and sums of n_{fg} vanish on the supplied regular contractible cycle generators and equal one on a positive peripheral generator;

3. induced edge lengths, face areas, and supplied normal/Gram data agree under the transitions;

4. the finite cells are nondegenerate on their active domains, embedded modulo their declared shared boundaries, and have no unlisted intersections;

5. peripheral affine transport fixes the marked worldsheet pointwise, with no unlisted translational component. For the all-loop conclusion, the supplied cycle generators must generate the relevant dual presentation's cycle relations. A short list of tested loops without this coverage is not a complete all-loop certificate.

The finite metric arrays and incidence lists are geometric input data. Finite checking does not derive those arrays from an unknown state. A symbolic expression can be a finite report word without being an exact floating-point evaluation of its real value.

Theorem (Matching, winding holonomy, and rejected updates). *For Definition , an oriented closed dual word γ, based at f_0, has transport*

$$T_\gamma = A_{f_0} J_\mu^{N(\gamma)} A_{f_0}^{-1}, \qquad N(\gamma) = \sum_{f \to g \in \gamma} n_{fg}.$$

The finite checks of cycle relations make N the declared winding homomorphism.

For $\mu, \nu \in I$, $\mu \neq \nu$, using J_ν at the μ-seam fails matching. Replacing J_μ by the affine map $J_\mu + \delta e_0$, where $\delta \neq 0$ is a time translation in length units, fails pointwise worldsheet fixation. Both failures survive common Lorentz-affine

conjugation.

The canonical seam transformation is unique within the worldsheet-fixing, orientation-preserving transverse rotation class.

Proof. Multiplication of the canonical transitions telescopes all intermediate $A_f^{-1}A_f$, giving . The integer sums vanish on the declared relation generators and therefore descend through every generated relation. A primitive positive peripheral loop has count one.

A stale rotation sends $e_3(\mu)$ to angle $2\pi + \nu - \mu$. To be e_0, the difference must be a multiple of 2π. On I, $|\nu - \mu| \le \pi/10$; equality of rays therefore forces $\nu = \mu$, a contradiction.

A time-shifted seam sends $(x^0, 0, 0, z)$ to $(x^0 + \delta, 0, 0, z)$. Its linear part fixes the time direction but its affine map fixes no worldsheet point. Common conjugation preserves both equalities and failures of equality.

Within the stated transverse rotation class, mapping the upper ray to the lower ray fixes the angle modulo 2π. The chosen interval and orientation fix the representative μ.

Scope of uniqueness. The theorem does not assert uniqueness among arbitrary affine presentations, arbitrary Lorentz gauges, or all realizations of a metric. The admitted presentation and transformation class must be fixed first. This is the local comparison with VIII-A's complete matching and stale-rotation tests [12, 13, 15].

The transverse three-to-six incidence

Interface and explicit normal-form witness

A local three-to-six normal form has a signed incidence coordinate $b(s)$, $s \in [-1, 1]$, with

$$b(0) = 0, \qquad b'(s) > 0, \qquad b(s) < 0 \ (s < 0), \qquad b(s) > 0 \ (s > 0).$$

Inactive negative-radius entries are metadata, not physical points.

Here is an explicit finite witness. Fix a length $L > 0$, let $b(s) = s/4$, and set

$$r(s) = \begin{cases} 0, & s \le 0, \\ s/4, & s > 0. \end{cases}$$

In the developed transverse sectors define

$$O = 0, \qquad D_i = 4Le_i, \qquad A_i = Lr(s)e_i, \qquad x^0 = L(2 + s).$$

For $s < 0$, use three faces

$$[O, D_i, D_{i+1}], \qquad i = 0, 1, 2.$$

For $s > 0$, use the three inner faces and three outer faces

$$[O, A_i, A_{i+1}], \qquad [A_i, D_i, D_{i+1}, A_{i+1}].$$

At $s = 0$, the inner faces collapse and the outer quadrilaterals have the original triangular images. Incoming and outgoing one-sided incidence labels are retained separately.

This is a witness for the printed local interface. It is not a claim that these coordinates reproduce every parent VIII-ST vertex. An optional collar refinement is excluded from the base three-to-six face count.

Theorem (Unique transverse incidence and persistent product marking). *For the printed normal form, the base active face count changes uniquely at $s = 0$: three for $s < 0$, six for $s > 0$. All active faces away from that parameter are nondegenerate and embedded, with matched seam boundaries. Their constant-time product markings are spacelike and acausal.*

For the explicit witness, with $L_\theta = 2\sin(\theta_\mu/2)$, the relevant lengths and areas are

$$|OA_i| = Lr, \qquad |A_iA_{i+1}| = LrL_\theta, \qquad |A_iD_i| = L(4 - r),$$

$$\mathrm{Area}_{\mathrm{inner}} = \tfrac{1}{2}L^2r^2\sin\theta_\mu, \qquad \mathrm{Area}_{\mathrm{outer}} = \tfrac{1}{2}L^2(16 - r^2)\sin\theta_\mu.$$

In the axial product, the incidence is carried along $\{T = 2L/c, r = 0\} \times \mathbb{R}_z$, not by one isolated four-dimensional point. The deficit remains μ.

Proof. The strict sign change of b has only the zero $s = 0$. For the witness $0 < r \le 1/4$ on the outgoing side. The

sector angle satisfies

$$\frac{\pi}{2} - \frac{\pi}{60} \le \theta_{\mu} \le \frac{\pi}{2} + \frac{\pi}{60}.$$

In particular its sine is positive. Chord length and triangular area formulas give the displayed quantities. Each outer face is the difference between two homothetic triangles; it is an embedded trapezoid. Its inner and outer boundaries share precisely the specified vertices. The seam is matched by $R_{\mu} e_{3} = e_{0}$.

The total sector opening is unchanged by subdivision, hence so is the deficit. At $s = 0$ the inner lengths and areas vanish, and the outer image is the incoming triangle.

Each marking lies in a constant-T slice. The regular induced metric is positive, and a nonconstant causal curve has strictly increasing T, so distinct points of that slice are not causally related. Different parameters have ordered slice times. Axial product replication gives the indicated worldsheet cut.

The one-sided dependence $r = s_{+}/4$ is not a smooth spacetime metric evolution. It is a piecewise geometric marking law. Collapsed slots remain unoccupiable; no quantum process at the apex is inferred. The persistence comparison is VIII-B and VIII-ST [13, 15].

Certified flow, supplied tokens, and computational C5 support

Commands and their domains

For a regular outgoing packet, a collar may be installed at

$$E_{i} = LR_{\mathrm{col}}(u) e_{i}, \qquad R_{\mathrm{col}}(u) = \frac{15}{4} + \frac{u}{8}, \qquad -1 \le u \le 1.$$

It splits each outer face into

$$[A_{i}, E_{i}, E_{i+1}, A_{i+1}], \qquad [E_{i}, D_{i}, D_{i+1}, E_{i+1}].$$

The inequalities

$$r \le \frac{1}{4} < \frac{29}{8} \le R_{\mathrm{col}} \le \frac{31}{8} < 4$$

exclude new collisions. The two collar areas are

$$\tfrac{1}{2}L^{2}(R_{\mathrm{col}}^{2}-r^{2})\sin\theta_{\mu},\qquad \tfrac{1}{2}L^{2}(16-R_{\mathrm{col}}^{2})\sin\theta_{\mu}.$$

Their sum is the old outer area. This refinement does not move the underlying slice or change the deficit.

Definition (Legal finite schedule). A command input contains a complete accepted packet, its frame signature, active/inactive incidence labels, finite resource bounds, and any supplied token. The commands in the printed interface are:

1. particle($s \to s'$): change the slice parameter at fixed μ within one incidence epoch; a one-sided endpoint at zero is allowed;

2. flow($u \to u'$): move an already installed collar at fixed regular s, μ within $[-1, 1]$; all new vertices and areas are returned;

3. source(v): replace the catalogue packet by the supplied v-packet at the same permitted marking parameter, recomputing rays, seam, and metric arrays; this does not change the laboratory host;

4. stab: replace the incoming zero-germ incidence label by the outgoing zero-germ label, retaining collapsed slots as inactive metadata. Each command returns all five certificate clauses, not merely the changed entries. It is legal only on its stated domain and when its returned data meet Definition . An optional collar installation must itself return the full refined certificate before a collar-flow command.

No command reads an unlisted spectator state or an inaccessible residual. Every incompatible or unproved branch has an explicit failure output.

Theorem (Legal composition and a five-command history). *A finite legal word in the printed command interface returns an accepted complete certificate at every successful prefix. It does not assert schedule independence for differently ordered, noncommuting commands.*

The following five-command history is nonempty:

$$\text{particle}(-\tfrac{1}{2} \to 0^{-}), \quad \text{stab}, \quad \text{particle}(0^{+} \to \tfrac{1}{2}), \quad \text{source}(v), \quad \text{flow}(0 \to \tfrac{1}{2}),$$

where $\mu, v \in I$ are supplied, and the outgoing collar has been installed and certified before the final command. All geometry and incidence data for that installation are included in the retained history.

Proof. Induct on the word length. The initial packet is accepted. A legal next command has an accepted complete input and, by its domain and output contract, returns a complete accepted output. A failure branch is not renamed a successful certificate.

For the explicit history, the first command stays on the incoming epoch and reaches its one-sided germ. The second changes only the germ label. The third produces $r = 1/8$, hence positive inner areas and positive outer areas by Theorem . The source command recomputes the same formulas at v, whose sector sine is positive. The displayed collar inequalities verify its installation and its final flow at $u = 1/2$. The common seam and frame formulas verify all transitions; lengths, areas, embeddings, and worldsheet fixation remain accepted.

The induction is a composition theorem on a declared legal interface, not a universal law of arbitrary hardware. The table is a local witness beside VIII-C's legal-word and VIII-ST's five-command records [14, 15]. A flow is neither an I-D settling switch nor a gravitational Hamiltonian evolution.

Token versus expectation extraction

Theorem (Supplied tokens do not implement an expectation selector). *Suppose a* source *command receives a finite token q with a supplied dictionary $q \mapsto v_q$. Its controlled finite label operation is affine on input density operators. It does not thereby acquire the nonlinear task "output the deterministic token for the expectation-selected catalogue member."*

More precisely, let $Z = \mathrm{proj}\,0 - \mathrm{proj}\,1$ on a qubit and

$$\mu(\rho) = \frac{\pi}{2} + \frac{\pi}{20}\mathrm{Tr}\,(Z\rho).$$

No CPTP map can, on every ρ, return orthogonal deterministic labels for $\mu(\rho)$. Even restricting attention to the

three values attained on $\mathrm{proj}\,0, \mathrm{proj}\,1, I/2$ *gives a contradiction.*

Proof. A controlled label map on diagonal inputs has the form

$$\sum_q p_q \mathrm{proj}\, q \mathrm{longmapsto} \sum_q p_q |v_q\rangle\langle v_q|,$$

with any additional survivor maps specified branchwise. It is linear and CPTP on its declared finite interface.

The expectation rule has distinct endpoint values μ_+, μ_- and midpoint μ_0. If the endpoint states returned their deterministic labels, linearity would make the output on $I/2$

$$\tfrac{1}{2}|\mu_+\rangle\langle\mu_+| + \tfrac{1}{2}|\mu_-\rangle\langle\mu_-|,$$

not $|\mu_0\rangle\langle\mu_0|$. Three orthogonal labels already prove the impossibility.

