The Common Doorway: A Cross-Field Method for Generative Collapse

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Abstract

Adjacent fields often pursue similar aims yet talk past one another. We introduce the *Common Doorway*, a single prose-first workflow that makes claims comparable, auditable, and portable across epistemology, ontology/metaphysics, phenomenology/psychology, history of science, and design/policy. Its spine is fixed: CONTRACT → CANON → CLOSURES → INTEGRITY LEDGER → STANCE, governed by MANIFEST (provenance) and WELD (continuity across policy change). Authors work in ordinary language: the CANON uses five shared descriptors—DRIFT, FIDELITY, ROUGHNESS, RETURN, INTEGRITY—while the CLOSURES set thresholds and their order. The INTEGRITY LEDGER reconciles *debits* from DRIFT and ROUGHNESS with *credits* from demonstrated RETURN; the STANCE is read directly from the declared CLOSURES. No formulas are required in practice. A compact appendix supplies the formal canon and a budget identity, $\Delta\kappa = R_{\tau_R} - \left(D_\omega + D_C\right)$, that guarantees reconciliation and diachronic coherence. These pieces explain why the prose pipeline preserves coherence and comparability without imposing sameness. We also provide a universal caption, a one-line publication row, and cross-field mappings to keep results legible across the five domains (Paulus, 2025a,b,c).

Reader's scope: Epistemology; Ontology/Metaphysics; Phenomenology/Psychology; History of Science; Design/Policy.

Caption (front matter). contract:[a=0.0,b=1.0,eps=1e-8,p=3,alpha=1.0]; Face: pre-clip; Canon: UMCP kernel; Closures: manifest_version=1.0, build=2025-09-26, tz=America/Chicago; Ledger: reconciles; Weld: W-2025-09-23-book-01;
Manifest root_hash=
`7247553fb9576436b097cc0f1e24f5194b816a516a349d3f49775007458cc84a`.

How to read this paper (for concept thinkers)

What this is. A simple, auditable way to tell what changed and what returned.

Five parts we always show:

Contract The rules we promise to follow (admissible evidence, filters).

Canon What counts as an object here (the world under discussion).

Closures What we freeze so results are repeatable (versions, dates, policy).

Ledger A small balance sheet of change vs. return that must reconcile.

Stance The plain-English conclusion that lives or dies by the ledger.

How to skim a Budget row: look at the time window, the gate (Stable/Watch/Collapse), then the stance. The rest is a receipt for auditors.

1 Motivation and Contribution

Motivation. Adjacent fields often pursue the same aims but use incompatible vocabularies and ad hoc rules. This fragments debate, slows correction, and makes results hard to compare over time.

Contribution. We offer *pragmatic unity without forced sameness.* A single, non-negotiable spine— CONTRACT → CANON → CLOSURES → INTEGRITY LEDGER → STANCE— lets each field publish in its own voice while remaining comparable and auditable. Disagreements and policy shifts are made explicit in versioned CLOSURES, not hidden in silent redefinitions.

Artifacts (small, standard, and public).

- **Contract note (Contract).** What counts, how it is normalized, and how edge cases are handled; dated and hashed.

- **Canonical narrative (Canon).** A short prose account using the shared five: Drift, Fidelity, Roughness, Return, Integrity.

- **Closure sheet (Closures).** Thresholds and their order of application; versioned.

- **Integrity ledger (Integrity Ledger).** One paragraph (or table) that reconciles debits (Drift, Roughness) and credits (Return).

- **Stance (Stance).** The practical verdict implied by the declared Closures (domain labels allowed).

- **Publication row.** A single line for registries and summaries.

- **Manifest (Manifest) and welds (Weld).** Provenance (IDs, timestamps, hashes, timezone); continuity records when policies change.

Why this matters. The spine makes claims portable across domains, reviewable by outsiders, and stable through time. Practitioners can work entirely in prose; the optional mathematics only explains why the structure is coherent and why the ledger must reconcile.

Non-negotiable spine

One fixed workflow:
Contract → Canon → Closures → Integrity Ledger → Stance.

Governance (audit + continuity):
Manifest = provenance (IDs, timestamps, hashes, timezone);
Weld = continuity across policy change (name the anchor, state what changed and why; do not rewrite history).
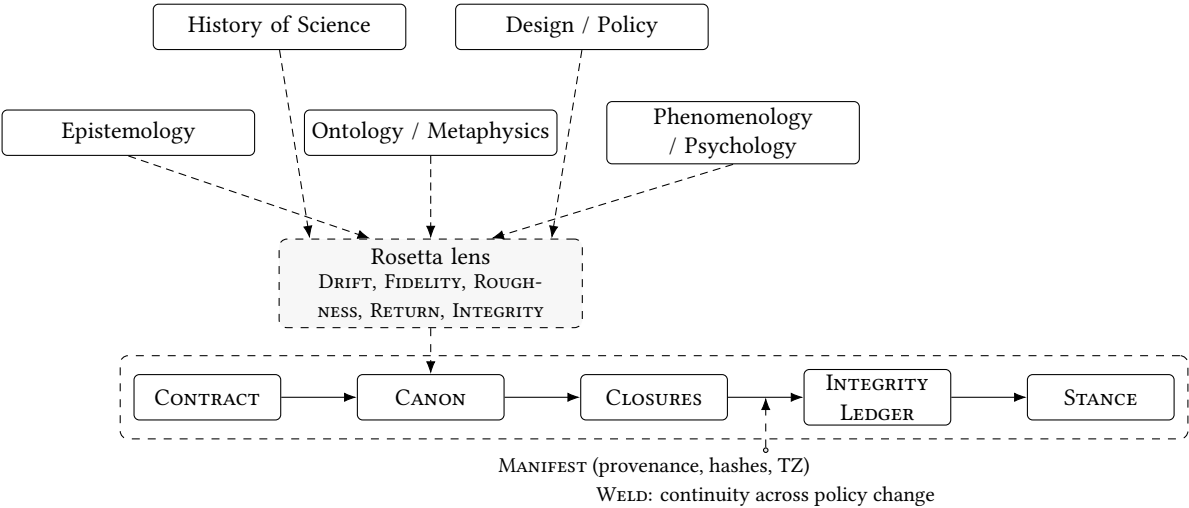

