Symmetric Minimum

Repair Ledger, v1.3 through v1.7.16

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Standing and use

This ledger is the companion to the reference edition v1.7.16 of *Symmetric Minimum: An Inherited Closure*. It holds the repair receipts that v1.7.14 carried as Appendix I.23–I.40, and adds two receipts: the v1.7.14 to v1.7.15 restructure and the v1.7.15 to v1.7.16 closure. Each receipt has two columns: a *witnessed difference* (what the record showed) and the *retained repair* (what the record now carries). Receipts are append-only. A correction to an earlier receipt is recorded in a later one, so the history keeps its original wording.

The receipts RL.1–RL.18 are transcribed from v1.7.14 as written, including their then-current wording and source-native lettering. They are numbered RL.1–RL.20 here; the v1.7.14 label (I.23–I.40) is given alongside. The new receipts are RL.19 and RL.20. References to rows, P-sources, H-sources and V-receipts follow the numbering of the edition each receipt names, not of v1.7.16; the correspondence for the body of v1.7.16 is in its Appendices A–C.

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Receipts

RL.1 v1.3 to v1.4

v1.7.14 label I.23

Witnessed difference	Retained repair
Checked projective and adapter charts lacked a receipt-index address.	P09 now carries V-C1–V-C6 and V-D1–V-D5.
Phase, sign, and residual checks lacked explicit index rows.	The phase family, sign character, and mechanical residual each carry their V-receipts.
General carriage reversal was a derived statement without its own run receipt.	V-N7 records $HL_sH = L_{-s}$; the axial-coordinate lift is displayed as the declared-coordinate consequence of V-N4.
F carried four unrelated offices.	F_{esc}, F_{EM}, $\mathcal{F}_n^{\mathrm{Fib}}$, and $\mathcal{F}_n^{\mathrm{hor}}$ retain separate offices while citations preserve source-native lettering.
Generic reader/field contrast obscured the carrier distinction.	Finite reader, field metric, field transport, and constrained field action now name their own carriers.

RL.2 v1.4 to v1.5

v1.7.14 label I.24

Witnessed difference	Retained repair
$S = (2Q - I)/\sqrt{5}$ had a passing receipt without an index row.	V-B4 now indexes the displayed carriage generator.
The sign-character check was finite while the prose carried a group law.	The group law is displayed as an exact derived calculation; V-E9 is retained as its finite twenty-seven-word guard.
The projective and adapter receipts had no body-level equations.	The projective mirror, unitary form, complex chart, real adapter, transported carriage, and adapter family are displayed with local symbols.
φ, Φ, Q, Q_k, M, K, P, and L had nearby offices without a complete local separation.	The symbol ledger now fixes φ/Φ, Q/Q_k, $M_{\mathrm{pr}}/\mathcal{M}$, $K_{\mathrm{pr}}/K_{\mathrm{tr}}$, A_{ch}, and L_s, L_{ax}, L_{pr}, $\mathcal{L}_{n+1}^{\mathrm{hor}}$.
The signed axial coordinate and metric translation length were visually adjacent.	$\Lambda(L_t z) = \Lambda(z) + 2t$ and $\ell_{\mathrm{ax}}(L_s) = 2\lvert s\rvert$ are displayed as distinct coordinates.
V-E8 checked a finite range while its prose read as a general assertion.	Its statement is now a finite guard for $1 \le n \le 8$.

RL.3 v1.5 to v1.6

v1.7.14 label I.25

Witnessed difference	Retained repair
The explanatory order began at a finite chart rather than at the relation a reader first contacts.	The manuscript now begins with contact, carried return, identity, recognition, calibration, finite chart, update, and receipt.

Witnessed difference	Retained repair
Memory was typed as an append-only receipt ledger.	Memory is now a phase-coordinated reader interface at declared scope; Receipt retains its separate reconstructive office.
The finite matrix G read as a finite metric or field.	G is now typed consistently as a finite chart of a signed relation on $V = \mathbb{R}^2$.
Identity and calibration were operative in the prose but absent from the coordinate register.	Both receive declared reader offices, maps, conditions, and source status.
The formal checks risked being read as a universal theory of awareness.	Scope Recognition is declared as an interface; the 60 verifier checks retain their original finite theorem scope.