A semantic map $\rho \mapsto \mu(\rho)$, a supplied token, and a physical acquisition instrument are three different interfaces [13, 14]. No private-key resource, heralded-cut protocol, or MBQC mechanism is imported by the word "token."

Remark (Independent-copy estimation is not one-use selection). An independent-copy estimator of an expectation-selected catalogue value (for example m qubits with a Hoeffding confidence bound) is ordinary statistics on a declared copy class. It is not a one-use selector of the nonlinear task refused by Theorem . Continuity of an estimator is not equality of exact labels. This remark absorbs the retired Version 2 bridge conj:precision-token-acquisition.

C5 backwards support

Let Γ be a finite site graph with graph distance d_Γ, and site Hilbert spaces H_v. At discrete step j, the channel is a tensor product of CPTP block channels on disjoint blocks B, with identity on untouched sites. Include classical controllers and their storage as sites. Assume

$$\mathrm{diam}_\Gamma(B) \le R_{\mathrm{blk}}$$

for every block. No unlisted global classical controller is allowed.

For an output set S at step t, define recursively

$$N_{t,t} = S, \qquad N_{u,t} = N_{u+1,t} \cup \bigcup_{\text{substack } B \text{at step} u+1}$$

Theorem (C5: computational backwards support). *For every observable O_S, the Heisenberg pullback from step t to step u is supported on $N_{u,t}$, and*

$$N_{u,t} \subseteq \{v : d_\Gamma(v,S) \le R_{\text{blk}}(t-u)\}.$$

The support conclusion remains valid for referenced input states. It is a statement about the prescribed block-channel computation, not identification of $N_{u,t}$ with a physical causal past.

Proof. The adjoint of a CPTP map is unital. A block disjoint from the current observable support receives the identity and returns the identity, so does not enlarge the support. A block meeting the support can enlarge it only to that entire block. Reverse induction gives the recursion.

At each step every newly included site lies within graph distance R_{blk} of a previously included site. The triangle inequality gives the distance bound. The Heisenberg operator identity holds on the full input algebra; pairing it with an arbitrary referenced state preserves the result.

Theorem (Exact intervention no-signalling and partial-trace factorization). *Let $\Lambda : \mathscr{B}(H_A \otimes H_B) \to \mathscr{B}(H_O)$ be a finite CPTP map. The following are equivalent:*

1. *$\Lambda(\rho) = \Lambda(\rho')$ whenever $\mathrm{Tr}_A \rho = \mathrm{Tr}_A \rho'$;*

2. *$\Lambda = \Gamma \circ \mathrm{Tr}_A$ for a CPTP map $\Gamma : \mathscr{B}(H_B) \to \mathscr{B}(H_O)$. Equivalently, Λ annihilates the linear kernel of Tr_A. The resulting identity is complete under untouched reference extension.*

Proof. Factorization immediately gives input independence. Conversely, every Hermitian X with $\mathrm{Tr}_A X = 0$ has trace zero. For sufficiently small $\varepsilon > 0$,

$$\frac{I}{\dim(H_A \otimes H_B)} \pm \varepsilon X$$

are states with equal B-marginals. The hypothesis gives $\Lambda(X) = 0$. Real and imaginary parts give the same conclusion for every operator in the kernel.

Choose any fixed state τ_A and set $\Gamma(Y) = \Lambda(\tau_A \otimes Y)$. This map is CPTP. Since $X - \tau_A \otimes \mathrm{Tr}_A X$ belongs to the kernel, $\Lambda(X) = \Gamma(\mathrm{Tr}_A X)$. Tensoring a linear-map equality with id_E proves completeness.

The theorem uses equality for all states with the same marginal. Independence only on a limited set of product preparations is a weaker test and need not imply this factorization. No statement is made about unspecified nonlinear matter–geometry dynamics.

Destructive instruments and residual cuts beside I-C

All quantum spaces in this section are finite dimensional. An untouched reference is never accessible to a decoder. Use

$$d_{\mathrm{tr}}(\rho,\sigma) = \tfrac{1}{2}\|\rho - \sigma\|_1, \qquad d_{\diamond}(\Phi,\Psi) = \tfrac{1}{2}\|\Phi - \Psi\|_{\diamond}.$$

Failures and stopping branches are included in every complete channel.

Complete clock and its limits

Let $C \simeq \mathbb{C}^D$, $D \geq 2$, have orthonormal reading basis $\{|\tau_j\rangle\}$, and let X include all unmeasured survivors. Define

$$D_j = \langle \tau_j|_C \otimes I_X, \qquad \mathscr{M}_C(Z) = \sum_j \mathrm{proj}\, j_R \otimes D_j Z D_j^{\dagger}.$$

Theorem (Complete destructive-clock instrument). *The displayed map is CPTP and has no quantum C-factor in its codomain. For every finite reference E,*

$$\mathrm{Tr}_R\,[(\mathscr{M}_C \otimes \mathrm{id}_E)(Z)] = \mathrm{Tr}_C\, Z$$

on all input operators. A state has subnormalized branch

$$\sigma_j = (D_j \otimes I_E)\rho(D_j^{\dagger} \otimes I_E), \qquad p_j = \mathrm{Tr}\,\sigma_j.$$

Only when $p_j > 0$ is σ_j/p_j assigned.

Proof. The recorded Kraus maps $L_j = |j\rangle_R \otimes D_j$ satisfy

$$\sum_j L_j^\dagger L_j = \sum_j |\tau_j\rangle\langle\tau_j|_C \otimes I_X = I_{CX}.$$

Thus the map is completely positive and trace preserving. Expanding $Z = \sum_{j,k} |\tau_j\rangle\langle\tau_k| \otimes Z_{jk}$, with referenced blocks allowed, gives output blocks Z_{jj}. Their sum is $\mathrm{Tr}_C Z$. Positivity gives the branch assertions.

Theorem (Clock calibration and return limitations). *Suppose a fixed readout event is assigned geometric reading t_*. If every occurring outcome must have calibrated value $t_j = t_*$, only outcomes in the fibre $\{j : t_j = t_*\}$ can occur. For distinct t_j, this forces one outcome, or is impossible if t_* is absent.*

The complete clock instrument has no universal channel left inverse on arbitrary unencoded CX. It is nevertheless exact on a known reading-basis input and can leave an independent payload unchanged.

Proof. Exact single-event calibration is the stated equality on each positive-probability branch. Distinct values give at most one such branch.

The two clock states

$$|\pm\rangle = (|\tau_0\rangle \pm |\tau_1\rangle)/\sqrt{2}$$

tensored with the same survivor have identical outputs under $\mathscr{M}_C$, so no left inverse can return both inputs. For $|\tau_j\rangle\langle\tau_j| \otimes \rho_X$, the map returns j and ρ_X exactly. For an independent clock, discarding its record returns ρ_X, including its reference.

No calibration norm constant is renamed a recovery floor. In particular the source-local En09-B thm:cDsharp and its different distance conventions are only a named comparison [21]. A record-controlled operation after readout may disturb X; it does not automatically retain the bare partial-trace identity.

Record agreement versus residual-source agreement

Let P_z be orthogonal input projectors, $a(z)$ an aggregation, $T : \mathscr{B}(H) \to \mathscr{B}(K)$ a CPTP map, and $\{\mathscr{I}_w\}$ a complete instrument on K. Set

$$\Delta_w(Z) = \sum_{z\,:\,a(z)\,=\,w} P_z Z P_z,$$

$$\mathscr{F}(Z) = \sum_w \operatorname{proj} w_R \otimes T(\Delta_w(Z)), \qquad \mathscr{G}(Z) = \sum_w \operatorname{proj} w_R \otimes \mathscr{I}_w(T(Z)).$$

Let $E_w = \mathscr{I}_w^*(I)$.

Proposition (Complete coarse-instrument comparison). *Record laws agree on every state exactly when*

$$T^*(E_w) = \sum_{z\,:\,a(z)\,=\,w} P_z \quad \text{for all} w.$$

For a declared residual observable algebra $\mathscr{O} \subseteq \mathscr{B}(K)$, agreement on all recorded residual observables is equivalent to

$$\sum_{z\,:\,a(z)\,=\,w} P_z T^*(B) P_z = T^*(\mathscr{I}_w^*(B)), \qquad w,\, B \in \mathscr{O}.$$

These operator identities hold under reference extension.

Proof. Pull back a record projector through each channel and compare its expectation on every input state. Equality of Hermitian effects is equivalent to equality on all states, yielding the first condition. Pulling back $\operatorname{proj} w_R \otimes B$ yields the second. Linearity extends from self-adjoint observables to all B; tensoring preserves equality.

Theorem (The full qubit residual counterexample and its robust gap). *Equal records do not imply equal residual-source functionals. This already occurs with $T = \mathrm{id}$ and a one-outcome identity coarse instrument. On a qubit input, the complete outputs can have trace distance exactly* 1/2.

If implementations have respective output errors at most $\delta_{\mathrm{f}}, \delta_{\mathrm{c}}$, their distance is at least $[1/2 - \delta_{\mathrm{f}} - \delta_{\mathrm{c}}]_+$.

Proof. Take computational projectors P_0, P_1, aggregate both outcomes to *, and take $\mathscr{I}_* = \mathrm{id}$. Both record effects are I. The fine aggregated residual map, however, is dephasing, not the identity.

For $\rho = \operatorname{proj} +$, $|+\rangle = (|0\rangle + |1\rangle)/\sqrt{2}$,

$$\mathscr{G}(\rho) = \operatorname{proj}_R \otimes \operatorname{proj} +, \qquad \mathscr{F}(\rho) = \operatorname{proj}_R \otimes I_2/2.$$

With $X_{\mathrm{p}} = |0\rangle\langle 1| + |1\rangle\langle 0|$, the difference is $\operatorname{proj}_R \otimes X_{\mathrm{p}}/2$, whose nonzero eigenvalues are $1/2, -1/2$. Therefore

$$\|\mathscr{G}(\rho) - \mathscr{F}(\rho)\|_1 = 1, \qquad d_{\mathrm{tr}}(\mathscr{G}(\rho), \mathscr{F}(\rho)) = \tfrac{1}{2}.$$

The residual-source functional defined by X_{p} has expectation one on the first output and zero on the second. The robust bound follows by the triangle inequality through the two ideal outputs.

This is a one-input residual distinction, not a universal recovery floor. Its complete proof is retained from the displayed VIII-A interface without using I-C's shredder theorem as a premise [12, 4].

Classical-only recovery

For a code $Q \simeq \mathbb{C}^d$, $d \geq 2$, use the normalized Bell vector $|\Phi_d\rangle = d^{-1/2}\sum_i |i\rangle_E |i\rangle_Q$. The projector test gives, for every decoded channel Ψ,

$$d_\diamond(\Psi, \mathrm{id}_Q) \geq 1 - F_{\mathrm{e}}(\Psi), \qquad F_{\mathrm{e}}(\Psi) = \langle \Phi_d | (\mathrm{id}_E \otimes \Psi)(|\Phi_d\rangle\langle\Phi_d|) | \Phi_d \rangle.$$

Theorem (Sharp classical-only floor). *Suppose the complete accessible output is a finite classical record, and all assisting resources are independent of the unknown input and are included in that declaration. Every deterministic CPTP decoder obeys*

$$d_\diamond(\mathscr{D}\mathscr{C}, \mathrm{id}_Q) \geq 1 - \frac{1}{d}.$$

The bound is attained by computational-basis measurement and repreparation. It concerns recovery of the whole unknown code, not every individual basis input.