Figure 1: Five domains feed a shared "Rosetta" (five descriptors) and then traverse the common spine: Contract → Canon → Closures → Integrity Ledger → Stance. The Manifest binds artifacts to provenance and hashes; a Weld preserves continuity when policies change.

Skeptic's micro-FAQ

Is this a new metaphysics? No. It's an *audit ritual.* Your ontology lives in the canon you declare.
Where's falsifiability? In the gates. If (ω, F, S, C) cross thresholds, the stance must change—on record.
Can I use this without equations? Yes. Run Contract $\to$ Canon $\to$ Closures $\to$ Ledger $\to$ Stance and cite the receipt.
Why "reconcile"? So anyone can see exactly how the conclusion follows from change vs. return.

2 Plain-Language Kernel

CONTRACT. Decide the rules *before* you look at the evidence. Say what counts as a source, how data are normalized, how missing values and outliers are handled, and how conflicts are resolved. Publish a short contract note with inputs, transforms, exclusions, version, date, and file hashes. Keep it public, time-stamped, and hashed.

CANON. Describe the episode in ordinary language using the shared five: DRIFT (what moved), FIDELITY (what persisted), ROUGHNESS (what made it bumpy), RETURN (how it credibly came back), and INTEGRITY (whether the whole still hangs together). No math is required here—just clear prose tied to the CONTRACT.

CLOSURES. Turn your tolerances into explicit thresholds and an *order of checks* (which rule applies first when they conflict). Save this as a versioned closure sheet, and do not change it mid-episode.

INTEGRITY LEDGER. Keep one integrity account. Record *debits* from DRIFT and ROUGHNESS; record *credits* from demonstrated RETURN within the CONTRACT's tolerance. The account must reconcile—no remainder—so the narrative and the numbers tell the same story.

STANCE. Read the stance directly from the declared CLOSURES. Use your field's labels (e.g., Supported / Under Review / Disconfirmed), but ensure they map to the same underlying states (Stable / Watch / Collapse), with an optional CRITICAL overlay when integrity is low.

Governance. Attach every artifact to a MANIFEST with provenance (IDs, timestamps, hashes, timezone). When policies change, create a WELD: name the shared anchor, state what changed and why, and show continuity across the change. Do not rewrite history; connect it.

3 Rosetta Table: Same Row, Five Domains

Rosetta map across five domains

Contract — Epistemology: method norms; Ontology/Metaphysics: identity criteria; Phenomenology/Psychology: task/setting constraints; History of Science: archival scope and source handling; Design/Policy: scope, guardrails, success metrics.
Canon — Epistemology: operationalized claims; Ontology: entities/relations; Phenomenology: observables and lived categories; History: actors, instruments, documents, events; Design/Policy: system model.
Closures — Epistemology: instrument/version freeze; Ontology: fixed context for identity tests; Phenomenology: session bounds/prompt language; History: edition/translation/version locks; Design/Policy: release window/policy version.

Ledger — Epistemology: accountable update; Ontology: conservation under change; Phenomenology: disruption vs. return trace; History: claim–source reconciliation; Design/Policy: risk–benefit audit.

Stance — Epistemology: justified belief/update; Ontology: commitment about what remains real; Phenomenology: practitioner takeaway; History: bounded historical claim; Design/Policy: decision text.

4 Method (No Math Required)

1. **Freeze the CONTRACT.** State admissible sources, normalization, edge handling, and conflict resolution; record them in a MANIFEST.

2. **Narrate the CANON.** Use drift/fidelity/roughness/return/integrity in prose.

3. **Declare CLOSURES.** Publish thresholds and boundary order; version them.

4. **Keep the INTEGRITY LEDGER.** Debits: DRIFT / ROUGHNESS. Credits: RETURN. The account must reconcile (no remainder).

5. **Adopt a STANCE.** Derive it from the declared CLOSURES; add a CRITICAL overlay if integrity is low.

6. **Publish the row.** Emit one line and tie it to the MANIFEST; any rule change crosses a WELD on a shared anchor.

5 Governance: Captions, Rows, and Manifests

Governance caption (this paper, no weld).

> **Governance caption.**
> CONTRACT: `contract:2025-09-01`; Face: `pre-clip`; CANON: drift/fidelity/roughness/return/integrity;
> CLOSURES: `v1.1`, order=safety → coherence → recurrence;   STANCE: `Stable`;
> INTEGRITY LEDGER: debits=$[D_\omega = 0.12; \; D_C = 0.05]$, credits=$[R = 0.62]$, reconciles;
> MANIFEST: `manifest:2025-09-26`;
> Manifest root_hash=`7247553fb9576436b097cc0f1e24f5194b816a516a349d3f49775007458cc84a`,
> TZ `America/Chicago`.