RL.4 v1.6 to v1.7

v1.7.14 label I.26

Witnessed difference	Retained repair
The joint two-sided record had no source address.	H35 and H36 enter at rows 3 and 6; the factorization condition and the CHSH bound are displayed with their conditions.
A closed carriage retaining phase had no physical witness beyond the loop-in-space case.	H38 enters at rows 10, 18, and 19; its line-bundle carrier is separated from the deck action.
The programmable reader loop had no engineering instance.	H37 initially entered at rows 1, 4, 5, and 14; stored machine state is separated from Receipt.
The analytic reader read the static symmetry and its evaluation together.	$\Xi(-t) = \Xi(t)$ is typed as a scalar symmetry; evaluation is typed as an ordered process at its own interface.
The field-facing obligations had no source address.	P14 carries the obligation chain at rows 4, 9, 22, and 23.
Native lettering of the new sources collided with register symbols.	Eight rows are added to the symbol separation ledger; citations keep source-native lettering.

RL.5 v1.7 to v1.7.1

v1.7.14 label I.27

Witnessed difference	Retained repair
The inherited-record introduction carried too many relations in individual sentences.	The same offices are retained in shorter sentences: enduring marks, two-dimensional relation, transmitted reference, repair, and reuse.
The Apple II row assigned phase coordination to a clock without stating its engineering mechanism.	The clock now supplies declared update order; stored machine state carries availability into the next update.
P13 and P14 could be read as one source address.	P13 retains the regular Hamiltonian reduction; P14 retains the distinct continuum-obligation record.

RL.6 v1.7.1 to v1.7.2

v1.7.14 label I.28

Witnessed difference	Retained repair
The projective-chart prose and symbol ledger stopped at P13 after P14 was added.	Both source-label ranges now read P01–P14.
H37 appeared in the phase-coordinated Memory row after the Apple II clock was typed as update order.	H37 remains in Reader, Light, and Motion; row 5 keeps only sources that support its phase-retention office.
The Berry transport equation omitted its initial eigenstate.	The source now states $\|\psi(0)\rangle = \|n_B(R_{\mathrm{par}}(0))\rangle$ and the closed parameter condition.
Forget appeared in the introduction and definition list without a coordinate-register row.	Row 27 fixes its reader-obstruction map, condition, source coordinates, and status.
The expanded inherited-record prose introduced useful material alongside untyped scope.	The opening now retains recoverable marks, material record forms, repeatable trust, and the named failure condition of forget; the wider social and behavioral elaborations remain outside this register.

RL.7 v1.7.2 to v1.7.3

v1.7.14 label I.29

Witnessed difference	Retained repair
The Apple II section still named Memory after H37 left row 5.	Its engineering instance now enters rows 1, 4, and 14 only.
Recognition and Forget named the reader relation in prose without displaying its factorization form.	Recognition is $d_{\mathrm{req}} = \delta_{\mathrm{req}} \circ \rho$; Forget is the witnessed failure of that factorization on one ρ-fiber.
The required-distinction symbols could collide with existing d, $D_{\Gamma_{J(p)}}$, D_4, and rail δ.	d_{req}, D_{req}, and δ_{req} receive separate symbol-ledger rows.
The older typeset source stopped at the 26-word register.	The v1.7.3 wrapper and regenerated body carry all 27 words, ending in Survival and Forget.

RL.8 v1.7.3 to v1.7.4

v1.7.14 label I.30

Witnessed difference	Retained repair
The witness states x_1, x_2 entered the Forget condition without a symbol-separation entry.	Their witness office is separated from chart coordinates, deck points, and packet state.
H05 was retained only in the historical ledger while Q uses its recurrence.	The finite-chart section now states the standard matrix encoding and distinguishes H05's recurrence from P05's verified chart. H03 remains a ledger-only historical receipt.
Bell's conditional product factorization and Recognition's decoder factorization shared a visible form without a typed seam statement.	The Bell section names both factorizations and retains their separate carriers and conditions.

Witnessed difference	Retained repair
Two source displays exceeded the classical page width.	The field-facing chain and locked distinctions retain their order as aligned multi-line displays.

RL.9 v1.7.4 to v1.7.5

v1.7.14 label I.31

Witnessed difference	Retained repair
The x, y adapter family was typed only as a finite-chart coordinate in the symbol ledger.	Its office now includes real adapter scalars.
The Bell and Recognition seam said only that both had a compositional form.	The Bell section now identifies the shared form as passage through an intermediate, with product-kernel mixing and decoder composition kept on their respective carriers.
Five long table cells exceeded their available reading columns.	Constraint, Bell, and Berry expressions receive gathered line breaks; H35 and H37 citations use breakable URL form.