Proof. The complete record channel has effects $E_h \geq 0$, $\sum_h E_h = I$, and the decoded map is

$$\mathscr{D}\mathscr{C}(\rho) = \sum_h \mathrm{Tr}\,(E_h \rho)\sigma_h.$$

Its Bell-input output is separable. For product states a, b,

$$\langle \Phi_d | (a \otimes b) | \Phi_d \rangle = \frac{1}{d}\mathrm{Tr}\,(a^{\mathrm{T}} b) \leq \frac{1}{d}.$$

Convexity and prove the lower bound.

Computational readout and repreparation give complete dephasing

$$\Delta = \frac{1}{d}\sum_{j=0}^{d-1} \mathrm{Ad}_{Z^j}, \quad Z = \sum_{k=0}^{d-1} e^{2\pi i k/d}\mathrm{proj}\,k.$$

Separate its identity term. The remaining normalized sum is a channel, so $d_\diamond(\Delta, \mathrm{id}) \le (d-1)/d$. The lower bound is matching.

This standard finite result is compared with VIII-A and I-C [12, 4, 51, 50]. It is neither horizon entropy nor a Page curve.

The complete complement criterion

Theorem (Exact full-code recovery and complete complement). *Let $V : Q \to A \otimes B$ be a finite isometry, with*

$$\mathcal{N}(X) = \mathrm{Tr}_B\, VXV^\dagger, \qquad \mathcal{E}(X) = \mathrm{Tr}_A\, VXV^\dagger.$$

There is a deterministic CPTP decoder from A with $\mathcal{D}\mathcal{N} = \mathrm{id}_Q$ if and only if

$$\mathcal{E}(X) = \mathrm{Tr}\,(X)\sigma_B \quad \text{for every input operator} X.$$

If $s = \mathrm{rank}\,\sigma_B$, then

$$\mathcal{N}(X) = J(X \otimes \sigma_S)J^\dagger, \qquad J : Q \otimes \mathbb{C}^s \to A \text{ isometric}, \qquad \dim A \ge ds.$$

The complement must include every inaccessible output of the chosen isometric realization.

Proof. Diagonalize $\sigma_B = \sum_{a=1}^{s} p_a |b_a\rangle\mathrm{langle}b_a|$, $p_a > 0$. The constant-complement matrix-unit identities give

$$V|i\rangle = \sum_a \sqrt{p_a}|u_{ia}\rangle_A |b_a\rangle_B, \qquad \langle u_{jb}|u_{ia}\rangle = \delta_{ij}\delta_{ab}.$$

Thus $J(|i\rangle|a\rangle) = |u_{ia}\rangle$ is an isometry and gives the normal form. For any fixed code state τ_Q,

$$\mathcal{D}(Y) = \mathrm{Tr}_S\,(J^\dagger Y J) + \mathrm{Tr}\,[(I - JJ^\dagger)Y]\tau_Q$$

is CPTP and recovers X.

Conversely, dilate a CPTP exact decoder by an isometry $L : A \to Q \otimes G$, obtained from its Kraus maps. Purity of each decoded basis state implies

$$(L \otimes I_B)V|i\rangle = |i\rangle|\xi_i\rangle_{GB}.$$

Exactness on off-diagonal matrix units gives $\langle\xi_j|\xi_i\rangle = 1$. The normalized vectors are therefore all equal. Tracing *QG* gives a fixed complementary state on *B*, including zero off-diagonal complementary matrix units.

The rank *s* is the rank of the complete constant complementary state, not an accessible marginal's rank. This full-code criterion is not a criterion for every subsystem recovery task [12, 26, 27, 52].

Proposition (Subdimensional cuts and exact heralding pretest). *If every complete classical branch from a d -dimensional code to its decoder factors through a quantum dimension at most k < d, then*

$$F_{\mathrm{e}}(\mathscr{D}\mathscr{N}) \le k/d, \qquad d_{\diamond}(\mathscr{D}\mathscr{N}, \mathrm{id}) \ge 1 - k/d.$$

A trace-nonincreasing success composite on such branches cannot equal $p\,\mathrm{id}_Q$ *for any* $p > 0$.

Proof. Every composite Kraus map $K_a : Q \to Q$ has rank at most *k*. The inequality $|\mathrm{Tr}\,K_a|^2 \le k\mathrm{Tr}\,(K_a^\dagger K_a)$, summed with trace preservation, proves the fidelity bound and hence the error bound.

The Choi matrix of $p\,\mathrm{id}_Q$ has rank one. If a sum of positive Kraus Choi matrices equals it, each nonzero Kraus vector is proportional to the identity vector. Its operator has rank *d*, contradicting the cut rank *k* < *d*.

The last statement is an exact full-code pretest with all assistance counted. It is not imported from a sibling heralded-cut theorem and does not identify heralding with MBQC.

Nonempty finite-promise transport

Theorem (Regular-part clock, five-command, and history transport). *Fix a finite promise list of legal five-command instances from Theorem , with finitely many supplied catalogue tokens and parameter values. Encode each accepted packet and complete history by finite symbolic words in a fixed checked table.*

Assume the following operational permissions on one laboratory satisfying Definition :

1. *finite reversible classical-table computation with retained input/history registers;*

2. *finite unitary clock-basis change and destructive readout;*

3. *local SWAP interactions at register encounters;*

4. *ideal internal identity evolution of a transported finite register along each supplied regular timelike curve;*

5. *initialized blank receiving and workspace registers. Then a nonempty finite protocol computes the five-command certificate history and transports an arbitrary unknown payload together with that history to a receiving laboratory. For every untouched reference, the payload channel is identity.*

If complete encoding, computing, transport, and decoding stages have half-diamond allowances δ_j, the matched implemented channel has error at most

$$\min\{1, \sum_j \delta_j\}.$$

Proof. For a finite table input a, retain a and map a blank history register to $h(a)$. The basis map

$$|a\rangle|0\rangle \longmapsto |a\rangle|h(a)\rangle$$

is injective. It extends to a permutation unitary on a sufficiently large finite space. Retaining intermediate histories similarly realizes every prefix without erasing information.

Choose a small convex developing reserve in the regular host and two distinct points in it. A straight spatial path with speed strictly below c is timelike and stays a positive distance from the worldsheet. Allocate a finite time interval long enough for the finite table computation, clock readout, local encounters, and travel. This realizes a nonempty regular placement.

Read an independent finite clock, use its outcome only to choose among the supplied legal table histories, and leave the unknown payload untouched. The known classical words can be copied in their computational basis, not as arbitrary unknown quantum states. Carry the payload/history register along the stated curve and SWAP it into the initialized receiver at the encounter. The assumed internal identity evolution and endpoint SWAP return the original payload density operator, including all off-diagonal and referenced blocks.

Only finitely many registers, encounters, table entries, and time buffers are used. Enlarging the finite workspace gives an explicit finite resource bound for any selected table.

For allowances, replace one compatible stage at a time in the difference of the ideal and implemented compositions. CPTP pre- and postcomposition contract diamond norm. The triangle inequality gives the sum, and two channels have half-diamond distance at most one.

This is a realization in the *declared operational permission class*. It is not an experimental implementation or a continuum field-acquisition theorem. Arbitrary exact real catalogue data are not acquired from a finite word. Finite-promise symbolic reporting is the relevant task.

If outcome-conditioned dynamics act on the payload, their actual complete channel must replace the identity target. Clock consumption alone does not prove that target. This is the named transport comparison with I-B and VIII-ST [8, 15].

The extension: six cross-framework separation theorems

A certificate is a cut, not a general residual selector

Theorem (Certificate-cut fibre). *Let the complete accepted reporting interface be*

$$\mathscr{A} = \mathrm{bigoplus}_{h \in \mathscr{H}} \mathscr{B}(K), \qquad \dim K \geq 2,$$

where $\mathscr{H}$ is a finite set of supplied accepted certificate words. The certificate algebra is

$$\mathscr{A}_{\mathrm{cert}} = \{ \mathrm{bigoplus}_h \, c_h I_K : c_h \in \mathbb{C} \}.$$

The certificate cut is

$$\mathscr{C}_{\mathrm{cert}}((Z_h)_h) = \sum_h \mathrm{Tr}\,(Z_h)\mathrm{proj}\, h.$$

Under the explicit access contract that the certificate imposes no additional residual constraint, every Hermitian array $R = (R_h)$ with $\mathrm{Tr}\, R_h = 0$ lies in the Hilbert–Schmidt annihilator of $\mathscr{A}_{\mathrm{cert}}$. At an interior block state $Z_h > 0$, sufficiently small $Z \pm \varepsilon R$ are positive states with identical certificate laws. For any residual observable outside $\mathscr{A}_{\mathrm{cert}}$, an annihilator direction can be chosen that changes its expectation.

Thus complete geometric matching need not select complete quantum residual-source functionals. Physical

residuals are free only within the printed positive-state and access constraints.

Proof. The pairing with a certificate observable is

$$\sum_h \operatorname{Tr}(R_h c_h I_K) = \sum_h c_h \operatorname{Tr} R_h = 0.$$

If every relevant block is positive definite, choose $\varepsilon \mathrm{lVert} R_h \| < \lambda_{\min}(Z_h)$ in each nonzero direction. The two arrays are positive, and their total traces are unchanged.

For a Hermitian residual observable $B = (B_h)$ not in $\mathscr{A}_{\mathrm{cert}}$, at least one

$$R_h = B_h - \frac{\operatorname{Tr} B_h}{\dim K} I_K$$

is nonzero. Set all other directions to zero. Then $\operatorname{Tr}(B_h R_h) = \operatorname{Tr}(R_h^2) > 0$, so the two expectations differ. The same construction after taking real and imaginary parts treats general linear functionals.

Necessary qualification. "Classical" alone does not prove that the *full probability law* is non-tomographic: an informationally complete POVM may have an injective state-to-law map. The theorem instead identifies the proper certificate algebra of a stated certificate–residual interface and constructs its actual positive-state fibre. At a boundary state, not every annihilator perturbation preserves positivity. A supplied residual-source law can also remove freedom. Neither qualification is omitted.

No continuum gravitational source map is inferred from these finite functionals. In particular $\operatorname{Dom}(T)$ remains undetermined.

Stale rotation is not settling

Theorem (Stale-not-settling separation). *On the fixed finite matching interface, retaining $J_{\mu_{\mathrm{old}}}$ at $\mu_{\mathrm{new}} \neq \mu_{\mathrm{old}}$ is the seam failure of Theorem . It is not a time-dependent metric switch or a cosmic expansion law.*

Proof. The stale-ray calculation of Theorem has no time variable or metric update: it changes whether a supplied seam equality holds. For comparison only, the named Series-ID / I-D class (eventual reception under a uniform spatial reference bound and infinite future conformal duration) refuses a switch-only opposite-horizon test; that

refusal is a named comparison and is not re-proved here [31, 11]. The side comparison specifies its own hypotheses; it does not adopt an I-D host into the matching proof.

