The Architecture of Limitation

Research Program Orientation

A Manifesto for the Study of Reasoning Under Constraint

Author: Franky Schaut

ORCID: https://orcid.org/0009-0002-0713-3829

Priority Positioning Note

This paper discusses Architecture of Limitation (AoL) as a diagnostic research program. The canonical root kernel K0 (v43) and internal evaluative sequencing are not disclosed.

SP-43 operates independently as a stewardship framework governing legitimacy of use and interpretive boundaries. It is not represented as part of any patent claim and does not describe proprietary implementation logic.

These filings establish priority for aspects of the governance architecture described at a structural level. No claim is made herein beyond what is formally contained in the respective filings.

United States Provisional: U.S. Provisional Application No. 63/956,776 (filed 09 January 2026).

United Kingdom Priority: UK Patent Application No. 2521445.3 (filed 11 September 2025).

This publication is part of the broader Architecture of Limitation / AoLOS program. Certain architectural elements referenced herein are the subject of prior intellectual property filings. This document is provided for academic and research purposes and does not constitute a full disclosure of implementation-level mechanisms.

Abstract

The Architecture of Limitation (AoL) is a diagnostic research program investigating how reasoning systems behave when they encounter structural limits. Rather than evaluating claims according to truth or explanatory completeness, AoL examines the conditions under which reasoning remains proportionate to the structures that sustain it. The program develops through a corpus of experimental studies that introduce conceptual artifacts, institutional systems, and AI-mediated reasoning environments into constraint-governed interpretive frameworks. These experiments reveal recurring structural signals—including boundary tension, conceptual drift, and collapse—when reasoning exceeds its supporting conditions. Across the corpus, the Architecture of Limitation functions as a constraint-based validator architecture for observing reasoning behaviour under pressure. The present document provides an orientation to the research program, mapping the corpus of publications and describing the capability structure through which AoL investigates reasoning across philosophical, institutional, and computational domains.

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1. Program Declaration

The Architecture of Limitation (AoL) research program investigates how reasoning systems behave when they encounter structural limits.

Across intellectual traditions, reasoning is typically evaluated according to truth, coherence, or explanatory completeness. The Architecture of Limitation approaches reasoning from a different angle. Rather than asking whether reasoning is correct, it asks how reasoning behaves when the structures that support it begin to fail.

The central claim of the program is simple: reasoning systems do not merely produce conclusions. They also generate structural pressures. When those pressures exceed the capacity of the structures that sustain them, reasoning begins to distort. Escalation replaces proportion, expansion replaces coherence, and systems that once appeared stable begin to collapse under their own explanatory weight.

The research program examines how reasoning systems respond when they approach or exceed the limits of their structural support. It does not attempt to resolve paradoxes, construct total explanatory frameworks, or extend reasoning systems indefinitely through meta-level expansion. Instead, the architecture treats collapse as diagnostic. When reasoning breaks down, the failure is not interpreted as a defect to be repaired but as a signal revealing the limits within which the system can remain coherent.

Within this framework, limitation is not an obstacle to knowledge. It is a structural condition that makes reasoning possible in the first place.

The Architecture of Limitation therefore operates as a **constraint-based validator architecture**. It evaluates reasoning artifacts in terms of their structural admissibility rather than their propositional truth. The architecture does not determine whether a claim is correct. It observes whether the reasoning process that produced the claim remains proportionate to the structural conditions that sustain it.

The Architecture of Limitation sits outside several familiar intellectual traditions. It is not a formal logical system, a metaphysical theory of reality, or a decision framework. It is a diagnostic research architecture designed to observe how reasoning behaves when confronted with structural limits.

The research program develops through a corpus of experiments rather than a single theoretical treatise. Each publication introduces a specific artifact or environment in which reasoning behaviour can be observed under constraint. These artifacts range from philosophical systems and conceptual frameworks to institutional coordination systems and AI-mediated reasoning environments.

Taken together, these experiments form a diagnostic corpus documenting how reasoning behaves across domains when structural limits become visible.

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2. Origins of the Architecture

The Architecture of Limitation did not begin as a formal theory.

