Reality Ledger Executive Brief

Version 1.0 | Christos Birkitt | Program, Workflow & AI Enablement

Decision Value and Architectural Boundary

The Reality Ledger connects evidence, AI summaries, reviewer decisions, and permitted actions. Its aim is auditable velocity: a team can issue a restricted informational diligence memo while an unsupported unconditional approval remains blocked. The reference system separates candidate detection, human adjudication, and deterministic routing.

Four Stage Reference Architecture

1. Structured Evidence Packet. packet_input.schema.json records six handoff stages: source, extracted, retrieved, synthesized, reviewed, and action. Each has seven canonical attributes: scope, status, conditions, time, disagreements, decision_permission, and support. The inspector compares supplied annotations; it does not infer semantic equivalence from arbitrary prose.

2. Deterministic Upstream Inspector. inspector.py v0.1.0 reconciles manifests, compares handoffs, checks bounded negative assertions, and verifies review records. It emits candidate F-01 Qualification loss, F-02 Supersession omission, F-03 Unsupported negative, and F-04 Review deficiency. Without adjudication, all vectors are null and gates unknown; routing is HOLD.

3. Bound Human Adjudication. A separate assessment is bound to the packet's SHA-256 content fingerprint, action/profile identity, and declared assessor role. The application must enforce assessor identity and authorization externally. Fingerprint and role matching do not authenticate a human or establish evidentiary adequacy.

4. Reference Scorer. scorer.py validates the compact assessment under frozen profile RL-BASE-1.0 and calculates the Epistemic Integrity Score (EIS), a 0–100 ordinal policy index:

$$EIS = 25 \times \left(0.30V_1 + 0.20V_2 + 0.20V_3 + 0.15V_4 + 0.15V_5\right)$$

Five integer vectors range from 0 to 4: V1 Provenance & Support Fidelity (30%); V2 Uncertainty & Scope Preservation (20%); V3 Required Evidence & Contextual Completeness (20%); V4 Human Review & Override Integrity (15%); V5 Lineage & Reconstruction (15%).

Five non-compensatory gates are PROVENANCE, COVERAGE, REVIEW, LINEAGE, and PROFILE. Routing returns BLOCKED, HOLD, REMEDIATE, SUPERVISED_CANDIDATE, or STANDARD_REVIEW_CANDIDATE. Failed gates and vector floors cannot be averaged away; a candidate disposition does not authorize deployment.

Delivery Experience

Plaintiff's Litigation Practice (Confidential Client, 2023–Present). Managed civil litigation intake, motion/evidentiary record workflows, and LLM enablement; two-stage prompt templates and a human-in-the-loop verification checklist reduced attorney verification rework by approximately 35% across sampled review packets while training staff on safe AI adoption and FRCP Rule 11 inquiry guardrails.

Forma FGC. Personally designed SQL/Python geodatabase workflows; lectured alongside the FBI and DHS on data protection; authored an institutional AI and Data Ethics Governance Policy using NIST AI RMF and ISO/IEC 42001 as alignment references.

New York Metro Area | (646) 229-3790 | cmbirkitt@gmail.com | christosbirkitt.com

System Repair and Synthetic Benchmark

RL-ILL-001 | RL-BENCH-0.1 | Reference software behavior

Evidence	Pre repair	Repair or restricted handling
D-01	60-day provisional utility easement expiry dropped	Preserve expiry in Conditional_Caveats.
D-02 and D-03	Superseded 2022 report used over 2025 High Flood Risk addendum	Restore controlling D-03 using the retrieval filter.
D-04	Eight-page docket yields zero OCR characters; memo asserts no active litigation	Re-OCR recovers D-04; review bounded source support.
D-05	14-second approval lacks verified exception dispositions	Require evidence-linked review. Elapsed time alone does not determine a defect.

Assessment state	Vectors and gates	Result
Raw inspection	31 OBS diagnostics; F-01–F-04 candidates; all vectors null and gates unknown	HOLD; EIS unavailable
Supplied pre-repair adjudication	[1, 1, 1, 1, 3]; Provenance, Coverage, Review, Profile fail	EIS 32.5 | BLOCKED
Assumed informational reassessment	SYN-INFORMATIONAL-ACTION-PROFILE; [3, 3, 3, 3, 3]; all gates pass for restricted_informational_diligence_memo	EIS 75.0 | SUPERVISED_CANDIDATE

The informational reassessment is a supplied teaching assessment for a narrower action. Unconditional acquisition approval remains blocked.