Incidence is not a bounce

Theorem (Incidence-not-bounce separation). *For the printed cellulation contract on , the three-to-six transition changes incidence labels and subdivisions, not the spacetime metric, its missing worldsheet, or its deficit. It supplies no continuation through a cosmological curvature singularity.*

Proof. The geometric metric in is independent of s. Only the vertex lists and active-face labels change. Theorem preserves the total opening $2\pi - \mu$; $\mathscr{W}_{\mu}$ remains the missing locus. No cosmological time endpoint or extension map occurs in the transition data. Therefore the transition constructs neither a new metric extension nor removal of the defect.

An acausal marking is not a field equation. A transverse event replicated in z is not an isolated four-dimensional event.

Computational support is not a deadline

Theorem (Support–deadline non-identification). *Under Theorem , completeness of certificates on $N_{u,t}$ does not determine a physical light-cone, port latency, or winding deadline.*

There are embeddings and time calibrations of the same finite block-channel history with identical $N_{u,t}$ and certificate words but different physical route durations. Causal containment follows only when every dependency is separately placed on a future-causal route.

In the noncompact-axial host , no compact axial period is supplied. An I-D compact-axial winding deadline cannot be imported from its graph or certificate.

Proof. Take a fixed two-site identity-transport computation in a regular convex reserve. Place its endpoints at spatial separations $\ell_1 \neq \ell_2$, both sufficiently small to stay in the reserve. The finite graph, channels, and stored certificate words are the same. Their straight route lower bounds are respectively $\ell_1/c, \ell_2/c$. Alternatively, insert

different positive vertical waits with the same endpoints and unchanged computation.

If each graph dependency has a causal placement, any concatenated dependency path gives a causal route by transitivity. Without that placement, a graph edge does not imply one.

The z-coordinate in is $\mathbb{R}$, not a circle. No period L_z or axial-winding integer belongs to its contract. A transverse winding count also carries no route length: at constant r, z, one azimuthal loop has length $2\pi\alpha_{\mu_{\mathrm{H}}} r$, which varies with r while the count remains one.

The C5 graph bound is not the cut-dimension inequality in I-D-Deadline-A. One concerns where observables pull back; the other concerns quantum recovery capacity [14, 17].

Spinless holonomy is not a source-test Ward identity

Theorem (Spinless–Ward and Green-realization separation). *The certificate contract contains finite affine transitions, winding, and metric data, but no field operator domain, source-test map, ghost realization, or Green inverse. Therefore it does not specify or prove*

$$C_1 G^{\pm}_{(1)} = G^{\pm}_{(0)} C_1,$$

nor select a spin-2 Green realization.

In the explicit extension class obtained by adjoining independent operator data to the same certificate, operator selections can vary while all five matching clauses remain unchanged. An independently supplied Ward or Green theorem would impose additional constraints, not follow from the spinless clause.

Proof. None of the five clauses in Definition contains C_1, a test-field space, an operator domain, or a Green map. All certificate tests therefore have the same value when those independent slots are changed.

Even for an auxiliary finite linear identity with scalar spaces, $C_1 = 1$, choices $(G_{(1)}, G_{(0)}) = (1, 1)$ and $(2, 1)$ give different identity verdicts with the same geometric data. This is a fibre witness for the unconstrained slots, not a claim that either finite pair is a conical Green operator.

For an actual field claim, one must instead supply its differential equation, realization, test domains, and compatibility proof. Those are absent from this certificate's codomain and construction.

I-B-G-S's Maxwell source-test theorem and I-B-G-S-B's domain/defect records are named comparisons only [10, 23]. Their spin decomposition and Green identities are not re-proved. Geometric covariance, conserved-source response, and a quantum Ward identity are different achievements.

Finite deficit with curvature blow-up is not a bounce

Theorem (Coexistence does not construct a bounce). *On the independently prescribed power-law conical comparison of Theorem , a finite deficit coexists with $\mathscr{K} \to \infty$. This supplies neither a regular continuation through its endpoint nor removal of its conical marker.*

The three-to-six certificate remains compatible as metadata on regular positive-time slices, but does not cure that divergence.

Proof. The circle/radius ratio and the curvature contraction are computed from different supplied parts of the comparison metric in Theorem . Subdividing a slice changes neither. That metric is defined only for $t > 0$, and no extension at $t = 0$ is supplied by a certificate. The invariant obstruction under the regular isometric comparison class below also prevents interpreting a bounded-curvature image as that blow-up region.

The radiation-prefix comparison named Early-Blow-A and the pulse record Hawk07-C-Dyn are documentary comparisons within VIII-Defect-A, not premises here [16, 18, 19].

Robust matching, certificate-fibre uncertainty, and approximate support

The six extension theorems separate frameworks. The four theorems below measure those separations on the printed cone, the printed certificate algebra, and the printed C5 contract. They do not select an expansion law, invent a light-cone, or promote a conjecture.

Seam mismatch and finite-promise winding

Theorem (Robust matching and finite-promise winding). *Work in the fixed developed transverse frame of Definition .*

1. *Seam mismatch. For $\mu, \nu \in I$, the stale rotation R_ν applied to the upper seam ray of the μ-packet has exact unit-ray mismatch*

$$\mathrm{lVert} R_\nu e_3(\mu) - e_0 \| = 2\left|\sin\frac{\nu-\mu}{2}\right|.$$

At transverse radius $r > 0$ the positional mismatch is $2r|\sin((\nu-\mu)/2)|$. With Euclidean allowances $\varepsilon_1, \varepsilon_2 \geq 0$, the observed separation is at least

$$[2r|\sin\frac{\nu-\mu}{2}| - \varepsilon_1 - \varepsilon_2]_+.$$

2. *Finite-promise winding. Promise $-N \leq n \leq N$ with $N \geq 1$, and set*

$$\Delta_N(\mu) = \min_{1 \leq k \leq 2N} 2|\sin\frac{k\mu}{2}|.$$

If $\Delta_N(\mu) > 0$, an observed rotation within operator-norm error $\varepsilon < \Delta_N(\mu)/2$ of the true R_μ^n identifies n by nearest-matrix decoding among $\{R_\mu^m : |m| \leq N\}$. If $\mu/(2\pi) = a/b$ in lowest terms, windings differing by b alias. If $\mu/(2\pi)$ is irrational, every finite promise has positive separation, but no positive separation is uniform over all integers.

Proof. In the developed plane, $e_3(\mu)$ is the unit vector at angle $3\theta_\mu = 2\pi - \mu$, and R_ν is rotation by angle ν. Hence $R_\nu e_3(\mu)$ has angle $2\pi - \mu + \nu$, and the Euclidean chord to $e_0 = (1, 0)$ has length $2|\sin((\nu-\mu)/2)|$, proving the unit-ray identity. Scaling by transverse radius r gives the positional mismatch. The triangle inequality through two ε_i-balls yields the observed lower bound.

For winding, R_μ^n is rotation by $n\mu$. The operator norm on $\mathbb{R}^2$ satisfies

$$\mathrm{lVert} R_\mu^n - R_\mu^m \| = 2|\sin\frac{(n-m)\mu}{2}|.$$

Under the promise $|n|, |m| \le N$ with $n \ne m$, one has $1 \le |n - m| \le 2N$, so the minimal separation is exactly $\Delta_N(\mu)$. Nearest-matrix decoding therefore succeeds whenever the observation error is strictly less than half that separation. If $\mu/(2\pi) = a/b$ in lowest terms, then $R_\mu^b = I = R_\mu^0$, so windings congruent modulo b are indistinguishable from rotation data alone. If $\mu/(2\pi)$ is irrational, $\sin(k\mu/2) \ne 0$ for every nonzero integer k, so every finite N has $\Delta_N(\mu) > 0$; yet $\inf_{k \ge 1} 2|\sin(k\mu/2)| = 0$, so no positive separation is uniform over $\mathbb{Z}$.

par

Parent records, not premises: VIII-A A:thm:A4-stale, VIII-ST thm:matching, I-B prop:holonomy [12, 15, 8]. This quantifies Theorem . It does not select an expansion law; Family 260 stays refused [60]. An arbitrary Lorentz-frame change need not preserve the Euclidean allowance used in the observed-separation bound.

Corollary (Alias precludes unique nearest-matrix decoding). *If $\Delta_N(\mu) = 0$, nearest-matrix decoding on the promise set is not unique.*

Proof. Immediate from Theorem : $\Delta_N(\mu) = 0$ means two distinct promised windings share the same rotation matrix, so nearest-matrix decoding cannot separate them.

Certificate-only fibre risk

Theorem (Certificate-fibre risk and fibre diameter). *Keep the access contract of Theorem : the certificate imposes no extra residual constraint. For a certificate law $(p_h)_{h \in \mathscr{H}}$ and a Hermitian residual observable $B = (B_h)$, write $b_h^{\pm} = \lambda_{\max/\min}(B_h)$. The possible expectations are exactly*

$$[\sum_h p_h b_h^-, \sum_h p_h b_h^+].$$

Certificate-only minimax absolute error is

$$\mathscr{R}_B(p) = \frac{1}{2}\sum_h p_h (b_h^+ - b_h^-).$$

If $\dim K \ge 2$*, the compatible-state fibre has trace-distance diameter exactly* 1.

Proof. A compatible state is a block array $Z = (Z_h)$ with $Z_h \ge 0$, $\operatorname{Tr} Z_h = p_h$. On block h with $p_h > 0$, the

expectations of B_h under density operators Z_h/p_h fill $[b_h^-, b_h^+]$, attained at extreme eigenstates of B_h. Independence across blocks therefore fills the displayed interval of total expectations; no interior perturbation is required. Any certificate-only estimator is a function of (p_h) alone, so its worst-case absolute error is at least half the interval length, and the midpoint estimator attains that value.

If $\dim K \geq 2$, choose a block h_* with $p_{h_*} > 0$ and two orthogonal pure states $|\psi\rangle, |\varphi\rangle$ in K. The compatible states with $Z_{h_*} = p_{h_*} \operatorname{proj} \psi$ and $Z_{h_*} = p_{h_*} \operatorname{proj} \varphi$ (and identical remaining blocks) have trace distance p_{h_*}. Taking a certificate law concentrated on a single h_* (or renormalizing a one-block interface) yields diameter 1. In every case the diameter is at most 1, so exactly 1 whenever some positive-mass block has $\dim K \geq 2$.

par

This measures Theorem . Parent style only: VIII-A A:thm:residual (the 1/2 gap is the one-input special case), I-C def:cut, Big06-B thm:B6B-residual (inverse account after supply, not this fibre) [12, 4, 38]. Not a recovery floor and not horizon entropy.

Corollary (Coarse flag cannot reduce fibre risk). *A coarse flag $q : \mathscr{H} \to \mathscr{H}_{\text{coarse}}$ has minimax risk at least the fine risk of Theorem .*

Proof. Any estimator of the residual observable that depends only on the coarse flag is a special case of a certificate-only estimator of the fine law, so its minimax absolute error is at least $\mathscr{R}_B(p)$. Style: Series-IC cor:coarse-flag; that proof is not imported [30].

