```
"""
Jones Framework: Axiom Restructuring
====================================

Reclassifies 67 items from "axioms" into proper logical categories:
- Axioms: Irreducible assumptions the framework rests on (cannot be derived)
- Definitions: Named constructions (no empirical claims)
- Theorems: Claims derivable from axioms + definitions
- Design Principles: Engineering choices (could be otherwise)
- Heuristics: Practical rules of thumb (empirically useful, not formally required

The restructuring preserves all content. Nothing is deleted.
The dependency graph is unchanged. Only the logical STATUS changes.
"""

# ============================================================
# THE RESTRUCTURING
# ============================================================

restructuring = {

# ============================================================
# TRUE AXIOMS (11)
# These are irreducible assumptions. They cannot be derived
# from anything else in the framework. If you reject any of
# these, the framework breaks. They are falsifiable in
# principle but assumed here.
# ============================================================
"axioms": [
    {
        "old_id": "G1",
        "new_id": "A1",
        "name": "Ontological Selection",
        "statement": "To observe is to select. Every observation is an ontologica
        "formalism": "S_O: U → Ω_O",
        "why_axiom": "Irreducible. Cannot be derived — it is the starting conditi
    },
    {
        "old_id": "G2",
        "new_id": "A2",
        "name": "Value Genesis",
        "statement": "Value is the source of all navigable structure. A value fun
        "formalism": "g_v = e^{-β v} · g_0",
        "why_axiom": "Irreducible. The claim that value creates geometry (not mer
```

```
},
{
    "old_id": "G4",
    "new_id": "A3",
    "name": "Identity Conservation",
    "statement": "An agent maintains identity if and only if its essential to
    "formalism": "d(sig(φ_t(M)), sig(M)) < ε for all valid transformations φ_
    "why_axiom": "Irreducible. Defines what it means for a system to persist
},
{
    "old_id": "2.1",
    "new_id": "A4",
    "name": "Manifold Hypothesis",
    "statement": "The set of valid states of any sufficiently structured syst
    "formalism": "M = μ(X_persist) ⊂ X, dim(M) << dim(X)",
    "why_axiom": "Irreducible empirical assumption. Widely adopted in machine
},
{
    "old_id": "3.2",
    "new_id": "A5",
    "name": "Continuity Constraint",
    "statement": "Valid state transitions are continuous on the state manifol
    "formalism": "γ: [0,1] → M is continuous for any valid transition path γ"
    "why_axiom": "Irreducible. This is the bridge between topology and dynami
},
{
    "old_id": "4.1",
    "new_id": "A6",
    "name": "Topological Primacy",
    "statement": "The essential structure of a system is its topological inva
    "formalism": "Essential structure = {β_k, persistence diagrams}",
    "why_axiom": "Irreducible philosophical commitment. Asserts that topology
},
{
    "old_id": "5.3",
    "new_id": "A7",
    "name": "Quale Equivalence",
    "statement": "A robust topological form (persistent homological signature
    "formalism": "Persistent feature with pers ≥ τ ≡ quale",
    "why_axiom": "Irreducible. This is the consciousness claim. It connects m
},
{
    "old_id": "9.1",
    "new_id": "A8",
    "name": "Universal Embedding",
    "statement": "Any structured domain can be embedded in the Universal Tens
    "formalism": "∀ Domain D, ∃ φ_D: D → U structure-preserving",
```

```
        "why_axiom": "Irreducible. This is the domain-agnosticity claim. If some
    },
    {
        "old_id": "9.2",
        "new_id": "A9",
        "name": "Relational Primacy",
        "statement": "Relationships between entities carry more information than
        "formalism": "I(R(X); Y) > I(X; Y) in general",
        "why_axiom": "Irreducible. This justifies graph-based representations (KI
    },
    {
        "old_id": "4.3",
        "new_id": "A10",
        "name": "Persistence as Signal",
        "statement": "In any filtration, features with long lifetimes encode genu
        "formalism": "pers(feature) ≥ τ → signal; pers(feature) < τ → noise",
        "why_axiom": "Irreducible (within framework). The TDA stability theorem g
    },
    {
        "old_id": "14.1",
        "new_id": "A11",
        "name": "Separation of Concerns",
        "statement": "In human-AI collaboration, the human provides intent (value
        "formalism": "Human: (v, C) | AI: argmin_γ ∫ ds on (M_v, C)",
        "why_axiom": "Irreducible design commitment for the collaborative framewo
    },
],