Publication row (example; fully populated).

```
{
  "id": "case:practice-restart",
  "ledger_summary": "Reform reduced drift;
  independent replication confirmed return within 90 days.",
  "stance": "Stable",
  "manifest_id": "manifest:2025-09-26",
  "manifest_root_hash":
  "7247553fb9576436b097cc0f1e24f5194b816a516a349d3f49775007458cc84a",
  "files_sha256": [
    "9f483a3e7902805911621f096a87fc0374298e9c5e524dc78cacd38086870bbd",
    "922827dccbcfa085f0258337269cc48cc76b78112113004cfed4b8afe1603b69"
  ],
  "contract_id": "contract:2025-09-01",
  "closures_version": "v1.1",
  "closures_order": "safety->coherence->recurrence",
  "weld_id": "weld:anchor-2025Q3",
  "date": "2025-09-27",
  "tz": "America/Chicago"
}
```

6 Worked Crosswalk: One Case, Four Voices

Case. A practice is suspended, reformed, and then restarted. The policy change is recorded via a WELD at a named anchor; prior stances are not rewritten.

- **Philosophy.** CONTRACT: sources / editions declared up front; CANON: rupture → rough debate → return; CLOSURES: tolerance bands and an integrity floor; STANCE: COLLAPSE → WATCH → STABLE.

- **Epistemology.** CONTRACT: admissible testimonies and traceable methods; CANON: deviation with potential defeaters → recurrence via independent corroboration; CLOSURES: safety → coherence → recurrence (e.g., ≥ 2 independent checks post-2020); STANCE: Under Review → Justified.

- **Ontology.** CONTRACT: individuation by form, function, material, and recognition (declared criteria); CANON: structural deviation, borderline parts, recognition return; CLOSURES: "2-of-4" identity rule (any two among form / function / material / recognition within tolerance); STANCE: WATCH → STABLE.

- **Psychology.** CONTRACT: methods specified with bias guards (pre-specification, blinding where applicable); CANON: outcome deviation, confound pressure, maintenance at follow-up; CLOSURES: reliability minima + independent replication + maintenance within tolerance; STANCE: Supported (or Under Review if replication or maintenance is pending).

Reading across fields. Each voice uses the same spine (CONTRACT → CANON → CLOSURES → INTEGRITY LEDGER → STANCE). Differences live in the declared CLOSURES and their thresholds; continuity across reform is preserved by the WELD rather than by retroactive edits.

7 Why the Math Exists (and Why You Don't Need It)

Role. The algebra is a warranty, not a gate. With a frozen CONTRACT, the meanings of the five descriptors in the CANON do not drift, and the INTEGRITY LEDGER takes a conservation form. Practitioners can work entirely in prose and still produce correct, auditable results.

What the math buys.

- **Invariance.** Under the fixed CONTRACT, the formal definitions of DRIFT, FIDELITY, ROUGHNESS, RETURN, and INTEGRITY are stable. This keeps interpretations from sliding mid-episode (Section A).

- **Conservation.** The INTEGRITY LEDGER reconciles using a budget identity $\Delta\kappa = R_{\tau_R} - (D_\omega + D_C)$, so credits from RETURN and debits from DRIFT and ROUGHNESS add up exactly (Section B). A remainder signals an error to fix, not a fudge factor.

- **Comparability.** Using κ (log-integrity) as the accounting currency makes changes additive across sub-episodes and teams, and makes stances comparable across fields once CLOSURES are declared.

- **Continuity.** When policies change, a WELD preserves continuity at a named anchor, so histories remain legible over time rather than being rewritten.

Prose practice is sufficient.

- Write the CONTRACT (sources, transforms, exclusions, edge handling).

- Tell the CANON in ordinary language using the shared five.

- Publish the CLOSURES (thresholds and their order), keep the INTEGRITY LEDGER in plain prose, and read off the STANCE from the published rules.

These steps already ensure auditability and cross-field legibility; the formulas simply explain *why* the structure works.

When to open the appendix.

- You need to stress-test a rule or compare thresholds across sites.

- You are investigating a non-reconciling ledger (possible contract error).

- You are crossing a WELD and must show continuity at the anchor.

Pointers. Definitions live in Section A; the conservation law in Section B; field-ready CLOSURES patterns in Section C. Together, these give the "why" behind the prose pipeline without making mathematics a prerequisite for use.

8 Limitations and Ethics

This framework does not adjudicate metaphysical truth or establish experimental fact on its own; it structures *justification* and *continuity*. All results are conditional on the frozen CONTRACT and the published CLOSURES. Authors remain responsible for methodological soundness, consent, privacy, and field-specific risk disciplines. The MANIFEST must never expose sensitive information; WELD entries should *explain* policy shifts, not launder them.

Scope limitations.

- **Conditionality.** Claims are true *relative to* the CONTRACT (sources, transforms, exclusions). Changing the contract can change the verdict without inconsistency.

- **No metaphysical verdicts.** The method organizes reasons and evidence; it does not settle ultimate ontological disputes.

- **No guarantee of validity.** A reconciled INTEGRITY LEDGER shows internal coherence, not external correctness; bad instruments can reconcile neatly.