RL.10 v1.7.5 to v1.7.6

v1.7.14 label I.32

Witnessed difference	Retained repair
The finite turn–mirror relation and the proposed read–write closure had no shared typed location.	The return-operator register now separates $i_{\mathrm{turn}} = J_{\mathrm{rot}}$, $H_{\mathrm{mir}} = H$, Φ_{rd}, and Ψ_{wr}.
The compact closure needed an exact formal target rather than an untyped equality of offices.	The candidate commuting diagram $B_g \circ i_{\mathrm{turn}} \circ A_e = \Psi_{\mathrm{wr}} \circ \Phi_{\mathrm{rd}}$ fixes the carriers, adapters, and required source completion.
The new read/write symbols could collide with existing turn, scope, golden-ratio, coframe, metric, and adapter offices.	The symbol ledger assigns separate subscripted offices to i_{turn}, Φ_{rd}, Ψ_{wr}, E_e, M_g, and A_e, B_g.

RL.11 v1.7.6 to v1.7.7

v1.7.14 label I.33

Witnessed difference	Retained repair
“Foundation,” “floor,” or an external support misreads the closure.	The minimum mechanism is now typed as return structure inside a declared relation.
The return laws were distributed across the phase and metric sections.	A dedicated return-operator register collects H_{mir}, i_{turn}, conjugate return, reciprocal carriage, and full-wheel return.
The read/write relation could be mistaken for a relation requiring an additional supporting office.	The text now fixes read and write as coupled directions of the returned turn. The carrier-level commuting diagram remains Candidate interface.

RL.12 v1.7.7 to v1.7.8

v1.7.14 label I.34

Witnessed difference	Retained repair
The return table described mutual determination more strongly than the displayed conjugation relation warranted.	The root dependency now names Q, $G = [Q, \Omega]$, and $H = G/\sqrt{5}$; turn and mirror remain related by conjugation.
"Curvature" and "third supporting term" exceeded the declared return and carrier relations.	The text now names one declared return relation and keeps Y as its declared intermediate reader carrier.
H_{mir} was used in the return register without a dedicated symbol-ledger row.	The alias is now fixed relative to H_{Ham}, H_n^{hist}, and the Hamiltonian symbols.
The new table and display required rendering repairs.	Column-width markers, the Constraint wrap, the four-office alignment, and the full conjugate-return chain are retained in source.
Recognition and Forget were visibly adjacent to the read/write diagram without a typed statement of the relation.	The right-hand route is recorded as sharing Recognition's compositional shape while remaining a distinct Candidate interface.

RL.13 v1.7.8 to v1.7.9

v1.7.14 label I.35

Witnessed difference	Retained repair
The root dependency named Q while its displayed commutator also requires Ω.	The return register now names Q and Ω as the inputs to $G = [Q, \Omega]$.
The repair receipt named Recognition and Forget, while the body displayed Recognition alone.	The Candidate-interface paragraph now states the corresponding Forget form on a declared witness pair, without identifying its carriers with the row-27 carriers.
Table-width and Constraint-wrap repairs had been written into an earlier receipt.	Their record remains at v1.7.8; the v1.7.4 to v1.7.5 receipt restores its original scope.

RL.14 v1.7.9 to v1.7.10

v1.7.14 label I.36

Witnessed difference	Retained repair
The finite turn carried a redundant rotational subscript despite having one fixed office in this register.	Bare J now names the finite turn throughout; $J(p)$ remains the separately typed packet-jurisdiction form. Source-native J_{rot} remains unchanged where cited.
The Candidate Forget witness introduced e_1, e_2 without symbol-ledger separation from e_Π and e-motion.	The symbol separation ledger now fixes e_1, e_2 as witnesses in E.

RL.15 v1.7.10 to v1.7.11

v1.7.14 label I.37

Witnessed difference	Retained repair
Operators were often defined within or after a display, requiring the reader to reconstruct their offices from later prose or the final ledger.	Each formal section now begins with a compact local key before its equations; the final symbol ledger remains the reconciliation index.
The bare-J row pointed to a non-existent definitions directory.	It now points to the Finite symmetric chart and records source-native J_{rot} separately.
The historical v1.7.5 to v1.7.6 receipt had been silently modernized to bare J.	Its original J_{rot} spelling is restored; the current rename remains recorded only at v1.7.10.
H_{mir} duplicated bare H, whose mirror office is already fixed by the finite chart.	The return table and read/write relation now use bare H; i_{turn} remains subscripted because bare i is the separately typed scope coordinate.
The v1.7.10 receipt itself required its source-native-J_{rot} and ledger-terminology corrections.	Those corrections are retained here as v1.7.11 work, rather than attributed to v1.7.10.