Radial winding deadline

Theorem (Radial winding deadline on the laboratory cone). *On the fixed laboratory cone with $\mu = \mu_{\mathrm{H}}$, let a future-causal route have $r(T) \geq r_* > 0$ throughout, angular coordinates agreeing modulo 2π at its endpoints, and continuous lift of winding number $n \in \mathbb{Z}$. Then*

$$\Delta T \geq \frac{2\pi\alpha_{\mu_{\mathrm{H}}} r_* |n|}{c}.$$

For $n \neq 0$ the bound is attained by a constant-radius null circuit at $r = r_*$, z fixed. Any larger duration permits a timelike circuit. Without a common positive radial exclusion there is no strictly positive winding-only lower bound uniform over regular circuits.

Proof. Along a causal curve,

$$c^2 \dot{T}^2 \geq \dot{r}^2 + \alpha_{\mu_{\mathrm{H}}}^2 r^2 \dot{\varphi}^2 + \dot{z}^2 \geq \alpha_{\mu_{\mathrm{H}}}^2 r_*^2 \dot{\varphi}^2 .$$

Integrating and using $\int |\dot{\varphi}| \,\mathrm{mathop\,d}T \geq 2\pi|n|$ for a continuous lift of winding n yields . The constant-radius null circuit $r \equiv r_*$, z fixed, $\varphi = 2\pi n\, T/\Delta T$ with equality in the null condition attains the bound. Any strictly larger ΔT permits a uniformly timelike reparametrization of the same spatial circuit. If no common $r_* > 0$ is imposed, circuits with $r \to 0^+$ make the right-hand side of arbitrarily small while retaining winding one, so no strictly positive winding-only lower bound is uniform over all regular circuits.

par

This is the missing hypothesis that Theorem correctly refused to invent. Parent records: I-B thm:metric-containment, I-D-Deadline-A thm:DL-cut, Series-ID thm:axial-winding-deadline [8, 17, 31]. Axial winding and radial exclusion are different contracts. A laboratory tube may exclude the attainer; the lower bound stays necessary, attainment needs a separate placement check. Not a physical causal past and not C5.

Robust approximate C5

Theorem (Robust approximate C5). *Let Λ be an ideal finite block-channel computation satisfying Theorem , with designated output set S and backwards support $N = N_{0,t}$. Let an implementation $\widetilde{\Lambda}$ on the same complete interfaces have diamond-norm stage allowances δ_j (completely bounded trace norm), and set $\delta = \min\{1, \sum_j \delta_j\}$. For inputs with the same reduced state on N,*

$$d_{\mathrm{tr}}(\widetilde{\Lambda}_S(\rho), \widetilde{\Lambda}_S(\rho')) \leq \min\{1, 2\delta\}.$$

The same holds with an untouched reference when the NE-marginals agree. Equal-prior discrimination of two

interventions outside N then has

$$P_{\mathrm{succ}} \le \frac{1}{2} + \frac{1}{2}\min\{1, 2\delta\}.$$

Proof. Write $\Lambda = \Lambda_t \circ \cdots \circ \Lambda_1$ and $\widetilde{\Lambda} = \widetilde{\Lambda}_t \circ \cdots \circ \widetilde{\Lambda}_1$ with $\|\widetilde{\Lambda}_j - \Lambda_j\|_\diamond \le \delta_j$. The telescoping estimate for CPTP compositions yields $\|\widetilde{\Lambda} - \Lambda\|_\diamond \le \sum_j \delta_j$. By Theorem and Theorem , the ideal output on S depends only on the reduced state on N, so $\Lambda_S(\rho) = \Lambda_S(\rho')$ whenever the N-marginals agree. Therefore

$$d_{\mathrm{tr}}(\widetilde{\Lambda}_S(\rho), \widetilde{\Lambda}_S(\rho')) \le d_{\mathrm{tr}}(\widetilde{\Lambda}_S(\rho), \Lambda_S(\rho)) + d_{\mathrm{tr}}(\Lambda_S(\rho'), \widetilde{\Lambda}_S(\rho'))$$

$$\le \|\widetilde{\Lambda} - \Lambda\|_\diamond \le \sum_j \delta_j,$$

using $\|\Phi(X)\|_1 \le \|\Phi\|_\diamond \mathrm{lVertX}\|_1$ and $d_{\mathrm{tr}} \le \|\cdot\|_1$ on the difference of two states (the printed factor 2 absorbs the passage between common diamond-norm conventions and the trivial bound by 1). Hence the display with $\delta = \min\{1, \sum_j \delta_j\}$. Reference extension is identical on NE-marginals. Helstrom's theorem gives the equal-prior discrimination bound from the trace-distance estimate.

par

Specify diamond-norm allowances; trace-distance stage allowances do not add the same way. Parents: VIII-C thm:C5, VIII-ST thm:C5, VIII-ST prop:nosignal [14, 15]. This is still computational. It does not identify the graph neighbourhood with a light-cone, and the leakage allowance is not the replacement floor $1 - 1/d^2$.

Defect layers and their comparison-map boundaries

Explicitly typed diagnostic meanings

Local diagnostic interfaces (not mutually exclusive classes; no XVI-N identification):

(K): kinematic defect A prescribed nontrivial transverse deficit or marked peripheral holonomy. The marker and its test loops are part of the data.

(P): prepared-response defect A nonzero discrepancy W in one specified prepared-response identity, with its

input, maps, tests, and allowed changes declared. It is not bulk curvature merely by its name.

(C): curvature divergence Unbounded bulk Kretschmann scalar along a specified regular-point sequence approaching a declared endpoint of a prescribed metric. In particular (K) and (C) can coexist. VIII-Defect-A thm:pulse, thm:nomap, and cor:layers remain source records, not premises [16].

Remark (Prepared-response example). A (P) interface must name its response maps. At the finite level the prepared outputs of Theorem have a tested response difference $W = \mathrm{Tr}\,[X_{\mathrm{p}}(\rho_{\mathrm{c}} - \rho_{\mathrm{f}})] = 1$ on a locally flat laboratory. This illustrates a response discrepancy without curvature divergence; it is not a substitute for a parent prepared-field insertion.

Definition (Declared regular comparison maps). For the no-map statement, allowed metric comparisons are C^2 local isometries on regular regions, together with changes of Lorentz-affine frame and label-preserving restrictions. A claim about preserving (K) must additionally preserve the marked worldsheet, peripheral test loops, and their winding. A claim about preserving (P) must additionally intertwine its specified input, response, and test maps. Arbitrary metric replacements, degenerating conformal rescalings, or maps that discard the marked test sequence are not in this class.

Theorem (Smooth pulses, power-law coexistence, and defect layers). *The following hold for the printed diagnostic interfaces.*

1. *A smooth finite pulse on a regular spacetime neighborhood is not, by that fact alone, a class-(C) endpoint. For a concrete supplied metric, take*

$$g_{\mathrm{p}} = -c^2\mathrm{mathop\,d}\eta^2 + \mathrm{mathop\,d}r^2 + F(\eta, r)^2\mathrm{mathop\,d}\varphi^2 + \mathrm{mathop\,d}z^2,$$

$$F(\eta, r) = r[1 - \beta q(r)S(\eta)], \quad 0 < \beta < 1,$$

where q, S are smooth, $0 \le q, S \le 1$, $q = 0$ near the filled axis, and S is a finite smooth step. There is no curvature blow-up at a finite regular event; the axis-filled metric is smooth near the axis.

2. *On the separate prescribed host*

$$g_{\alpha,p} = -c^2\mathrm{mathop\,d}t^2 + a(t)^2[\mathrm{mathop\,d}r^2 + \alpha^2 r^2 \mathrm{mathop\,d}\varphi^2 + \mathrm{mathop\,d}z^2], \qquad a(t) = a_0(t/t_0)^p,$$

with $t > 0$, $a_0, t_0 > 0$, $p > 0$, $0 < \alpha < 1$, *and* $r > 0$, *the transverse spatial deficit is* $2\pi(1-\alpha)$, *while*

$$\mathscr{K}(t) = \frac{12p^2[(p-1)^2 + p^2]}{c^4 t^4} \to \infty \quad (t\mathrm{downarrow}\,0).$$

3. *An allowed regular isometry maps a bounded-$\mathscr{K}$ region only to a region with the same bound. It cannot have in its image a sequence on which $\mathscr{K} \to \infty$. Marked (K) and intertwined (P) data are preserved under the corresponding additional clauses of Definition . The statements construct no conversion of one defect type into another, no bounce, and no discharge of XVI-N.*

Proof. The pulse has $F \geq (1-\beta)r$. Away from the axis its coefficients and inverse metric are smooth; on compact regular neighborhoods curvature is bounded. Near the axis $q = 0$, hence

$\mathrm{mathop\,d}r^2 + F^2\mathrm{mathop\,d}\varphi^2 = \mathrm{mathop\,d}x^2 + \mathrm{mathop\,d}y^2$, a smooth filling.

For , developed spatial charts are flat and the circumference/radius ratio is $2\pi\alpha$, giving the fixed deficit. In a regular orthonormal frame, $\mathscr{K} = 12c^{-4}[(\ddot{a}/a)^2 + (\dot{a}/a)^4]$; substitute $\dot{a}/a = p/t$, $\ddot{a}/a = p(p-1)/t^2$ to obtain . A local isometry preserves $\mathscr{K}$ pointwise, so a blow-up sequence cannot lie in the image of a bounded-$\mathscr{K}$ region. Marked (K) and intertwined (P) data are preserved by the additional clauses of Definition .

Corrections retained. The deficit in is an induced spatial transverse deficit (spacetime holonomy during expansion is a different question). The no-map assertion concerns the image of the declared bounded-curvature region. Pulse and $p = 1/2$ radiation-prefix details remain source records [16, 18, 19]. The static cone has (K) with zero bulk curvature; the power-law host has both (K) and (C); the prepared finite response has a flat-patch discrepancy.

Conditional horizon access and vacuum non-selection

A fresh-input horizon contract

Separately supplied classical spacetime; finite directed network of complete local CPTP operations with

future-causal dependency routes (all assisting resources, controls, failures, and inaccessible outputs declared). Fresh unknown d-dimensional input Q at event s, possibly entangled with an untouched reference; no previously stored receiver encoding of that input. Print the exclusion hypothesis:

$$J^{+}(s) \cap W = \varnothing,$$

where W is the designated receiver set. Event-horizon claims require whole-future metric data; deadline claims restrict W to permitted receivers before the deadline. Setup that only restates Big01-A thm:Bexact is not repeated [32].

Theorem (Fresh-input horizon exclusion gives replacement). *Under the printed network contract and , the complete fresh-input-to-receiver channel is replacement:*

$$\mathcal{N}(X) = \operatorname{Tr}(X)\omega.$$

Its optimized deterministic whole-code recovery error is

$$\inf_{\mathscr{D}} d_{\diamond}(\mathscr{D}\mathcal{N}, \mathrm{id}_Q) = 1 - \frac{1}{d^2}.$$

It is not merely the generic classical floor $1 - 1/d$.

More generally, if the decoded replacement state σ *has eigenvalues* λ_i*, then*

$$d_{\diamond}(\mathscr{R}_{\sigma}, \mathrm{id}_Q) = 1 - \left(\sum_i \lambda_i^{-1}\right)^{-1}, \qquad \mathscr{R}_{\sigma}(X) = \operatorname{Tr}(X)\sigma,$$

with $1/0 = \infty$ *and* $1/\infty = 0$.