Its earliest articulation emerged from lived encounters with cognitive instability in environments where reasoning systems were pushed beyond the conditions required to sustain them. In such environments, individuals and institutions often respond to structural pressure by escalating explanatory complexity. Instead of withdrawing when a system reaches its limits, they attempt to stabilize the system through expansion.

This escalation frequently produces the opposite of stability.

As explanations grow larger, the relations that support them weaken. Concepts begin to stretch beyond their original domain. Interpretations multiply without structural anchoring. What appears at first as intellectual progress gradually becomes a form of conceptual inflation in which reasoning grows increasingly elaborate while becoming progressively less stable.

The early insights that would eventually become the Architecture of Limitation arose from observing these dynamics repeatedly across different domains of reasoning.

A second phase in the development of the architecture occurred when artificial intelligence systems began to be used as reflective instruments for examining cognitive

behaviour. AI systems did not serve as authorities or sources of theoretical innovation. Instead, they functioned as mirrors capable of amplifying patterns that already exist within human reasoning.

Because AI systems generate language probabilistically at large scale, they reveal structural behaviours in accelerated form. Escalation, conceptual drift, boundary violations, and collapse signals become visible more quickly when reasoning processes unfold within probabilistic language environments.

These observations made it possible to study reasoning behaviour experimentally rather than purely introspectively.

The Architecture of Limitation emerged from the convergence of these experiences: long-term observation of human reasoning under pressure and experimental reflection within AI-mediated environments.

The resulting framework remains grounded in human cognitive experience. Artificial intelligence provides a powerful experimental surface, but the architecture itself concerns the structural integrity of reasoning wherever it occurs.

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3. Core Principles of the Architecture

The Architecture of Limitation organizes its diagnostic posture around a small set of structural principles that recur across reasoning environments.

These principles are descriptive rather than prescriptive. They describe patterns that appear consistently when reasoning approaches the limits of its structural support.

Limitation

Every reasoning system operates within boundaries that determine the conditions under which its internal relations remain coherent.

These boundaries are rarely visible while a system functions normally. They become visible only when reasoning begins to exceed the structural conditions required to sustain it.

Limitation is therefore not imposed externally. It appears as a property of the reasoning process itself.

Proportion

Reasoning remains stable when the scope of its claims remains proportionate to the structures that support them.

When explanatory scope expands faster than structural support, instability emerges. Concepts begin to carry more weight than they can sustain. Interpretive expansion outpaces structural grounding.

Proportion names the relationship between explanatory scale and structural capacity.

Collapse

Collapse occurs when reasoning exceeds the limits within which its internal relations can remain coherent.

Within the Architecture of Limitation, collapse is treated as a diagnostic signal rather than a failure to be repaired. It reveals that the reasoning artifact has reached or exceeded the structural boundaries within which it can remain stable.

Relation

Reasoning artifacts do not exist in isolation. Their stability depends upon the relationships they maintain with the contexts in which they operate.

When reasoning loses contact with these relational contexts, conceptual drift and structural distortion become increasingly likely.

Listening

Listening refers to the capacity to detect signals indicating that reasoning is approaching structural limits.

These signals may appear as conceptual tension, interpretive inflation, contradiction, or collapse. Listening represents the discipline required to recognize such signals without immediately attempting to override them.

Non-Mastery

The Architecture of Limitation rejects the impulse to restore stability through escalating control or explanatory expansion.

When structural limits appear, the architecture favours withdrawal rather than domination. Non-mastery refers to the willingness to allow reasoning to encounter its limits without forcing completion.

Together, these principles establish the diagnostic orientation of the Architecture of Limitation.

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4. Limit Theorems and the Behaviour of Reasoning

Any research program concerned with structural limits in reasoning must eventually confront the implications of Gödel's incompleteness theorems.

Gödel demonstrated that sufficiently expressive formal systems cannot achieve complete internal closure. Within such systems there will always exist propositions that cannot be proven or disproven using the system's own axioms.

Gödel's work revealed a fundamental property of formal reasoning: completeness and consistency cannot coexist indefinitely within sufficiently expressive systems.

The Architecture of Limitation operates at a different level of analysis.

Where Gödel demonstrated that limits exist within formal systems, AoL investigates how reasoning behaves when those limits become visible.