RL.16 v1.7.11 to v1.7.12

v1.7.14 label I.38

Witnessed difference	Retained repair
The local key reduced Λ to an unsigned "axial address," dropping its orientation from i toward Φ.	The phase key restores signed hyperbolic arclength from i, oriented toward Φ.
Scope Recognition pointed to a later mirror relation without its displayed source in the chart.	The metric-turn subsection now displays $H^{\mathsf{T}}GH = G$, and Scope Recognition points to that derivation.
M, ρ_{hid}, and ρ_{Σ} had local descriptions that omitted their retained neighbouring offices.	The field, Bell, Apple II, and symbol-ledger keys now preserve the source-native manifold lettering, hidden-variable measure, and human-or-instrument reader.
The v1.7.10 receipt corrections made during v1.7.11 had no row in the v1.7.11 record.	The v1.7.10 to v1.7.11 receipt now records that witnessed repair.

RL.17 v1.7.12 to v1.7.13

v1.7.14 label I.39

Witnessed difference	Retained repair
The root carried a local turn, an alternating relation, and a signed metric without displaying their shared i-fold construction.	The local i-fold, dual-form return, and their finite receipts enter as $g_J = \omega(\cdot, J\cdot)$, V-I1, and V-I2.
Contact, Memory, and Receipt stood adjacent in prose without their shared carried-contact and compositional-memory normal forms.	P15, P16, and P18 supply $\mathcal{C}_{\rho_{\mathrm{rec}}}$, MR, and MEMORY; reader, lift, and receipt retain separate offices.
The metric address had no displayed irreducible factor profile or finite four-wheel selection condition.	N_{alg}, Fac_G, and the order-34, 137/548 finite address enter with V-I3 and V-I4.

Witnessed difference	Retained repair
The register lacked a compact source-declared return form at ordinary instrumental scale.	P19 enters the three-return-normal-forms table with separate phase, lifted address, and retained-history coordinates.
The positive i-fold source retained an arithmetic extension requirement that could be mistaken for an established finite theorem.	$\mathcal{T}_{\mathrm{arith}}$ enters only as a Candidate interface with its domain, criterion class, equality, and source completion requirement declared.

RL.18 v1.7.13 to v1.7.14

v1.7.14 label I.40

Witnessed difference	Retained repair
The interlocking paragraph assigned simultaneous dual-form reversal to a turn, although the displayed identities assign it to the recurrence step Q.	The prose now names Q and Q^2; the finite turn J retains its separate metric-sign office.
The axial quotient row used an undefined one-form and cycle.	Its local key now fixes $\bar{\alpha}_{\mathrm{ret}}$, core, and the closed period $\oint_{\mathrm{core}} \bar{\alpha}_{\mathrm{ret}} = T$.
Fac_G was described as factorization of an address rather than the coarser prime profile of its absolute norm.	Its office is now the prime profile of $\lvert N_{\mathrm{alg}}(x)\rvert$; Fibonacci and Lucas symbols receive distinct register names.
The Memory source was called compositional without its stated identity preservation.	MEMORY is now typed as a source-declared functor with its identity law and H34 source coordinate.
The write of g-memory and the lift of e-carriage had no common candidate interface.	$\Psi_{\mathrm{wr}} : Y \to M_g$ writes g-memory return; Ψ_{wr} carries its declared lift through π_e and π_g. Bare Ψ retains the golden conjugate-root office.

RL.19 v1.7.14 to v1.7.15

restructure

Witnessed difference	Retained repair
The record opened on the finite chart and a 27-word register. The reader basis was not yet stated as interfaces, the join came before the root, and the Lean closure appeared only as one ledger row.	Reordered: a plain-language page zero; the reader basis as declared interfaces only (§3); the exact root with derivations (§4–§6); the join (§7); the Lean closure at the field-facing layer (§8–§9). Ledger, citations, register, symbol table and findings move to Appendices A–E; receipts move to this ledger.
Sections of the root referred forward to later sections for their own definitions.	Forward dependencies removed. Each section cites only earlier material.
$H^{\mathsf{T}}GH = G$ was derived from a relation that itself rests on it.	Derived directly in Proposition 4.7 (Mirror): $H^{\mathsf{T}}GH = G^3/5 = G(G^2/5) = G$, from $G = G^{\mathsf{T}}$ and $G^2 = 5I$; later uses cite that proposition.
The statement that the carriage is never orthogonal was a finite guard, $1 \le n \le 8$ (V-E8).	Proposition 4.12 proves it for every $n \ge 1$. V-E8 is retained as the finite guard and cited as such.