Proof. A directed dependency path from s to W would contradict . Delete nonancestor nodes in reverse topological order while tracing nondesignated outputs: the remaining receiver network is input-independent, hence replacement $\mathcal{N}(X) = \operatorname{Tr}(X)\omega$ (also under reference extension).

Every decoded replacement has Bell-input state $I_E/d \otimes \sigma$ with Bell overlap $1/d^2$, so gives the optimized lower bound $1 - 1/d^2$. The complete-depolarization decoder preparing I/d attains it. The spectral law for general σ is the

named Big01-A / I-C-CERT comparison and is not re-derived here [32, 28].

The argument is local: it does not identify the supported cone with a horizon or construct a cosmological quantum state. An informative old certificate can coexist with replacement of the fresh input. With a complete implementation allowance δ relative to replacement, the recovery lower bound becomes $[1 - 1/d^2 - \delta]_+$. Future continuation choice is additional data already held by Series-ID and Big01-A; neither a matching word nor unused freedom in a past fit selects one continuation [32, 31].

Catalogue changes do not select a vacuum offset

Theorem (Vacuum fibre and supplied-source uniqueness). *Fix a catalogue packet and all its certificate data. On a supplied smooth metric region, allow the account shift*

$$T_{\mu\nu} \mapsto T_{\mu\nu} - \lambda g_{\mu\nu}, \qquad \lambda \in \mathbb{R}.$$

If the admitted matching and normalized finite matter reports are independent of λ, then neither the catalogue index nor its change selects λ. Conserved stress remains conserved, state differences remain unchanged, and null contractions remain unchanged.

For a separately supplied account

$$\mathrm{G}[g] + \Lambda g = \kappa(T_{\mathrm{known}} + T_{\mathrm{res}}), \qquad \kappa \neq 0,$$

the residual is unique only after g, Λ, κ, and T_{known} are supplied:

$$T_{\mathrm{res}} = \kappa^{-1}(\mathrm{G}[g] + \Lambda g) - T_{\mathrm{known}}.$$

The compensated shift accompanying $T \mapsto T - \lambda g$ is $\Lambda \mapsto \Lambda - \kappa\lambda$. No microscopic source, particle, or Einstein evolution is selected.

Proof. Matching data depend on rays, metric arrays, and finite transitions, not on the independent offset. Metric compatibility gives $\nabla g = 0$, so conserved tensors, state differences, and null contractions are unchanged by the shift. A report law independent of the offset slot is constant on the fibre, so no function of those common data

distinguishes two offsets. Algebraic rearrangement gives residual uniqueness after supply and the compensated sign G + (Λ − κλ)*g* = κ(*T* − λ*g*).

The compensated sign is printed to avoid account-convention ambiguity. Absolute stress acquisition would be additional data; no scalar spectral state or heat-kernel prescription is imported as an absolute vacuum normalization [20, 38, 24, 25]. Long continuation comparisons are already held by Series-ID and Big01-A and are not repeated here.

Theorem (Stress identities do not imply Einstein dynamics). *Symmetry, covariant conservation, and zero trace of a tensor on the prescribed regular cone do not imply*

$$G_{\mu\nu}(g) = 8\pi G_N t_{\mu\nu}, \qquad G_N \neq 0.$$

Proof. In a regular Minkowski chart take a nonzero constant null covector k and $t_{\mu\nu} = k_\mu k_\nu$. It is symmetric, conserved, nonzero, and traceless. The local Einstein tensor is zero, so the displayed equation fails. The local counterexample requires no distributional source on the worldsheet.

A prescribed conical metric is not a derived mass–deficit law [12, 15, 55]. Defining an inverse-source tensor after choosing a metric is not derivation of that metric's dynamics.

Parent-comparison table: records, never proof premises

Source-local labels below are documentary locators, not references to the local numbering in this manuscript.

toprule Source record Named component Separation retained

midrule endhead VIII-A [12] A:thm:A1, A:thm:A4-stale, A:thm:residual, A:thm:classical, A:thm:complement, A:prop:no-einstein Complete geometric certificate; record/residual distinction; classical cut; complete complement; no Einstein implication.

VIII-B [13] thm:persistence, thm:source-map, prop:obstruction Catalogue dictionary and expectation selection do not acquire an unknown token or evolve the fixed host.

VIII-C [14] def:legal, thm:C5, prop:token-obstruction, prop:not-einstein Guarded commands and computational support, not a derived causal cone or a gravitational source law.

VIII-ST [15] def:grade, def:host, thm:matching, thm:event, thm:instrument, thm:transport, thm:release Existing local Grade S unification; no re-unification or unprinted-coordinate verification is asserted here.

VIII-Defect-A [16] thm:pulse, thm:samehost, thm:nomap, cor:layers, prop:coexist Kinematic, prepared-response, and curvature questions remain typed; map classes and image regions must be explicit.

I-B [8] thm:instrument, thm:locality, thm:metric-containment, thm:transport, prop:geometry, prop:holonomy, prop:no-return, prop:forget, prop:not-source Supplied cone and finite reporting carrier; no metric derivation, continuum acquisition, or automatic source selection.

I-B-G [9] prop:nonGH, thm:green The Green theorem is refused as a matching premise; its realization and domains are separate data.

I-B-G-S / I-B-G-S-B [10, 23] thm:spin1, thm:spin2, thm:selection, prop:warddefect No spin decomposition, Ward identity, or tensor Green realization is selected by spinless matching.

I-B-VP / I-B-VP-CR [24, 25] prop:state, prop:heat, prop:notsource State prescription, heat kernel, absolute vacuum account, and source law are distinct.

I-C / extensions [4, 26, 27, 28, 29] def:cut, thm:A, thm:E, thm:sharp, thm:replacement, thm:reset, thm:mbqc Local cut proofs are printed here. Heralded full-code return is not renamed MBQC; reset is not readout or heat.

Series-IC [30] cor:coarse-flag, thm:imperfect-flag, thm:heralded-cut, thm:approximate-reset-spectrum, thm:private-key-resource, thm:replacement Sibling synthesis only; coarse-flag style for cor:coarse-flag-risk; reset/herald styles for conj:layer-flag-cost and conj:radial-null-herald; holonomy count is not automatically a key.

I-D / Deadline [11, 17] def:host-A, def:host-B, thm:GH, prop:nonGH, thm:instrument, thm:energy, prop:nonidentification, thm:DL-cut Full smooth hosts, spectral census, energy accounts, capacity, and axial topology are not VIII matching inputs.

Series-ID [31] thm:hosts, prop:switch-test, thm:horizon-access, thm:axial-winding-deadline, conj:null-energy-herald, conj:delayed-geometric-response Named comparison; switch-only opposite-horizon tests do not fit the adopted I-D class; axial winding ≠ radial exclusion; delayed-geometric-response is a conjecture-side record only.

Big01 / Big-Vac / Big06 [32, 20, 38] thm:B, thm:Bexact, lem:shredder, cor:noselect, thm:B6B-residual Fresh-input exclusion gives replacement. Source uniqueness requires supply; no vacuum value or hidden-sector substance is selected.

En09-B [21] thm:cDsharp A clock calibration/norm statement is not automatically a whole-code recovery floor.

Em-Source / Em-Joint / P9-Read-C [39, 40, 41] thm:domain-undetermined, thm:gate-obstruction, cor:notsolved Source domain, analytic admission, and Problem 9 remain open.

DS-Vac / DS-Promise [42, 43] thm:no-dS-on-registered-hosts, thm:promise-external No cosmological state or host Hilbert-space promise is acquired from a finite certificate.

Hawk07-C-Dyn / Early-Blow [18, 19] Pulse and radiation-prefix documentary matches Neither is used as a field or bounce premise.

OpenAI [60] rem:not-premise; Families 260, 264, 351, 352 Off the mathematical input sheet. Penrose/AdS texts are not matching assumptions; family numbers and verification reports do not transfer. The robust seam formula is not an expansion law.

Local quantitative theorems (Versions 2–3) thm:robust-matching-winding, thm:certificate-fibre-risk, thm:radial-winding-deadline, thm:robust-C5; cor:alias-no-decoder, cor:coarse-flag-risk Printed cone, certificate algebra, and C5 contract only; not premises of Einstein dynamics, a light-cone, or Host C.

Series-VII / Series-II2VI [49, 48] thm:classical-imitation; conj:delayed-geometric-response Conjecture-side records only for conj:coupled-cellulation-response; not premises; not a bounce; not Host C.

I-B-G-S-B [23] prop:warddefect Already separated by thm:spinless-ward; conjecture-side record only, not a

matching premise.

bottomrule

Parent-label discipline. Every cited Cheung or OpenAI label is a source record; local hypotheses are printed independently and are not transferred as unstated premises. VIII-ST remains a companion until deposited; citing it does not by itself create a Scholar-counting DOI [15]. The indexed Frontiers article, the Philosophy of Enter essay, I-C-v2, VII-E, and Landmark VII-G are the Scholar-facing chapter forms [1, 2, 4, 5, 6]. The recorded figshare comparisons of operational wormhole certificates, magic and geometric-response limits, and operational consistency are source records only [57, 58, 59].

Six research conjectures with completion criteria

The following name contracts they do not close. None is used in a proof. None is promoted. The six Version 2 acquisition bridges (conj:holonomy-acquisition, conj:winding-precision-frontier, conj:targeted-fibre-reduction, conj:refinement-response-invariance, conj:precision-token-acquisition, conj:certificate-reset) are retired as stated. conj:precision-token-acquisition is folded into Remark ; the reset-heat sentence of conj:certificate-reset is folded into conj:layer-flag-cost.

Six cross-contract research conjectures (retained from official Version 3).

toprule Label Claim / completion / parents (records only)

midrule endfirsthead toprule Label Claim / completion / parents (records only)

midrule endhead conj:alias-horizon-split Rational holonomy alias and fresh-input horizon replacement can be co-located; neither selects the other. Completion: printed alias class on the cone, printed horizon network on a separate background, joint instrument. Parents: Big01-A thm:Bexact; Series-IC thm:replacement. Not a Page curve.

conj:fibre-deadline-decoupling Fibre diameter 1 and the radial deadline can be realized independently: maximal residual ambiguity with every circuit obeying $r \geq r_*$, and zero residual risk on a route with no positive radial

exclusion. Completion: two printed examples, or a no-go under an extra joint hypothesis. Parents: Theorems , ; Series-ID thm:axial-winding-deadline (different contract).

conj:radial-null-herald A finite destructive clock can herald $r \geq r_*$ on a declared circuit, with exact universal one-use failure when the herald rank is below the code dimension, without an axial-winding deadline or a null-energy condition. Completion: printed clock, printed radial observable, failure probability. Parents: Series-IC thm:heralded-cut; Series-ID conj:null-energy-herald; local Proposition . Not MBQC.

conj:layer-flag-cost A coarse incidence flag that does not resolve (K)/(P)/(C) has strictly larger fibre risk on a layer-separating observable than the fine flag, and no declared-class map collapses the layers. Completion: printed flag, layer observable, strict risk gap, nomap witness. Parents: Series-IC thm:imperfect-flag, cor:coarse-flag; VIII-Defect-A thm:nomap, cor:layers, thm:pulse.

conj:vacuum-residual-fibre Two catalogue indices with the same matching certificate and the same vacuum-account reading can still differ by a residual functional of positive fibre risk; the index still does not select λ. Completion: printed account fibre, residual observable, $\mathscr{R}_B(p) > 0$. Parents: Big-Vac-A cor:noselect; Big06-B thm:B6B-residual; local Theorem . Not vacuum-energy selection.

conj:coupled-cellulation-response Under a named future-dynamics or coupling hypothesis, a three-to-six refinement changes a later operational response on another supported laboratory; under the same-model zero-coupling contract it does not. Completion: printed coupling, receiving observable, both comparisons, implementation allowance. Parents: Series-ID conj:delayed-geometric-response; Series-VII thm:classical-imitation (style). Not a bounce. Not Host C.

bottomrule

Research conjecture (Alias–horizon co-location). A rational holonomy alias and a fresh-input horizon replacement can be co-located: the certificate output aliases while the horizon channel is exactly replacement. Neither selects the other.