Controlled Benchmark RL BENCH 0 1

Sixteen purposively constructed packets comprise eight injected handoff faults HF-01–HF-08 and eight negative controls NC-01–NC-08. These are controlled synthetic software cases, not a naturalistic prevalence or production-performance estimate.

System or comparator	Fault result	Negative controls or scope
Inspector candidate detection	8/8 (100%) fault recall	0/8 (0%) false positives
Post-adjudication routing	8/8 faults BLOCKED	0/8 falsely blocked; oracle-informed policy check
Baseline A retrieved-context-only	3/8 (37.5%) flagged: HF-01, HF-05, HF-06	Misses HF-02, HF-04, HF-07, HF-08; unknown on HF-03
Baseline B mean-only threshold 70	0/8 (0%) faults withheld	Ignores gates and vector floors; unaffected vectors average away a single-vector failure

Reported suite: 139 Python tests (24 scorer, 83 inspector, 32 benchmark), 27 JavaScript workbench tests, and 3,378 JS-to-Python routing parity checks. Of 110 single-vector ±1 probes with gates fixed, six flip routing on negative controls and none flip blocked faults. Raw unadjudicated routing is HOLD for all 16 packets. Source: VALIDATION_REPORT.txt.

Legal Pilot and Governance Crosswalk

RL-5P-2026-11-01-v0.2 | Five passages | Ten outputs

The completed legal pilot is a single-reviewer, open-label manual evaluation of 35–45-word neutral intake summaries (Condition A) and counter-framed review summaries (Condition B) across five public civil opinions.

Measure	Result	Exact applicability or affected outputs
Speaker doubt preserved	4/4 in A and B	P01 Langford, P02 Mendez, P03 Thaqi, P05 Pickens; P04 Cruz NA
Cross-record dispute preserved	4/4 in A and B	P01 Langford, P03 Thaqi, P04 Cruz, P05 Pickens; P02 Mendez NA
Unsupported relational inference	0/5 in each condition	All five passages; 0/10 total outputs
Pair framing differences	4 emphasis only; 1 none	P01–P04 Emphasis only; P05 None; 0/5 Material claim change
Subtle drift noted	8/10 outputs	P01A, P02A, P02B, P03A, P03B, P04A, P04B, P05B: micro-compression, scope, attribution, or pronoun drift

Binary preservation results coexist with qualitative drift. The small, non-blinded, single-author sample is exploratory and does not estimate generalized legal LLM performance. Its ten outputs are separate from the synthetic software benchmark and routing tests.

Governance reference	Practical crosswalk and scope
NIST AI RMF 1.0	MAP 2.3; MEASURE 2.1, 2.3, 2.5, 2.8, 2.9: TEVV design, documented testing, realistic assessment, generalization limits, transparency/accountability, and contextual explanation.
NIST AI 600-1	MS-2.5-001, MS-2.5-003, MS-2.5-005: constrain extrapolation; verify generated citations; inspect training/TEVV provenance and grounding of fine-tuning or retrieval data.
ISO/IEC 42001:2023	Organizational AI management system and continual improvement; alignment reference, not certification.
EU AI Act Arts. 9, 12–15	For applicable high-risk systems: risk management, logging, deployer transparency, human oversight, accuracy, robustness, and cybersecurity.
FRCP Rule 11(b)	Reasonable inquiry when presenting papers to a federal court; source support and accountable attorney review.
Federal Reserve SR 26-2	April 17, 2026: supersedes SR 11-7; generative and agentic AI are excluded from direct scope. Broader bank governance still applies.
CFPB Circular 2023-03	Withdrawn May 12, 2025. Do not cite it as current guidance; withdrawal does not repeal underlying law.

NIST RMF | NIST AI 600-1 | ISO 42001 | EU AI Act | FRCP 11 | SR 26-2 | CFPB withdrawal

The Waiting Room. Record verification time, queue delay, exception ownership, and escalation while stronger decisions wait for evidence. The Right to Hesitate remains a working manuscript. These crosswalks are design interpretations, not determinations of legal compliance.