Witnessed difference	Retained repair
The wording "lap" for a completed rotation of the wheel.	"Rotation" throughout. "Physical" is not used as a contrast term; the title of source P01 is cited as written.
The status vocabulary had five terms and no place for a machine-checked result or for a result that holds only under named premises.	Seven statuses: Exact finite, Exact derived, Lean-checked, Conditional, Source declaration, Interface, Candidate. One governing rule: a result carries exactly the strength of its weakest named premise, and nothing crosses a type boundary by renaming.
P11 read as unscoped coverage of Minimum Mechanics 010a–010u.	P11 now defers to per-result statuses (§9, §8.2, Appendix E). The pointwise results are Lean-checked at the scope stated; the six-bracket theorem is Conditional on its seven premises; the additive-map result on $\mathbb{Z}$-valued pairings is Exact derived; the spectral refusal is Lean-checked and a source declaration; the join from the finite root to the Hamiltonian closure is left as an Interface.
Only the author's 64-check verifier was cited, and it was not supplied.	Added the independent script `check_symmetric_minimum_independent.py`: 107 exact checks and 23 refusal controls over nine families, reproducing the finite identities. The author's verifier remains cited as the record, not supplied here.
The symbol ledger had no entries for the Lean-layer symbols.	Rows added for γ_{ij}, E^i, π^{ij}, $C[v]$, and N, M.
Several displayed claims had no derivation.	Derivations added for the recurrence, dual-form return, metric chart, turn, local i-fold, carriage, sign character, wheel, rail, finite action, norm address, 137/548, and the interlock; wide displays reset as multi-line blocks.
The Lean compile evidence was not separated from the Lean statements.	Appendix E records the pins and the CI status pages. Build logs were not readable, and Lean was not compiled in the typesetting environment. The record says so.

RL.20 v1.7.15 to v1.7.16

new in this edition

Witnessed difference	Retained repair
The register ended at word 27, Forget. The half-turn read, the zero read at the fixed point and the twenty-eight reads of the source record were not carried.	Word 28, Endurance = $\Phi(\pi)$, is added with a one-sentence definition (§3.3), register row 28 and §11.1: Theorem 11.1 (the half-turn read), Theorem 11.2 (unit, fixed point and zero read), Proposition 11.3 (four-form, two-fold, dihedral closure) and Proposition 11.4 (twenty-eight reads), each with its derivation.

Witnessed difference	Retained repair
The closing read of the source record, *The Miracle of Mercy* (one page, 18 July 2026), had no source address and no typed status for its parts.	Source P20 is added. The equations are typed Exact finite or Exact derived. The word, and its closure over Gravity, Light, Memory and Motion, is a Source declaration.
The source page writes Memory for $U_\pi - I \neq 0$ and Silence for $I + U_\pi = 0$. Both are also register words (rows 5 and 25) with other offices.	The two words keep their rows. The equations are recorded as the difference and the balance of the core at the half-turn. No identification with rows 5 or 25 is made.
The 8π loop, the four-form, the two-fold, the unit $[1, 1]$ and the fixed-point coordinate Φ were listed without a carrier or a statement.	$U_{8\pi} = I$, with $U_{k\pi} = I$ if and only if k is even; $J^4 = I$; $[-q] = [q]$; the unit address Φ^2 with norm 1 and read 2; the line $[\Phi, 1]$ approached by $[Q^n(1, 1)^{\mathsf{T}}]$ and the zero read on the fixed lines of Q. Also $\langle H, L_{\mathrm{ax}} \rangle = D_\infty$. Open: the carrier of the 8π loop (item 7); the maps from the four phases to the four offices, from the eight-address carrier to the 2×2 root, and between the zero read and Silence (item 8).
The independent script covered nine families, 107 checks with 23 controls.	Family J is added: 33 checks with 10 controls. The total is 140 checks with 33 controls.
$\Phi(\pi)$ could be read as the golden ratio Φ with an argument.	Symbol-ledger rows fix $\Phi(\pi)$ (always with its argument), $\Phi^* = 1 - \Phi$ and the two angle letters U_θ, U_α for one object.
Version label v1.7.15, and the counts in the abstract, Appendix B (P12) and the findings ledger.	Label v1.7.16. The abstract and §3.3 read twenty-eight words; P12 reads 140 checks; Appendix E finding 13 records the omission and its closure.