Scope. Printed alias class on the cone, printed horizon network on a separate background, and a joint instrument. Parents (records only): Big01-A thm:Bexact; Series-IC thm:replacement [32, 30]. Not a Page curve.

Research conjecture (Fibre–deadline decoupling). Fibre diameter 1 and the radial deadline can be realized independently: maximal residual ambiguity with every circuit obeying $r \geq r_*$, and zero residual risk on a route with no positive radial exclusion.

Scope. Two printed examples, or a no-go under an extra joint hypothesis. Parents: Theorems , ; Series-ID thm:axial-winding-deadline (different contract) [31].

Research conjecture (Radial null herald). A finite destructive clock can herald $r \geq r_*$ on a declared circuit, with exact universal one-use failure when the herald rank is below the code dimension, without an axial-winding deadline or a null-energy condition.

Scope. Printed clock, printed radial observable, and failure probability. Parents: Series-IC thm:heralded-cut; Series-ID conj:null-energy-herald; local Proposition [30, 31]. Not MBQC.

Research conjecture (Layer flag cost). A coarse incidence flag that does not resolve (K)/(P)/(C) has strictly larger fibre risk on a layer-separating observable than the fine flag, and no declared-class map collapses the layers.

Scope. Printed flag, layer observable, strict risk gap, and nomap witness. Parents: Series-IC thm:imperfect-flag, cor:coarse-flag; VIII-Defect-A thm:nomap, cor:layers, thm:pulse [30, 16]. Reset heat in a declared reservoir class is not the private-key cost of the holonomy count, and not a universal heat-per-qubit law (style: I-C-Th thm:reset, Series-IC thm:approximate-reset-spectrum, thm:private-key-resource); this sentence absorbs the retired Version 2 bridge conj:certificate-reset.

Research conjecture (Vacuum residual fibre). Two catalogue indices with the same matching certificate and the same vacuum-account reading can still differ by a residual functional of positive fibre risk. The index still does not select λ.

Scope. Printed account fibre, residual observable, and $\mathscr{R}_B(p) > 0$. Parents: Big-Vac-A cor:noselect; Big06-B

thm:B6B-residual; local Theorem [20, 38]. Not vacuum-energy selection.

Research conjecture (Coupled cellulation response). Under a named future-dynamics or coupling hypothesis, a three-to-six refinement changes a later operational response on another supported laboratory; under the same-model zero-coupling contract it does not.

Scope. Printed coupling, receiving observable, both comparisons, and implementation allowance. Parents: Series-ID conj:delayed-geometric-response; Series-VII thm:classical-imitation (style) [31, 48, 49]. Not a bounce. Not Host C.

Conjecture status. All six cross-contract conjectures remain unproved. Their completion criteria do not grant permissions to identify the finite certificate with a continuum field observable, a Page curve, a bounce, vacuum-energy selection, or Host C.

No spacetime emergence, derived metric, Einstein dynamics, Page curve, island, cosmological bounce, de Sitter quantum state, vacuum-energy selection, inherited characteristic quantum coefficient, compilation, or Host C is claimed. O.1 stays NOT_CLOSED. Gate 0 and ST4b stay NOT_SUPPLIED. XV-B is not opened; XVI-N is not discharged; Dom (T) stays undetermined; J2 stays unresolved. Problems 6, 7, and 9 remain named, not solved. Programme Host-A stays NAMED_COMPARISON_ONLY. Cited Cheung and OpenAI records are source records, not premises. declaredPath=null; wired=false.

Release, debugging ledger, and unchanged obligations

Theorem (Series-VIII-Enter-A local Grade S release). *On the printed interfaces and operational permissions:*

1. *the variable-deficit catalogue is distinct from the fixed laboratory host; the regular conical product is non-globally hyperbolic, and regular supported operations are explicitly bounded;*

2. *finite affine matching has the winding formula , with stale-rotation and time-shift rejection;*

3. *the local three-to-six normal form has a unique transverse incidence and persistent deficit, with an explicit nonempty witness;*

4. *legal finite schedules return complete certificates, expectation-selected tokens are not automatically acquired, and C5 backwards support is proved for the prescribed block channels;*

5. *the complete destructive clock, calibration limitations, full qubit residual counterexample, sharp classical floor, complete complement criterion, and finite cut pretests are established;*

6. *the six extension theorems separate certificate access from state selection, stale matching from settling, incidence from bounce, computational support from deadlines, spinless rotation from Ward identities, and deficit/curvature coexistence from continuation;*

7. *the four quantitative theorems measure those separations: robust seam mismatch and finite-promise winding (Theorem), certificate-fibre risk and diameter (Theorem), radial winding deadline (Theorem), and approximate C5 leakage (Theorem);*

8. *two one-line corollaries record alias non-uniqueness (Corollary) and coarse-flag risk (Corollary);*

9. *under the supplied finite operational permission class, a regular-part realization computes a five-command history and transports an unknown payload with untouched references;*

10. *the independent defect and horizon comparisons have their printed metric/map/channel hypotheses; vacuum and source-account non-selection are proved on their explicit fibres. The six cross-contract research conjectures remain unproved. The six Version 2 acquisition bridges are retired as stated. Grade E is not included.*

The OpenAI catalogue is refused as a premise of this release: Family 260 remains refused as neither a scheduler-derived cone nor a de Sitter state; its Penrose/AdS material is not a matching assumption; Families 264, 351, and 352 remain catalogue records only. No catalogue family supplies a unique expansion law, a shredder–horizon identification, a missing operator realization, or the inherited characteristic quantum coefficient.

No source-domain, J2, quantum-admission, or Problem 9 obligation is discharged.

Proof. Theorems , , , and establish the first item's geometric and operational scope. Theorems and establish the

second. Theorem proves the local incidence and witness.

Theorems , , , and establish the declared finite-control and support statements. The access results are Theorems , , , , , and Proposition .

Theorem constructs the positive residual fibre. The remaining five cross-framework statements are Theorems , , , , and . Theorems , , , and measure those separations on the printed contracts. Corollaries and are immediate one-line consequences. Theorem proves the permitted regular realization. Theorems , , , and concern their separate printed contracts.

No proof uses a conjecture or an OpenAI catalogue family. None of the displayed constructions defines a source-domain extension or characteristic quantum-product admission map. The refusal and unchanged-obligation clauses are the documentary scope of the release, not assertions that no future construction could exist.

What stays outside

The inherited analytic chain still requires the full joint characteristic map, then a joint section and complete remainder, uniform transverse control, contact compatibility, output wavefront control, and admission in the stated output space [44, 45, 46, 47]. A finite certificate, internal amplitude, off-characteristic reference, or complete finite channel does not replace an absent step.

No quantum coefficient is admitted; J2 remains unresolved. The existence of technical lifting interfaces does not open the downstream XV-B quantum-admission exit. No differential or Ward defect is applied here to an absent coefficient.

No Green realization, field state, spin decomposition, Host-B census, continuum apparatus coupling, de Sitter state, cosmological bounce, absolute vacuum value, or physical hidden-sector law is constructed. Programme Host-A and all other standing boundaries are unchanged.

Debugging ledger

toprule Potential error Correction retained in this file

midrule endhead The sector opening equals the full cone circumference ratio. $\theta_{\mu} = (2\pi - \mu)/3$ is an angle; $\alpha_{\mu} = 1 - \mu/(2\pi)$ is a dimensionless ratio.

A catalogue source command evolves the laboratory metric. It replaces classical packet metadata; μ_{H}, g_{H}, and J^{+}_{H} stay fixed.

A local chart identification is a whole-cone identification. Only regular patches are locally flat. An apex-preserving transverse isometry preserves the circumference/radius ratio.

The missing-axis cone has the global causality of a filled I-D host. The punctured regular product has a noncompact diamond; full smooth I-D hosts are different models.

A complete certificate is a complete unknown-state selector. On the printed proper certificate–residual algebra it has positive residual fibres. Additional tomography or source constraints must be supplied.

Every classical report law is non-injective. An informationally complete POVM can be injective at the level of its full law. The certificate-cut theorem prints its proper algebra and actual annihilator.

Every linear annihilator direction is a physical state change. Positivity is checked. Interior states allow small perturbations; boundary states may not.

A stale seam becomes correct by waiting for settling. It fails the instantaneous packet equality. No metric settling switch is involved.

Opposite future horizons can be generated by two settling switches inside the adopted I-D class. Under its printed uniform-reference/infinite-conformal-time contract, both admit eventual reception. Such a test changes the model.

A three-to-six event removes the defect or is a bounce. It changes a transverse subdivision. The metric, deficit, and worldsheet remain prescribed.

The product incidence is one isolated spacetime point. It is replicated along the axial worldsheet direction.

Regular operational support includes a quantum site at the apex. The tube closure is disjoint from the worldsheet. Collapsed slots are inactive metadata.

All orderings of legal commands are equivalent. Composition preserves accepted prefixes; noncommuting reordered words need not have the same result.

The displayed normal-form witness verifies every parent vertex. It proves nonemptiness of the printed interface. Unprinted parent arrays are not asserted equal to it.

A token extracts an expectation-selected catalogue member. Exact deterministic expectation output is nonaffine; the supplied finite-token command is affine.

C5 is a physical causal past. It is a Heisenberg support bound for specified block channels. Causal placement is a separate check.

A winding count fixes a deadline. Route length, radius, time calibration, and any axial period remain additional data.

Spinless geometric rotation proves a Ward identity. Field domains, source-test maps, ghosts, and inverses are not certificate outputs.

Clock drop implies nondisturbance after any controlled continuation. The bare identity is exact. Outcome-conditioned payload operations require their own complete channel target.

A qubit residual gap of 1/2 is the classical recovery floor. It is a distinction between two outputs on one input. The whole-code floor is separately proved.

A retained register automatically defeats the classical floor. Its actual information-bearing channel and complete assistance must be declared and certified.

A complement marginal being fixed proves full-code recovery. The criterion uses the complete inaccessible complement of the same isometric realization.

A herald gives nonzero exact return across $k < d$. The rank-one identity Choi matrix excludes that possibility when all assistance is counted.

Holonomy count is automatically a private key. A public certificate can expose it; randomness, protected access,

and side information require separate hypotheses.

Continuous residual dependence propagates equality at one index. Continuity gives a modulus of closeness, not exact equality. Additional invariance is needed.

A smooth pulse is a curvature-divergent endpoint. Its curvature is bounded on compact smooth neighborhoods. A discontinuous or singular limiting family is a different contract.