Methodological risks.

- **Selection and drift.** Narrow or biased sources, weak normalization, or unnoticed dataset shift can misstate DRIFT and ROUGHNESS.

- **Goodhart effects.** Over-tuned thresholds in CLOSURES can optimize to the metric rather than the phenomenon.

- **Reconciliation fallacy.** A zero remainder in the INTEGRITY LEDGER is necessary for integrity, not sufficient for truth.

- **Weld laundering**. Using WELD to hide breaking changes defeats continuity; name the anchor and state differences plainly.

Privacy and provenance.

- **Minimize exposure**. In the MANIFEST, publish identifiers and hashes, not raw sensitive data; describe transforms rather than reproducing private fields.

- **De-identification**. Apply recognized de-identification where persons or small groups are involved; assess re-identification risk before release.

- **Separation of secrets**. Keep encryption keys and linkage files out of the public MANIFEST; store access routes separately.

Fairness and harm.

- **Harm review**. Include a short risk statement for vulnerable populations, dual-use concerns, and foreseeable externalities.

- **Burden of proof**. Where harms are plausible, require stronger RETURN and higher integrity floors; apply a CRITICAL overlay when integrity is low and stakes are high.

Conflicts and independence.

- **Declare interests**. Disclose funding, roles, and constraints that can influence the CONTRACT or CLOSURES.

- **Independence for recurrence**. Treat RETURN as stronger when it comes from independent teams, sites, or data.

Governance and correction.

- **Version bumps**. Change thresholds or boundary order only via a new CLOSURES version; do not edit in place mid-episode.

- **Public corrections**. If an error is found, add a corrective note to the MANIFEST, re-run the INTEGRITY LEDGER, and, if needed, cross a WELD at a named anchor.

Responsible publication.

- **Minimum disclosures**. Each figure or table should include the universal caption; each claim should have a one-line publication row tied to a MANIFEST.

- **Data availability**. State what can be shared, on what terms, and where to request restricted access.

> **Ethics quick check**
>
> 1. CONTRACT public, specific, and fit for purpose?
> 2. CLOSURES versioned; thresholds justified; order declared?
> 3. MANIFEST present without sensitive data; hashes provided?
> 4. INTEGRITY LEDGER reconciles; remainder investigated if present?
> 5. Independence and harm considerations documented; CRITICAL overlay applied when warranted?

SS1m: $\Delta\kappa = +0.450$, ir $= e^{\Delta\kappa} = 1.5683$, s $= 0.000$, tol $= 0.005$, $\theta = 3$, $\varphi = S$, ID=[P=18, F=1, T=6, E=46, R=3 | C=[16,19,87]]

7

> 6. Any policy change crossed via a named WELD with an anchor and narrative?

9 Conclusion

A single grammar makes adjacent fields legible to each other without flattening their aims. The Common Doorway supplies the connective tissue: one spine, small artifacts, and governance that respects time. The result is portable prose practice with optional mathematical scaffolding.

> **Cross-field reviewer checklist (WFxA)**
>
> 1. CONTRACT frozen and public.
> 2. CANON narrated with the five descriptors.
> 3. CLOSURES explicit, versioned, and ordered.
> 4. INTEGRITY LEDGER reconciles (no remainder).
> 5. STANCE traces to CLOSURES (CRITICAL overlay justified, if used).
> 6. MANIFEST present (hashes, TZ); WELD valid on a shared anchor if rules changed.

10 Glossary of Terms (Plain Language)

CONTRACT.
The rules you freeze *before* looking at evidence: what counts as a source, how data are normalized, how edge cases and conflicts are handled.

CANON.
A short, ordinary-language account of what changed using the shared five: DRIFT, FIDELITY, ROUGHNESS, RETURN, INTEGRITY.

CLOSURES.
Public thresholds and the *order* you apply them; versioned and not altered mid-episode.

INTEGRITY LEDGER.
One integrity account: *debits* from DRIFT and ROUGHNESS, *credits* from demonstrated RETURN; the account must reconcile (no remainder).

STANCE.
The practical verdict read directly from the declared CLOSURES (e.g., STABLE, WATCH, COLLAPSE; optional CRITICAL overlay when integrity is low).

MANIFEST.
The provenance sheet: IDs, timestamps, hashes, timezone—what ties figures, tables, and rows to their sources.

WELD.
The continuity note when policies change: names a shared anchor, states what changed and why, and carries history forward without rewriting it.

Five descriptors.
DRIFT (movement), FIDELITY (persistence), ROUGHNESS (pressure/bumpiness), RETURN (credible comeback), INTEGRITY (actionable coherence).

