

Authority Engineering Formal Foundations RC-1: Validation Record

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Status: PARTIAL — L-AE0 formal layer checked

Check	Result	Evidence/Limit
ASB-2 source hashes	PASS	ASB-2 verification record passes.
Registry/graph/tree alignment	PASS	56 Registry entries; 56 graph nodes; 56 tree nodes.
Dependency-cycle check	PASS	0 dependency cycles.
L-AE0 vocabulary closure	PASS	All nonlogical symbols in RC-1 are declared in DO-04.
L-AE0 well-formedness	PASS	RC-1 is well-formed under the declared sorts and arities.
Model/satisfiability witness	PASS	06-model-witness.json satisfies RC-1.
Non-model witness	PASS	06-nonmodel-witness.json violates RC-1 as stated.
Proof replay	PASS	L-AE0-1 follows by universal instantiation and elimination.
Soundness/non-contradiction theorem	BLOCKED	No global AE metatheory is claimed; RC-1 witness is not such a proof.
Empirical validation	BLOCKED	No empirical conclusion follows from a finite mathematical witness.

The PASS results concern L-AE0 only. They do not validate Foundational Laws, the full Registry, an implementation, or an empirical claim.

L-AE1 extension checks

Check	Result	Evidence/Limit
RC-1 source fidelity	PASS WITH LIMIT	13-rc1-fidelity-review.md records one-way, partial representation.
BAR vocabulary closure	PASS	All L-AE1 symbols are declared in 14-l-ae1-bounded-authority-realization-extension.md.

Publication Record

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Author: Rob Caswell

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Corpus Context

Corpus: Authority Engineering

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Object family: AE-RC1-VALID-0001

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The prior Zenodo record remains the citable record until its new version is published.

Check	Result	Evidence/Limit
BAR definition witness	PASS	14-l-ae1-model-witness.json satisfies the BAR definition.
BAR non-model witness	PASS	14-l-ae1-nonmodel-witness.json violates the BAR definition.
BAR bounded derivation	PASS	Conjunctive consequences follow by definitional elimination.
Definition semantic adequacy	PARTIAL	Preservation, realization, and centralized coherence remain background parameters.

L-AE2 extension checks

Check	Result	Evidence/Limit
Guard/formation vocabulary closure	PASS	All L-AE2 symbols are declared in 16-l-ae2-guard-task-force-extension.md.
L-AE2 model witness	PASS	16-l-ae2-model-witness.json satisfies GC/HC/VC/SC constraints.
L-AE2 non-model witness	PASS	16-l-ae2-nonmodel-witness.json violates HC-3.
Definition semantic adequacy	PARTIAL	Sovereign Stop and decision/convergence semantics remain outside L-AE2.

L-AE3 extension checks

Check	Result	Evidence/Limit
Sovereign Stop vocabulary closure	PASS	All L-AE3 symbols are declared in 17-l-ae3-sovereign-stop-extension.md.
L-AE3 model witness	PASS	17-l-ae3-model-witness.json satisfies SS-1 and SS-2.
L-AE3 non-model witness	PASS	17-l-ae3-nonmodel-witness.json violates SS-2.
Decision semantic adequacy	PARTIAL	Prerequisite convergence and proceed predicates remain background parameters.

L-AE4 extension checks

Check	Result	Evidence/Limit
Continuity, Surface, and Topology vocabulary closure	PASS	All L-AE4 symbols are declared in 18-l-ae4-continuity-surface-topology-extension.md.
L-AE4 model witness	PASS	18-l-ae4-model-witness.json satisfies CT-1, CT-2, AS-1, AS-2, AT-1, and AT-2.
L-AE4 non-model witness	PASS	18-l-ae4-nonmodel-witness.json violates CT-2.
Operational / empirical adequacy	PARTIAL	Preservation, meaningfulness, reachability, observability, and system boundary remain background modelling parameters.

L-AE5 extension checks

Check	Result	Evidence/Limit
Fabric and STOIC vocabulary closure	PASS	All L-AE5 symbols are declared in 19-l-ae5-fabric-stoic-extension.md.
L-AE5 model witness	PASS	19-l-ae5-model-witness.json satisfies FB-1 through FB-3 and ST-1 through ST-2.
L-AE5 non-model witness	PASS	19-l-ae5-nonmodel-witness.json violates ST-2.
Operational / empirical adequacy	PARTIAL	Medium, time scale, accumulation, modification, and causality remain declared background parameters.