Defect layers form mutually exclusive classes. They are typed predicates; finite deficit and bulk blow-up can coexist.

A no-map statement forbids every possible comparison. The declared regular isometric class and the image blow-up sequence are explicit. Metric-changing or sequence-discarding maps are not excluded by that proof.

A power-law spatial deficit implies pure spacetime rotation holonomy. During expansion, spatial and full spacetime holonomy are different questions.

Horizon exclusion is the generic classical cut. Fresh-input causal exclusion yields replacement and $1 - 1/d^2$, not $1 - 1/d$.

A past fit certifies permanent isolation. A future metric/evolution hypothesis is needed.

A vacuum-account shift requires the wrong compensated sign. For $T \mapsto T - \lambda g$, the same equation requires $\Lambda \mapsto \Lambda - \kappa\lambda$.

Symmetry, conservation, and zero trace imply Einstein's equation. The local nonzero null tensor on a flat chart is a counterexample.

A complete finite proof opens a missing analytic gate. No source-domain or characteristic-product map is constructed. J2, O.1, and the downstream admission boundary stay unchanged.

Euclidean seam error is frame-invariant. Theorem : an arbitrary Lorentz-frame change need not preserve the Euclidean allowance used in the observed separation bound.

Fibre diameter 1 is the classical floor $1 - 1/d$. Theorem : trace-distance diameter of the compatible-state fibre is 1 when $\dim K \geq 2$; the classical whole-code floor $1 - 1/d$ is a different contract (Theorem).

Radial exclusion follows from winding alone. Theorem : a common positive radial exclusion is an extra hypothesis; without it no strictly positive winding-only lower bound is uniform over regular circuits.

Robust C5 leakage is a light-cone or the replacement floor $1 - 1/d^2$. Theorem : the bound is computational; graph neighbourhood $\neq$ light-cone; leakage allowance $\neq 1 - 1/d^2$.

An alias is a horizon. conj:alias-horizon-split: a rational holonomy alias and a fresh-input horizon replacement can be co-located; neither selects the other. Not a Page curve.

Fibre diameter is a deadline. conj:fibre-deadline-decoupling: fibre diameter 1 (Theorem) and the radial deadline (Theorem) are different contracts; axial winding is still a third.

A radial herald is axial winding or null energy. conj:radial-null-herald: a finite destructive clock can herald $r \geq r_*$ without an axial-winding deadline or a null-energy condition; not MBQC.

A coupling hypothesis is room left by past data. conj:coupled-cellulation-response: under a named future-dynamics or coupling hypothesis a three-to-six refinement can change a later response; under same-model zero-coupling it does not. Room left by past data is not enough. Not a bounce. Not Host C.

A parent label is a local premise. Every cited Cheung or OpenAI label is a source record; local hypotheses are printed independently.

bottomrule

Unexecuted manifest

id: Series-VIII-Enter-A?release: Series-VIII-Enter-A-v4?role: documentary-Grade-S-synthesis?declaredPath: null?wired: false?request: t566u?typographic-parent: official-Series-VIII-Enter-A-v3-t397u?laboratory-host: fixed-prescribed-I-B-type-cone?catalogue-index: variable-classical-metadata?parent-labels: source-records-not-premises?local-witness:

printed-normal-form-and-finite-promise-table?parent-coordinate-equality: not-asserted?Grade-E: not-included?robust-quantitative: sec:robust-quantitative?robust-matching-winding: thm:robust-matching-winding?certificate-fibre-risk: thm:certificate-fibre-risk?radial-winding-deadline: thm:radial-winding-deadline?robust-C5: thm:robust-C5?corollaries: cor:alias-no-decoder, cor:coarse-flag-risk?research-conjectures: six-cross-contract-unproved?conjecture-table: tab:conjectures?v2-bridges-retired: six-as-stated?v1-bridges-retired: six-as-stated?Green-transfer: not-supplied?Ward-transfer: not-supplied?Host-B-spectral-census: not-entered?inherited-characteristic-coefficient: not-admitted?O.1: NOT_CLOSED?Gate-0: NOT_SUPPLIED?ST4b: NOT_SUPPLIED?XV-B: not-opened?XVI-N: not-discharged?Dom(T): undetermined?J2: unresolved?Problems-6-7-9: named-not-solved?Programme-Host-A: NAMED_COMPARISON_ONLY?Host-C: not-created?OpenAI-catalogue: refused-as-input?Family-260: refused?compilation: not-executed?registry-update: not-executed?registration_executed: false

Submission and verification declarations

The proofs are mathematical arguments on the displayed domains. Official Version 3 recorded a reproducible SOURCE_DATE_EPOCH=1792627200 double-pdflatex assertion. The present Version 4 typographic successor has not been compiled on this box, and no typestate review is announced here. Independent full-text audit of omitted parent material, numerical rerun, proof-assistant verification, referee approval, and journal acceptance are **not** asserted. The bibliography uses source identifiers and article metadata supplied with the plan; it does not certify latest online versions.

The submitting author should confirm authorship and affiliation, verify the bibliography, and inspect the compiled output. Author line: Ngo Cheung. Request: t566u. Official Version 3 was request t397u, dated 28 October 2026. No registry status is changed by this file.

No spacetime emergence, derived metric, Einstein dynamics, Page curve, island, cosmological bounce, de Sitter quantum state, vacuum-energy selection, inherited characteristic quantum coefficient, compilation, or Host C is

claimed. O.1 stays NOT_CLOSED. Gate 0 and ST4b stay NOT_SUPPLIED. XV-B is not opened; XVI-N is not discharged; Dom (*T*) stays undetermined; J2 stays unresolved. Problems 6, 7, and 9 remain named, not solved. Programme Host-A stays NAMED_COMPARISON_ONLY. Cited Cheung and OpenAI records are source records, not premises. declaredPath=null; wired=false.

Plan corrections PC20-VIII and draft verdicts DC20-VIII

toprule ID Plan correction Draft verdict

midrule endhead PC20-VIII-1 Retain StandingBoundary after every new theorem (via textbackslash Boundary); manual StandingBoundary after the conjecture section. DC20-VIII-1: held.

PC20-VIII-2 Add sec:robust-quantitative after the six extension theorems and before defect layers; prove four quantitative theorems in full. DC20-VIII-2: held; thm:robust-matching-winding, thm:certificate-fibre-risk, thm:radial-winding-deadline, thm:robust-C5.

PC20-VIII-3 Keep every local v1 theorem; shorten I-D comparison inside thm:stale-not-settling and horizon proof inside thm:horizon-access to named comparisons; keep stale-ray and co-located residual counterexample. DC20-VIII-3: held.

PC20-VIII-4 Replace six v1 conjectures by six sharper ones; compact tab:conjectures plus short scopes; nothing promoted. DC20-VIII-4: held.

PC20-VIII-5 Abstract mentions the four quantitative theorems; publication-ready length (preferably ≤ 350 words). DC20-VIII-5: held.

PC20-VIII-6 Distinctions printed: Euclidean seam error is frame-dependent; fibre diameter $1 \neq$ classical floor $1 - 1/d$; radial exclusion is extra; robust C5 $\neq$ light-cone and $\neq 1 - 1/d^2$. DC20-VIII-6: held; debug ledger rows.

PC20-VIII-7 Update parent-comparison table and thm:release; freeze v1 SHA in app:sha; leave manifest unexecuted; do not register. DC20-VIII-7: held.

PC20-VIII-8 declaredPath=null; wired=false; SOURCE_DATE_EPOCH=1792627200; Absolute standing unchanged; O.1 NOT_CLOSED; Gate 0/ST4b NOT_SUPPLIED; Dom (*T*) undetermined; J2 unresolved; Problems 6/7/9 named not solved; Host-A NAMED_COMPARISON_ONLY; Family 260 refused. DC20-VIII-8: held; request t396u.

bottomrule

Plan corrections PC21-VIII and draft verdicts DC21-VIII

toprule ID Plan correction Draft verdict

midrule endhead PC21-VIII-1 Retain StandingBoundary after every theorem (via textbackslash Boundary); manual StandingBoundary after the conjecture section. Keep PC20-VIII/DC20-VIII. DC21-VIII-1: held.

PC21-VIII-2 Keep the four quantitative theorems in full with proofs; add two one-line corollaries cor:alias-no-decoder, cor:coarse-flag-risk. No fifth quantitative theorem. DC21-VIII-2: held.

PC21-VIII-3 Shorten defect layers, horizon preamble, vacuum fibre, and stale-not-settling; move prepared-response example to a remark; cut FLRW continuation restatement. Labels retained. DC21-VIII-3: held.

PC21-VIII-4 Retire six v2 acquisition bridges as stated; replace by six cross-contract conjectures in tab:conjectures; fold conj:precision-token-acquisition into rem:precision-token; fold reset-heat sentence into conj:layer-flag-cost. Nothing promoted. DC21-VIII-4: held.

PC21-VIII-5 Abstract states consolidation theme, four quantitative theorems, two corollaries, six cross-contract conjectures; preferably $\leq$ 220 words. DC21-VIII-5: held.

PC21-VIII-6 Four new debug-ledger rows: alias $\neq$ horizon; fibre diameter $\neq$ deadline; radial herald $\neq$ axial winding / null energy; coupling hypothesis $\neq$ room left by past data. DC21-VIII-6: held.

PC21-VIII-7 Update parent-comparison table (Series-VII / Series-II2VI / I-B-G-S-B as conjecture-side records only); update thm:release; freeze v1 and v2 SHA in app:sha; leave manifest unexecuted; do not register. DC21-VIII-7: held.

PC21-VIII-8 declaredPath=null; wired=false; SOURCE_DATE_EPOCH=1792627200; Absolute standing unchanged; O.1 NOT_CLOSED; Gate 0/ST4b NOT_SUPPLIED; Dom (*T*) undetermined; J2 unresolved; Problems 6/7/9 named not solved; Host-A NAMED_COMPARISON_ONLY; Family 260 refused; no Page/island/bounce/vac-energy/Host C. DC21-VIII-8: held; request t397u.

bottomrule

SHA freeze

sheet: Series-VIII-Enter-A?version: 4?request: t566u?date: 2026-11-17?author: Ngo Cheung?typographic_parent: official Series-VIII-Enter-A Version 3 (request t397u, 28 October 2026)?SOURCE_DATE_EPOCH: 1792627200?FORCE_SOURCE_DATE: 1?PYTHONHASHSEED: 0?wired: false?declaredPath: null?PC: PC20-VIII + PC21-VIII?DC: DC20-VIII + DC21-VIII?frozen_v1_tex_sha256:? eb87b42d9626c00d11dcee66f7d08b5c160cd691547af69a11204e10003eba9d?frozen_v2_tex_sha256:? c349b5caa8d53ea224110f5367bad864ee68e112b54781a74ff3672491a09e71?official_v3_tex_sha256:? c9f8686e88ee006564e523c86961bd77f29eae37a1f6c4c3430ca9b0b8d014ae?robust_section: sec:robust-quantitative?quantitative_theorems:? - thm:robust-matching-winding? - thm:certificate-fibre-risk? - thm:radial-winding-deadline? - thm:robust-C5?corollaries:? - cor:alias-no-decoder? - cor:coarse-flag-risk?conjectures: six cross-contract (tab:conjectures); six-v2 retired-as-stated?registration_executed: false

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