Kernel	Epistemology	Ontology / Metaphysics	Phenomenology / Psychology	History of Science	Design / Policy	Hook
CONTRACT	epistemic contract; method norms	ontic contract; identity criteria	measurement contract; task/setting constraints	archival scope; edition rules	policy spec; guardrails; success metrics	Freeze rules first
CANON	evidential behavior; operationalization	entities, properties, relations	observables; lived categories	actors, instruments, documents, events	system model; inputs/outputs	Five descriptors; one grammar
DRIFT	evidential deviation	qualitative deviation	effect / outcome shift	divergence from source record	off-spec performance	How far it moved
FIDELITY	persistence of support	sameness-through-change	stability / reliability	corroboration stability	on-spec reliability	What stayed recognizable
ROUGHNESS	defeater pressure	borderline pressure	bias / confound pressure	editorial / translation noise	operational friction	What made it bumpy
RETURN	replication / triangulation	re-identification / recognition	maintenance / recurrence	independent attestation	successful re-run / rollback	The credible comeback
INTEGRITY	endorsement coherence	unity / viability as one	endorsement coherence	narrative robustness	service viability	Can it continue?
CLOSURES	evidence norms; defeat rules	identity / persistence rules	reliability / validity / replication	edition / translation / version locks	release policy; rollout window	Public, versioned rules
STANCE	Justified / Under Review / Defeated (+ Critical)	Stable / Watch / Collapse (+ Critical)	Supported / Under Review / Disconfirmed (+ Critical)	Supported / Contested / Withdrawn (+ Critical)	Approve / Pilot / Halt (+ Critical)	Names come from closures
MANIFEST	provenance ledger	provenance ledger	provenance ledger	source / provenance ledger	change log / provenance ledger	Receipts attached
WELD	diachronic coherence; continuity of justification	continuity of justification (identity under policy change)	continuity of practice justification	continuity across edition changes	continuity across rule changes	Bridge across rule changes

Table 1: Rosetta crosswalk: one kernel, five domains. Spine:
CONTRACT → CANON → CLOSURES → INTEGRITY LEDGER → STANCE. Field-specific language; same underlying moves.

SS1m: $\Delta\kappa = +0.450$, ir $= e^{\Delta\kappa} = 1.5683$, s = 0.000, tol = 0.005, $\theta = 3$, $\varphi = $ S, ID=[P=18, F=1, T=6, E=46, R=3 | C=[16,19,87]]

9

Common Doorway — Starter Kit

Contract checklist (public & hashed).

1. **Scope & sources.** List admissible sources; cite editions/versions.
2. **Normalization.** Map raw x_t to $y_t \in [0,1]$ (transform, parameters, winsorization tails).
3. **Face & tolerance.** Pre-event window $[t_0, t_*)$; face $y_\star$; return tolerance ε.
4. **Missing data.** Imputation or deletion rule; how N is recomputed.
5. **Guards at extremes.** Saturation limits, outlier handling, unit conventions.
6. **Conflict policy.** Tie-breaks, precedence among sources, audit notes.
7. **Provenance.** Date/time zone, environment notes, `contract:id`; bind to MANIFEST root hash.

Closures template (ordered).

1. **Safety / coherence.** Require $D_\omega \leq \theta_\omega$ and $D_C \leq \theta_C$. If not, WATCH or COLLAPSE.
2. **Return.** Require $R_{\tau_R} \geq \theta_R$.
3. **Net budget.**

$$\Delta\kappa = R_{\tau_R} - (D_\omega + D_C) \quad \Rightarrow \quad \begin{cases} \text{STABLE}, & \Delta\kappa \geq \theta_{\text{up}}, \\ \text{WATCH}, & |\Delta\kappa| < \theta_{\text{flat}}, \\ \text{COLLAPSE}, & \Delta\kappa \leq -\theta_{\text{down}}. \end{cases}$$

4. **Critical overlay.** Apply CRITICAL if $\min(\theta_\omega - D_\omega, \theta_C - D_C)$ falls below a published floor.

Publish thresholds $\theta_\bullet$ and the rule order as part of the closure version.

Example (no weld).

Caption. Contract: `contract:2025-09-01`; Face: pre-clip; Canon: drift/fidelity/roughness/return/integrity; Closures: `v1.1`, order=`safety→coherence→recurrence`; Stance: `Stable`; Ledger: debits=[$D_\omega = 0.12$; $D_C = 0.05$], credits=[$R = 0.62$], reconciles; Manifest: `manifest:2025-09-26`, root hash `7247553f b9576436b097cc0f1e24f5194b816a516a349d3f49775007458cc84a`.

Publication row JSON (schema & example)

Schema.

```
{
  "id": "episode_or_claim_or_entity",
  "ledger_summary": "<= 40 words free text",
  "stance": "Supported | Under Review | Disconfirmed | Stable |
   Watch | Collapse",
  "manifest_id": "manifest:YYYY-MM-DD",
  "manifest_root_hash": "<64-hex>",
  "files_sha256": ["<64-hex>"],
  "contract_id": "contract:YYYY-MM-DD",
  "closures_version": "v1.1",
  "closures_order": "safety->coherence->recurrence",
  "weld_id": null,
  "date": "YYYY-MM-DD",
  "tz": "America/Chicago"
}
```

Example (fully populated).

```
{
  "id": "case:practice-restart",
  "ledger_summary": "Reform reduced drift;
  independent replication confirmed return within 90 days.",
  "stance": "Stable",
  "manifest_id": "manifest:2025-09-26",
  "manifest_root_hash":
  "7247553fb9576436b097cc0f1e24f5194b816a516a349d3f49775007458cc84a",
  "files_sha256": [
  "9f483a3e7902805911621f096a87fc0374298e9c5e524dc78cacd38086870bbd",
  "922827dccbcfa085f0258337269cc48cc76b78112113004cfed4b8afe1603b69"
  ],
  "contract_id": "contract:2025-09-01",
  "closures_version": "v1.1",
  "closures_order": "safety->coherence->recurrence",
  "weld_id": "weld:anchor-2025Q3",
  "date": "2025-09-27",
  "tz": "America/Chicago"
}
```

A   Formal Canon (Reference)

We sketch contract-relative identities associated with the prose terms.