Gödel's theorems describe a structural condition. The Architecture of Limitation studies the behavioural consequences of encountering that condition.

In many intellectual environments, the discovery of limits triggers escalation. Reasoning systems respond by introducing additional meta-levels, extending theoretical frameworks, or redefining conceptual boundaries in ways that preserve the appearance of explanatory completeness.

The Architecture of Limitation adopts a different posture.

Rather than escalating in response to limits, it treats the encounter with limits as a moment requiring discipline. Collapse signals are interpreted as indicators that reasoning has exceeded its structural support. Instead of attempting to repair the system through expansion, the architecture recognizes the boundary revealed by the collapse.

In this sense, AoL can be understood as a framework for the governance of reasoning behaviour under limit conditions.

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5. Experimental Methodology

The Architecture of Limitation research program proceeds through structured experimentation designed to observe reasoning under constraint.

Rather than developing the architecture through abstract theoretical elaboration, the program introduces reasoning artifacts into diagnostic environments and observes how they behave as structural pressure increases.

These environments are governed by layered constraints that regulate the interaction between artifacts and the architecture.

Constraint Environments

Experiments occur within controlled interpretive environments in which reasoning processes are deliberately constrained. These constraints prevent escalation mechanisms that would normally restore stability through interpretive expansion.

By limiting the ability of reasoning systems to escape structural pressure, the environments allow collapse signals and boundary behaviours to become visible.

Artifact Stress Testing

Artifacts introduced into these environments function as conceptual stress surfaces.

Some artifacts are selected because of their internal abstraction or recursive structure. Others arise from applied domains where coordination pressures generate complex reasoning dynamics.

The goal is not to interpret the artifacts themselves but to observe how reasoning behaves when interacting with them.

Observational Instrumentation

Over time, the research program has introduced increasingly refined forms of observational instrumentation.

These tools do not determine the correctness of reasoning. Instead, they measure patterns indicating how reasoning trajectories evolve under constraint.

Recent experiments have introduced instrumentation capable of observing phenomena such as probabilistic drift and geometric overflow within AI-mediated reasoning environments.

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6. High-Stress Artifacts

Certain artifacts prove particularly effective at revealing structural limits within reasoning systems.

These artifacts typically exhibit one or more of the following characteristics:

- high levels of abstraction
- recursive conceptual structure
- dense internal relations
- ambiguous boundary conditions

When reasoning systems attempt to stabilize such artifacts, structural pressure increases rapidly. Boundary violations, disproportionate expansion, and collapse signals become easier to observe.

Within the research corpus, some artifacts appear repeatedly because they consistently generate these diagnostic conditions. Their recurrence reflects methodological utility rather than theoretical centrality.

The Architecture of Limitation remains artifact-independent. The same diagnostic principles can be applied to philosophical arguments, institutional governance frameworks, mathematical conjectures, public discourse systems, and AI-mediated reasoning environments.

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7. Corpus of the Architecture of Limitation Research Program

The Architecture of Limitation research program develops through a corpus of experimental publications. Each paper isolates a specific diagnostic capability of the architecture under defined conditions. The corpus therefore functions as a structured record of how the architecture behaves across different reasoning environments.

Rather than presenting a single unified theoretical system, the program proceeds through discrete experiments. Each publication introduces an artifact, applies the diagnostic posture of the Architecture of Limitation, and records the structural behaviour that emerges under constraint.

Taken individually, these papers demonstrate specific capabilities of the architecture. Viewed collectively, they form a capability map documenting how reasoning behaves when it approaches structural limits.

The following inventory summarizes the current corpus and the role each publication plays within the research program.