L-AE6 extension checks

Check	Result	Evidence/Limit
Consequence Contention vocabulary closure	PASS	All L-AE6 symbols are declared in 20-l-ae6-consequence-contention-extension.md.
L-AE6 model witness	PASS	20-l-ae6-model-witness.json satisfies CC-1 and CC-2.
L-AE6 non-model witness	PASS	20-l-ae6-nonmodel-witness.json violates CC-1.

Check	Result	Evidence/Limit
Local Stop Authority / operational adequacy	PARTIAL	Local validity is a background parameter; the referenced Foundational Law remains unproven and resolution semantics are excluded.

L-AE7 extension checks

Check	Result	Evidence/Limit
Consequential Ownership Test vocabulary closure	PASS	All L-AE7 symbols are declared in 21-l-ae7-consequential-ownership-test-extension.md.
L-AE7 model witness	PASS	21-l-ae7-model-witness.json satisfies OT-1 through OT-3.
L-AE7 non-model witness	PASS	21-l-ae7-nonmodel-witness.json violates OT-2.
Operational / empirical adequacy	PARTIAL	Materiality, authorization, and organizational membership remain declared background parameters.

L-AE8 extension checks

Check	Result	Evidence/Limit
Authority Attack Distinction vocabulary closure	PASS	All L-AE8 symbols are declared in 22-l-ae8-authority-attack-distinction-extension.md.
L-AE8 model witness	PASS	22-l-ae8-model-witness.json satisfies AA-1 and AA-2.
L-AE8 non-model witness	PASS	22-l-ae8-nonmodel-witness.json violates AA-1.
Threat-model / operational adequacy	PARTIAL	Legitimacy, manipulation, and breakage remain declared background parameters.

L-AE9 extension checks

Check	Result	Evidence/Limit
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Check	Result	Evidence/Limit
Consequence Fidelity vocabulary closure	PASS	All L-AE9 symbols are declared in 23-l-ae9-consequence-fidelity-extension.md.
L-AE9 model witness	PASS	23-l-ae9-model-witness.json satisfies CF-1 and CF-2.
L-AE9 non-model witness	PASS	23-l-ae9-nonmodel-witness.json violates CF-1.
Definition coverage completion	PASS	24-definition-coverage-completion-audit.md accounts for all 15 eligible Registry definitions.
Measurement adequacy	PARTIAL	Degree scale, observation protocol, threshold, and error model remain declared background parameters.

RC-1 consolidation and integrated-model checks

Check	Result	Evidence/Limit
Consolidated module index	PASS	25-l-ae-consolidated-foundational-specification-rc1.md imports L-AE0 through L-AE9 in dependency order.
Background-parameter control	PASS	26-l-ae-background-parameter-glossary-rc1.md identifies source-defined representations and background symbols; semantic adequacy remains partial.
Source-definition coverage	PASS, QUALIFIED	24-definition-coverage-completion-audit.md records 15/15 syntactic source-reference and partial necessary-condition encodings, not completed semantic formalization.
One finite integrated model	PASS	27-l-ae-rc1-integrated-model-witness.json satisfies all 33 compiled representation constraints together.
Type/domain closure	PASS	The custom verifier confirms JSON relation arguments and src/tgt mappings match declared carrier domains.
Independent FOL satisfiability	NOT CLAIMED	The verifier is a controlled Python evaluator, not a TPTP/Alloy/Lean/Z3 or other independently checked many-sorted-FOL encoding.

Check	Result	Evidence/Limit
Universal consistency / empirical adequacy	NOT CLAIMED	One finite model establishes non-vacuity only.

RC-1 solver-replay artifact

Check	Result	Evidence/Limit
Typed SMT-LIB 2 artifact	PASS	29-l-ae-rc1-integrated-model.smt2 defines finite sorts, exact relations, and all 33 compiled constraints.
Structural generation audit	PASS	31-l-ae-rc1-smtlib-generation-audit.md confirms all 33 labels.
Local external solver replay	PASS	Z3 returns sat for 29-l-ae-rc1-integrated-model.smt2; see 32-l-ae-rc1-z3-replay-result.md.

RC-1 solver-replay artifact

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Typed SMT-LIB 2 artifact	PASS	29-l-ae-rc1-integrated-model.smt2 defines finite sorts, exact relations, and all 33 compiled constraints.
Structural generation audit	PASS	31-l-ae-rc1-smtlib-generation-audit.md confirms all 33 labels.
Local external solver replay	PASS	Z3 returns sat for 29-l-ae-rc1-integrated-model.smt2; see 32-l-ae-rc1-z3-replay-result.md.