DRIFT (ω) Stepwise deviation measured on the frozen CONTRACT.

FIDELITY (F) Persistence / sameness relative to the CONTRACT.

Entropy (S) Surprise with respect to the face declared in the CONTRACT.

Curvature (C) Local roughness (change of change) under the CONTRACT.

Return delay (τ_R) Hitting time (within tolerance) back to a prior neighborhood.

Composite INTEGRITY (IC) A monotone composite of the foregoing.

Log-INTEGRITY (κ) $\kappa := \ln IC$, used as the budget currency.

Mini audited example (closes exactly)

Anchor: 2025-07-15 → 2025-08-15

$$\Delta\kappa = 0.0200, \quad D_\omega = 0.0042, \quad D_C = 0.0158, \quad R_{\tau_R} = 0.0200$$

$$\text{Residual} \;=\; \Delta\kappa - \left(R_{\tau_R} - (D_\omega + D_C)\right) \;=\; 0.0000 \;\checkmark$$

Identity used: $\Delta\kappa = R_{\tau_R} - (D_\omega + D_C)$.

The seven invariants, without jargon

- ω (drift): how far the process wandered from its intended track.
- F (fidelity): the fraction that stayed true to the contract (higher is better).
- S (roughness/entropy): how choppy the path was.
- C (curvature): how sharply the path bent away from trend.
- τ_R (return delay): how long it took to stabilize again.
- IC (integrity): overall health of the account; 1 means intact.
- $\kappa = \ln(\text{IC})$ (log-integrity): a stable way to book changes.

Reading tip: Gate labels use simple thresholds on these numbers; details live in the appendices.

B Budget Identity (First Law)

Under a frozen CONTRACT, the change in log-integrity equals credited return minus debited pressures:

$$\Delta\kappa \;=\; R_{\tau_R} \;-\; (D_\omega + D_C). \tag{1}$$

Terms.

$\Delta\kappa$ Net change in log-integrity over the episode (dimensionless).

D_ω Debit due to DRIFT (deviation pressure), with $D_\omega \geq 0$.

D_C Debit due to curvature (roughness / change-of-change), with $D_C \geq 0$.

R_{τ_R} Credit from demonstrated RETURN within the contract's return tolerance and delay τ_R, with $R_{\tau_R} \geq 0$.

Sign convention and reading.

- Credits add integrity; debits reduce it. If $R_{\tau_R} > D_\omega + D_C$, integrity increased; if equal, it was maintained; if smaller, it decreased.

- The INTEGRITY LEDGER *reconciles* when Eq. (1) holds with no remainder; any remainder indicates a contract or measurement error that must be corrected.

- Thresholds in the CLOSURES translate $\Delta\kappa$ (and component magnitudes) into a STANCE (e.g., STABLE, WATCH, COLLAPSE, with optional CRITICAL overlay).

Aggregation and continuity.

- Episodes compose additively: for adjacent sub-episodes A and B, $\Delta\kappa_{A\cup B} = \Delta\kappa_A + \Delta\kappa_B$.

- When policies change, a WELD declares an anchor so κ remains continuous across the change within the stated tolerance.

Prose-only reading. Integrity goes up when credible return outweighs pressures from drift and roughness; it goes down when pressures dominate. The account must balance exactly on the published CONTRACT.

C Field-Specific Closure Templates

Closures are the published, ordered rules that map the five shared descriptors (DRIFT, FIDELITY, ROUGHNESS, RETURN, INTEGRITY) and any domain evidence to a gate (STABLE, WATCH, COLLAPSE), with an optional CRITICAL overlay. Apply rules *in order* and *stop* when a decisive rule fires. All thresholds, tolerances, and evidence sources must be versioned in the CLOSURES sheet.

Common pattern (all domains)

1. **Safety first.** Minimum design/provenance safeguards must be satisfied *before* reading signal. If violated: $\rightarrow$ WATCH or COLLAPSE (per published threshold); stop.

2. **Coherence next.** Evidence must fit together under the CONTRACT (sources, transforms, exclusions). If incoherent beyond tolerance: $\rightarrow$ WATCH; stop.

3. **Return standard.** Demonstrated RETURN must meet the domain's recurrence/maintenance standard. If met: $\rightarrow$ STABLE; else: $\rightarrow$ WATCH.

Critical overlay. If integrity drops below the published floor (low κ or large debits from DRIFT/ROUGHNESS), add CRITICAL to the stance.

Epistemology (template).

- **Rule 1 — Safety.** No outstanding defeaters; methods satisfy published safeguards (e.g., pre-specification, preregistration where relevant, independence when claimed). If violated $\rightarrow$ WATCH or COLLAPSE (per threshold); stop.

- **Rule 2 — Coherence.** Reports, transforms, and exclusions cohere under the CONTRACT. If contradiction or unexplained divergence exceeds tolerance $\rightarrow$ WATCH; stop.

- **Rule 3 — Recurrence.** Demonstrated RETURN meets the stated standard (e.g., ≥ 2 independent corroborations within the anchor; timing and instruments as declared). If met $\rightarrow$ STABLE; else $\rightarrow$ WATCH.

Ontology/Metaphysics (template).   Identity through change is read from explicit criteria.