Corpus Inventory

Paper	Program Function	Capability Demonstrated	Artifact Domain
Public Lineage and Architectural Distinction (AoL / AoLOS)	Lineage clarification	Architectural separation and stewardship model	Governance
Correction Note on RC1.0 Governance Framing and Horizon Rebuild	Governance correction	Structural stewardship enforcement	Governance
Governance Note on Public Kernels and Stewarded Evaluation	Governance clarification	Boundary discipline in interpretive environments	Governance
AoLOS Governance Architecture: Constraint-First Design for Reasoning Systems	Governance framework	Constraint-first reasoning architecture	AI governance
The Architecture of Limitation as a Constraint-Based Validator	Core architecture	Constraint-based validation	General reasoning
Region Transitions and Governance Rules	Architectural extension	Structural transition detection	Cognitive systems
Limitation, Totality, and Structural Utility	High-stress philosophical test	Boundary detection under abstraction	Philosophical artifact
Operational Behaviour Under High-Stress Conceptual Conditions	Stress test extension	Collapse recognition	Philosophical artifact
Boundary Geometry Under High-Stress Conceptual Conditions	Structural analysis	Boundary geometry detection	Philosophical artifact
Free Speech as Collapse Stress Test	Applied diagnostic	Collapse detection in discourse systems	Public discourse
IRUVA	Applied structural diagnostic	Structural failure identification	Organizational systems
Climate Transition, Democratic Load, and Consent Architecture	Governance diagnostic	Coordination instability detection	Climate governance
Instrumental Coordination Collapse (KPI / OKR Systems)	Socio-technical stress test	Proportion failure detection	Management systems

Paper	Program Function	Capability Demonstrated	Artifact Domain
Constraint-Isolated Stress Test of Distributed Repair Dynamics	AI experiment	Constraint-governed AI behaviour observation	Language models
Auditing the Auditor	Meta-diagnostic experiment	Validator integrity testing	AI evaluation systems
Layered Differentiation Under Defined AI Stress Conditions	Platform comparison	Behavioral differentiation under constraint	Language models
Constraint-Relative Platform Selection Under Hardened Boundary Calculus	Platform evaluation	Boundary stability comparison	Language models
Probabilistic Drift Geometry Under Declared Constraint	Instrumentation development	Drift measurement under constraint	Language models
Geometric Overflow: Boundary Violation Under Preserved Internal Coherence	Formal extension	Geometric overflow detection	Conceptual structures

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Position of This Document Within the Corpus

This document occupies a central orienting role within the research program.

Its purpose is not to introduce new experimental results. Instead, it situates the existing corpus within a coherent architectural framework. By mapping the capabilities demonstrated across individual publications, the document allows readers to understand how the Architecture of Limitation emerges cumulatively through the experimental record.

As the research program expands and additional studies are published, this orientation document will be updated to reflect the evolving structure of the corpus.

Capability Structure of the Architecture of Limitation Research Program

The corpus of the Architecture of Limitation research program organizes naturally into five capability classes. Each class represents a distinct methodological function within the program.

These classes are not chronological phases but **operational layers** through which the architecture investigates reasoning systems under constraint.

Architectural Foundations

This class establishes the conceptual architecture and governance framework of the Architecture of Limitation.

These works define the constraint-first validator model, the stewardship protocol under which the architecture operates, and the boundary discipline required for reasoning environments governed by AoL.

Representative works include:

- *The Architecture of Limitation: Manuscript I — Metaphysical Expression*
- *Governance as Architectural Constraint in Reasoning Systems*
- *The Architecture of Limitation as a Constraint-Based Validator*
- *Region Transitions and Governance Rules*
- *Public Lineage and Architectural Distinction (AoL / AoLOS)*
- *SP-43 Stewardship Protocol*
- Governance notes and correction papers.

Capability demonstrated:

- constraint-first reasoning architecture
- governance of reasoning environments
- stewardship and boundary discipline

Conceptual Stress Environments

This class introduces high-density conceptual artifacts that function as stress environments for reasoning systems.

Rather than interpreting the artifacts themselves, these studies observe how reasoning behaves when exposed to conceptual structures that place high pressure on coherence and boundary stability.

Representative works include the CTMU stress-environment series:

- *Limitation, Totality, and Structural Utility*
- *Operational Behaviour under CTMU Conditions*
- *Boundary Geometry Addendum*
- *Relational Avoidance and Simulation Substitution*

Capability demonstrated:

- boundary detection
- collapse recognition
- reasoning behaviour under conceptual density

Applied Structural Diagnostics

This class applies the Architecture of Limitation to real institutional and socio-technical systems.

The goal is not policy prescription but structural diagnosis. These works examine how governance systems behave when coordination pressure exceeds the structural capacity of the institutions involved.