- **Rule 1 — Core features**. Identity holds if declared *form* and *function* persist within tolerance; else continue.

- **Rule 2 — Material & recognition**. Identity also holds if *material continuity* and *recognition* co-occur (e.g., same stuff, same named role/community uptake) within the window.

- **Rule 3 — Failure & watch**. If neither Rule 1 nor Rule 2 holds continuously for the stated interval → COLLAPSE. If borderline (partial or intermittent) → WATCH.

Phenomenology/Psychology (template).   Reliability, independence, and maintenance govern the verdict.

- **Rule 1 — Reliability minima**. Instruments/procedures meet the published reliability thresholds; attrition below ceiling; bias checks passed. If violated → WATCH or COLLAPSE; stop.

- **Rule 2 — Independence**. At least one independent replication (new team/site/data) within the CONTRACT tolerance. If absent → WATCH; stop.

- **Rule 3 — Maintenance**. Outcomes maintain at follow-up within tolerance (return delay τ_R acceptable, FIDELITY high). If met → STABLE; else → WATCH.

History of Science (template).   Edition control and source hierarchy lead; signal comes after.

- **Rule 1 — Edition & dating locks**. Claims reference fixed editions/translations; dates normalized and anchored; no silent substitutions. Violations → WATCH or COLLAPSE (per severity); stop.

- **Rule 2 — Source hierarchy & coherence**. Primary sources dominate; secondary/tertiary used only per CONTRACT. Cross-source contradictions beyond tolerance → WATCH; stop.

- **Rule 3 — Attestation/recurrence**. Independent attestation or archival triangulation (e.g., ≥ 2 concordant, time-adjacent witnesses) meets the published standard. If met → STABLE; else → WATCH.

Design/Policy (template).   Safety, reversibility, and outcome stability drive the gate.

- **Rule 1 — Safety & guardrails**. Compliance with ethical/policy constraints; risk ceilings not exceeded; rollback plan published. If violated → WATCH or COLLAPSE; stop.

- **Rule 2 — Coherence of operations**. Inputs/outputs and monitoring match the declared system model; off-spec DRIFT and ROUGHNESS within tolerance. If incoherent → WATCH; stop.

- **Rule 3 — Outcome recurrence**. Target outcomes re-appear under the same CONTRACT (e.g., stable metrics across pilots; acceptable τ_R after changes). If met → STABLE; else → WATCH.

Publishing notes (applies to all templates)

- **Order matters**. Apply rules in the published order and stop once a decisive rule fires.

- **Versioning**. Record every threshold/tolerance and the rule order in the CLOSURES sheet; version it; do not alter mid-episode.

- **Critical overlay**. If integrity falls below the published floor (low κ or large debits from DRIFT/ROUGHNESS), add CRITICAL to the stance.

- **Continuity.** If policies change, cross a WELD at a named anchor, state the difference, and preserve prior stances; do not rewrite history.

D   Reproducible Core and Bound Fingerprint (Self-Contained)

This appendix contains *everything* needed to reproduce the INTEGRITY LEDGER and derive a STANCE from any dataset that obeys the frozen CONTRACT, and it records the exact kernel and canon bound to the official manifest hash. No external sections are required.

A. Minimal Mathematical Specification

Setup (declared in the CONTRACT).

- **Time window.** Discrete indices $t = t_0, \ldots, t_1$ with $N = t_1 - t_0 + 1 \geq 3$.

- **Raw series.** x_t (domain-specific measurement).

- **Normalization.** Apply the contract's published transform to obtain $y_t \in [0, 1]$ (e.g., min−max on a declared face, winsorization at $\alpha\%$ tails, and a stated missing-data rule). The transform must be fully specified and hashed in the MANIFEST.

- **Face and tolerance.** Choose a pre-event reference window $[t_0, t_*)$ and define

$$y_\star := \frac{1}{t_* - t_0} \sum_{t=t_0}^{t_*-1} y_t,$$

with return tolerance $\varepsilon > 0$ (declared).

Debits (pressures).

$$D_\omega := \lambda_\omega \frac{1}{N-1} \sum_{t=t_0}^{t_1-1} |y_{t+1} - y_t| \qquad \text{(drift debit; stepwise deviation)} \qquad (2)$$

$$D_C := \lambda_C \frac{1}{N-2} \sum_{t=t_0+1}^{t_1-1} |y_{t+1} - 2y_t + y_{t-1}| \qquad \text{(curvature debit; local roughness)} \qquad (3)$$

Weights $\lambda_\omega, \lambda_C > 0$ are declared (in CLOSURES or CONTRACT) and recorded in the MANIFEST. The denominators produce scale-free averages.

Return credit.   First return time:

$$\tau_R := \min\{\tau \geq 0 : \ t_* + \tau \leq t_1, \ |y_{t_*+\tau} - y_\star| \leq \varepsilon\},$$

with $\tau_R = \infty$ if no such τ occurs. Given a maximum return horizon $T_{\max} > 0$ and weight $\lambda_R > 0$,

$$R_{\tau_R} := \begin{cases} \lambda_R\left(1 - \dfrac{\tau_R}{T_{\max}}\right), & \tau_R \leq T_{\max}, \\ 0, & \text{otherwise.} \end{cases} \qquad (4)$$

Accounting currency and reconciliation (First Law). Let $IC \in (0,1]$ denote composite INTEGRITY and $\kappa := \ln IC$ its log. Over the episode,

$$\Delta\kappa \;=\; R_{\tau_R} \;-\; \big(D_\omega + D_C\big). \tag{5}$$

A nonzero remainder indicates a contract or measurement error that must be corrected *before* publication. For floating-point stability, use a numerical tolerance η (e.g., 10^{-12}); require

$$\big|\Delta\kappa - \big(R_{\tau_R} - D_\omega - D_C\big)\big| \le \eta.$$

Optional integrity level. If a baseline IC_{t_0} is declared,

$$IC_{t_1} \;=\; IC_{t_0}\,\exp(\Delta\kappa).$$

If no baseline is declared, report $\Delta\kappa$ and the component magnitudes instead.

Closures $\to$ stance (ordered template). Publish thresholds and the order of checks; stop when decisive:

> **Rule 1 (safety/coherence):** $D_\omega \le \theta_\omega \;\wedge\; D_C \le \theta_C$ else WATCH or COLLAPSE.
> **Rule 2 (return):** $R_{\tau_R} \ge \theta_R$.
> **Rule 3 (net):** $\begin{cases} \Delta\kappa \ge \theta_{\text{up}} \Rightarrow \text{STABLE}, \\ |\Delta\kappa| < \theta_{\text{flat}} \Rightarrow \text{WATCH}, \\ \Delta\kappa \le -\theta_{\text{down}} \Rightarrow \text{COLLAPSE}. \end{cases}$

Apply a CRITICAL overlay when $\min(\theta_\omega - D_\omega,\, \theta_C - D_C)$ falls below a published floor.

Edge cases (must be declared).

- **Constant series.** If $y_{t+1} = y_t$ for all t, then $D_\omega = D_C = 0$. If additionally $|y_t - y_\star| \le \varepsilon$ on some $t \ge t_*$, set $\tau_R = 0$ and compute R_{τ_R} by (4).

- **Missing data.** Apply the contract's stated rule (e.g., interpolation, listwise deletion); re-compute N accordingly and state it in the caption.

- **No return within horizon.** If $\tau_R = \infty$ or $\tau_R > T_{\max}$, set $R_{\tau_R} = 0$ by (4) and proceed.

Randomness and determinism. If any step is stochastic (e.g., imputation, resampling, GPU nondeterminism), publish the random seed(s) and library backends in the MANIFEST. When exact determinism is unavailable, state the η used for reconciliation and report variability across k re-runs (mean $\pm$ SD for $\Delta\kappa$).

Composition and welds. For adjacent sub-episodes A, B sharing a boundary,

$$\Delta\kappa_{A\cup B} = \Delta\kappa_A + \Delta\kappa_B, \quad R_{\tau_R}^{A\cup B} = R_{\tau_R}^A + R_{\tau_R}^B, \quad D_\omega^{A\cup B} = D_\omega^A + D_\omega^B, \quad D_C^{A\cup B} = D_C^A + D_C^B.$$

When policies change at anchor $t^\dagger$, carry κ across via offset ϕ so that $\kappa_{\text{new}}(t^\dagger) = \kappa_{\text{old}}(t^\dagger) + \phi$. Record `weld_id`, anchor, and ϕ in the MANIFEST; compute subsequent quantities under the new CONTRACT/CLOSURES.

Reproducibility recipe (checklist).

1. **Preflight.** Record environment (OS, CPU/GPU, timezone), language and library versions, any hardware backends, the CONTRACT ID, and the MANIFEST root hash.

2. Normalize to $y_t \in [0, 1]$; compute $y_\star$; set $\varepsilon, T_{\max}$.

3. Compute D_ω and D_C via (2)–(3) with declared $\lambda_\omega, \lambda_C$.

4. Find τ_R and R_{τ_R} via (4) with λ_R.

5. Form $\Delta\kappa$ via (5); verify remainder $\leq \eta$.

6. Map to a STANCE using the published CLOSURES thresholds and order.

7. Emit the universal caption and the publication row, tied to the MANIFEST.

B. Frozen Kernel, Canon, and Bound Manifest Hash

Frozen kernel (spine). CONTRACT $\rightarrow$ CANON $\rightarrow$ CLOSURES $\rightarrow$ INTEGRITY LEDGER $\rightarrow$ STANCE.

Frozen canon (descriptors). DRIFT, FIDELITY, ROUGHNESS, RETURN, INTEGRITY.

Official manifest root hash (SHA-256).

> `7247553fb9576436b097cc0f1e24f5194b816a516a349d3f49775007458cc84a`

Minimal fingerprint record (for registries).

```
{
  "manifest_root_hash":
  "7247553fb9576436b097cc0f1e24f5194b816a516a349d3f49775007458cc84a",
  "hash_algorithm": "SHA-256",
  "kernel_spine": "Contract -> Canon -> Closures -> Ledger -> Stance",
  "canon_descriptors":
  ["drift", "fidelity", "roughness", "return", "integrity"]
}
```

Verification note. To confirm reproducibility, recompute all quantities using Section D (A) under the same CONTRACT/CLOSURES, and verify that the run's MANIFEST produces the root hash shown above. Match the hash and the fingerprint, then compare your $\Delta\kappa$, component magnitudes, and STANCE to the published caption and publication row.

References

Paulus, C. (2025a). *The Episteme Construction.* The Episteme Construction. Runbooks, governance, manifests, welds.

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