Representative works include:

- *IRUVA — Irreversible Rejection under Volume Amplification*
- *Climate Transition and Democratic Capacity*
- *Immigration Load and Democratic Consent Architecture*
- *Defence Policy in a Limited State*
- *When Measurement Becomes Ritual — KPI/OKR Collapse Signals*
- *Free Speech as Collapse Stress Test*

Capability demonstrated:

- structural diagnostics for governance systems
- coordination failure detection
- collapse signals in institutional environments

AI Diagnostic Experiments

This class uses constrained language-model environments as diagnostic surfaces for observing reasoning behaviour.

The experiments are not designed to produce answers but to expose reasoning dynamics under declared constraint conditions.

Representative works include:

- *Constraint-Isolated Stress Test of Distributed Repair Dynamics*
- *Layered Differentiation under AI Stress Conditions*
- *Constraint-Relative Platform Selection*

- *Auditing the Auditor*
- *Hallucination as Geometric Overflow* studies

Capability demonstrated:

- platform comparison under constraint
- reasoning behaviour in language-model systems
- diagnostic evaluation frameworks

Instrumentation and Measurement

The most recent class introduces formal instrumentation for observing reasoning dynamics.

These studies move beyond qualitative observation toward measurement of structural behaviour.

Representative works include:

- *Probabilistic Drift Geometry under Declared Constraint*
- *Geometric Overflow*

Capability demonstrated:

- probabilistic drift detection
- geometric overflow detection
- trajectory analysis of reasoning systems

Capability Structure of the Program

The Architecture of Limitation research program therefore operates through a layered methodological stack:

Architectural Foundations
↓
Conceptual Stress Environments
↓
Applied Structural Diagnostics
↓
AI Diagnostic Experiments
↓
Instrumentation and Measurement

This structure explains how the Architecture of Limitation evolved from an architectural framework into an experimental research program capable of observing reasoning systems across multiple domains.

These capability classes describe the methodological functions of the Architecture of Limitation. Individual publications contribute to one or more classes, but the structure itself remains stable as the corpus expands.

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8. Program Evolution

Viewed retrospectively, the Architecture of Limitation research program has progressed through several recognizable phases.

Architectural Stabilization

The earliest phase focused on clarifying the conceptual foundations and governance structures required for the architecture to function coherently.

Conceptual Stress Testing

The next phase introduced high-stress conceptual artifacts capable of generating significant structural pressure within reasoning systems.

Applied Domain Diagnostics

The program subsequently expanded into applied environments, demonstrating that the architecture's diagnostic principles remain relevant outside purely philosophical contexts.

AI-Mediated Observation

The introduction of AI-mediated reasoning environments allowed researchers to observe reasoning dynamics at unprecedented scale and speed.

Instrumentation Development

The most recent phase focuses on developing observational tools capable of measuring structural behaviour with increasing precision.

Together, these phases illustrate the transformation of the Architecture of Limitation from an experiential insight into a functioning research architecture.

9. Research Frontiers

Several areas of investigation are currently emerging within the research program.

One frontier involves the study of AI-mediated reasoning systems. As such systems become increasingly integrated into decision environments, understanding how they behave under constraint may prove critical for governance and safety.

Another frontier concerns the development of more precise observational instruments capable of describing reasoning trajectories over time.

A third frontier involves the exploration of artifacts drawn from formal domains such as mathematical conjectures and theoretical frameworks whose internal structures provide particularly revealing stress environments.

Finally, the research program intersects increasingly with questions concerning the governance of reasoning systems within institutions and technological infrastructures.

Recognizing collapse signals early may allow institutions to avoid escalation cycles that produce increasingly complex but progressively less stable structures.

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10. Stewardship

The Architecture of Limitation operates under a stewardship model intended to preserve its structural orientation.

The architecture is not intended to evolve into a universal explanatory theory, decision framework, or prescriptive ideology. Its function remains diagnostic.

Stewardship therefore involves maintaining the architecture's original posture: the study of reasoning under constraint without transforming the framework into a totalizing system.

Certain constraint environments used in experimentation operate at stewardship levels that are not fully disclosed in public methodological descriptions. These environments exist to preserve the integrity of the architecture during experimental development.

At the same time, the research program remains committed to open publication. The corpus of experimental papers is publicly available and continues to expand as new studies are conducted.

11. Orientation

The Architecture of Limitation research program investigates how reasoning systems behave when they approach structural limits.

Across domains as diverse as philosophy, institutional governance, and artificial intelligence, similar patterns appear repeatedly. Reasoning expands beyond the structures that support it. Conceptual inflation replaces proportion. Collapse signals emerge as the system begins to destabilize.

Rather than attempting to repair these failures through escalation, the Architecture of Limitation treats them as diagnostic events.

Limitation is not an obstacle to reasoning.

It is the condition that allows reasoning to remain coherent.

The research program therefore proceeds not by seeking explanatory completion but by observing how reasoning behaves when its limits become visible.

In doing so, it provides a framework for studying the structural dynamics of reasoning itself.

The Architecture of Limitation is not a finished theory.

It is an ongoing investigation into the conditions under which reasoning remains proportionate, and the signals that appear when it does not.

Appendix A — Corpus Reference List (Zenodo Archive)

Probabilistic Drift Geometry Under Declared Constraint
https://zenodo.org/records/18860501

Constraint-Relative Platform Selection Under a Hardened Boundary Calculus
https://zenodo.org/records/18826418

Hallucination as Geometric Overflow - Separating Coherence from Admissibility in Large Language Models https://zenodo.org/records/18788968

Correction Note on RC1.0 Governance Framing and Horizon Rebuild V1.0 https://zenodo.org/records/18771252

Layered Differentiation of the Architecture of Limitation Under Defined AI Stress Conditions https://zenodo.org/records/18770197

Architecture of Limitation — Public Lineage and Architectural Distinction (AoL / AoLOS) https://zenodo.org/records/18497007

Second Technical Addendum — Boundary Geometry and Operational Consistency under CTMU Conditions (v43) https://zenodo.org/records/18401204

When Measurement Becomes Ritual - Collapse Signals in KPI and OKR Systems https://zenodo.org/records/18367975

Hallucination as Geometric Overflow under v43: Boundary-Condition Failure in Large Language Models https://zenodo.org/records/18352250

Auditing the Auditor: Limitations, Attack Surfaces, and Stewardship Requirements for Applying v43 in AI Governance https://zenodo.org/records/18213413

A Constraint-Isolated Stress Test of Distributed Repair Dynamics under MD_v1_43 https://zenodo.org/records/18164683

Relational Avoidance and Simulation Substitution: V43 Diagnostic Addendum https://zenodo.org/records/18154907

Governance Note: Public Kernels, v43, and SP43 https://zenodo.org/records/18146870

Free Speech As Collapse Stress Test - An ACF Exploration under the Architecture of Limitation (v43) https://zenodo.org/records/18140754

Defence Policy in a Limited State: A Structural Analysis of Ireland's Security Posture Under Conditions of Neutrality https://zenodo.org/records/18134605

Immigration Load, Democratic Capacity, and Consent Architecture in Europe https://zenodo.org/records/18132085

Climate Transition, Democratic Load, and Consent Architecture (v43) https://zenodo.org/records/18108080

Irreversible Rejection Under Volume Amplification (IRUVA): A Structural Analysis of Selection Systems with Durable Memory https://zenodo.org/records/18095677

Addendum — Operational Behaviour of the Architecture of Limitation under CTMU Conditions (v43) https://zenodo.org/records/18069069

The Architecture of Limitation (AoL): Region Transitions and Governance Rules
https://zenodo.org/records/18060676

The Architecture of Limitation as a Constraint-Based Validator
https://zenodo.org/records/18053334

Governance as Architectural Constraint in Reasoning Systems
https://zenodo.org/records/18009632

The Architecture of Limitation: Manuscript I — Metaphysical Expression
https://zenodo.org/records/17751215

Limitation, Totality, and Structural Utility: A Field-Test Analysis of the Architecture of Limitation Against the Cognitive-Theoretic Model of the Universe (CTMU)
https://zenodo.org/records/17702773

SP-43.v1 — Ethical License & Stewardship Protocol for the Architecture of Limitation (AoL) https://zenodo.org/records/17725950