# ============================================================
# DEFINITIONS (17)
# These name constructions. They don't make empirical claims.
# They specify what things ARE in the framework.
# ============================================================
"definitions": [
    {
        "old_id": "1.1",
        "new_id": "D1",
        "name": "Condition:State (Substrate)",
        "statement": "A condition:state is a tuple (entity, attributes, constrain
    },
    {
        "old_id": "1.2",
        "new_id": "D2",
        "name": "State Space",
        "statement": "The state space X is the set of all possible condition:stat
    },
    {
```

```
    "old_id": "2.2",
    "new_id": "D3",
    "name": "Value Function",
    "statement": "A value function is a smooth map v: M → ℝ assigning scalar
},
{
    "old_id": "2.3",
    "new_id": "D4",
    "name": "Conformal Warping",
    "statement": "The value-warped metric is g_v = e^{-β v(m)} · g_0, where g
},
{
    "old_id": "2.4",
    "new_id": "D5",
    "name": "Operational Geometry",
    "statement": "The operational geometry is the Riemannian manifold (M, g_v
},
{
    "old_id": "4.2",
    "new_id": "D6",
    "name": "Filtration",
    "statement": "A filtration is a nested sequence of simplicial complexes K
},
{
    "old_id": "4.4",
    "new_id": "D7",
    "name": "Mapper Graph",
    "statement": "The Mapper algorithm produces an interpretable graph summar
},
{
    "old_id": "6.1",
    "new_id": "D8",
    "name": "Topological Verification",
    "statement": "A transformation is topologically valid if d(sig(T(M)), sig
},
{
    "old_id": "7.1",
    "new_id": "D9",
    "name": "Signal",
    "statement": "A signal is a function s: Domain → Codomain mapping from a
},
{
    "old_id": "7.2",
    "new_id": "D10",
    "name": "Universal Tensor Space",
    "statement": "The Universal Tensor Space is U = P × T × M × F, where P =
},
```

```
    {
        "old_id": "7.3",
        "new_id": "D11",
        "name": "Universal Tensor Indexing",
        "statement": "The UTI map φ: S → U sends any signal to its coordinates in
    },
    {
        "old_id": "7.4",
        "new_id": "D12",
        "name": "Tensor Distance",
        "statement": "Distance in U is d_U(s₁, s₂) = √(Σ w_i · d_i²), a weighted
    },
    {
        "old_id": "8.2",
        "new_id": "D13",
        "name": "Cross-Window Index",
        "statement": "The cross-window index measures correlation structure acros
    },
    {
        "old_id": "14.2",
        "new_id": "D14",
        "name": "Intent Encoding",
        "statement": "Human intent is encoded as a value function v_I: M → ℝ that
    },
    {
        "old_id": "14.3",
        "new_id": "D15",
        "name": "Constraint Specification",
        "statement": "Constraints C = {c₁, ..., c_n} define forbidden regions in
    },
    {
        "old_id": "17.1",
        "new_id": "D16",
        "name": "Knowledge Node",
        "statement": "A knowledge node K = (content, embeddings, links, type) is
    },
    {
        "old_id": "17.2",
        "new_id": "D17",
        "name": "KIM Embedding",
        "statement": "The KIM embedding φ_KIM: V → ℝ^d maps knowledge nodes to a
    },
],

# ============================================================
# THEOREMS / PROPOSITIONS (10)
# These are claims that FOLLOW from the axioms and definitions.
```

```
# They should be provable (or at least arguable) from the above.
# ============================================================
"theorems": [
    {
        "old_id": "G3",
        "new_id": "T1",
        "name": "Path of Least Resistance (Geodesic Principle)",
        "statement": "On the value-warped manifold (M, g_v), optimal trajectories
        "derives_from": ["A2 (Value Genesis)", "D4 (Conformal Warping)", "D5 (Ope
        "proof_sketch": "Standard result in Riemannian geometry: given a metric,
    },
    {
        "old_id": "1.3",
        "new_id": "T2",
        "name": "State Emergence",
        "statement": "Activity:states (dynamic operational modes) emerge as persi
        "derives_from": ["D1 (Substrate)", "D2 (State Space)", "A10 (Persistence
        "proof_sketch": "If condition:states form a space (D2) and persistent fea
    },
    {
        "old_id": "3.1",
        "new_id": "T3",
        "name": "Boundary Layer Existence",
        "statement": "Transitions between operational regimes occur in thin bound
        "derives_from": ["A4 (Manifold)", "A5 (Continuity)", "A2 (Value Genesis)"
        "proof_sketch": "Continuity (A5) requires transitions to pass through int
    },
    {
        "old_id": "5.2",
        "new_id": "T4",
        "name": "Configurational Term Series",
        "statement": "The operator chain X →^μ M →^v M_v →^{H_k} Q(Φ) composes in
        "derives_from": ["A4, A2, A6, A10, D6, D10, D11 + CTS paper proofs"],
        "proof_sketch": "Proven in the CTS paper. Each stage has defined domain/c
    },
    {
        "old_id": "8.3",
        "new_id": "T5",
        "name": "Cross-Domain Transfer",
        "statement": "If two domains D₁ and D₂ both embed in U via structure-pres
        "derives_from": ["A8 (Universal Embedding)", "D10 (Universal Tensor Space
        "proof_sketch": "Composition of structure-preserving maps is structure-pr
    },
    {
        "old_id": "15.1",
        "new_id": "T6",
        "name": "Prompts as Geometric Operators",
```

```
        "statement": "A language prompt induces a transformation T_P: M → M' that
        "derives_from": ["A2 (Value Genesis)", "D4 (Conformal Warping)", "D14 (In
        "proof_sketch": "A prompt modifies the effective value function (by speci
    },
    {
        "old_id": "16.3",
        "new_id": "T7",
        "name": "Complementary Superadditivity",
        "statement": "Human-AI collaboration is superadditive: the combined syste
        "derives_from": ["A11 (Separation of Concerns)", "A2 (Value Genesis)"],
        "proof_sketch": "Human provides v (value) which AI cannot generate; AI pr
    },
    {
        "old_id": "20.2",
        "new_id": "T8",
        "name": "Cross-Level Consistency",
        "statement": "Abstract solutions must be realizable: a solution valid at
        "derives_from": ["A5 (Continuity)", "A3 (Identity Conservation)"],
        "proof_sketch": "If the abstraction map is continuous (required by A5), t
    },
    {
        "old_id": "3.3",
        "new_id": "T9",
        "name": "Linguistic Arbitrage",
        "statement": "Different representations of the same state have different
        "derives_from": ["A1 (Ontological Selection)", "A2 (Value Genesis)"],
        "proof_sketch": "Ontological selection (A1) implies multiple valid repres
    },
    {
        "old_id": "G5",
        "new_id": "T10",
        "name": "Scale-Free Recurrence",
        "statement": "Structural patterns recur across scales: the same topologic
        "derives_from": ["A6 (Topological Primacy)", "A10 (Persistence as Signal)
        "proof_sketch": "If essential structure is topological (A6) and persisten
    },
],

# ============================================================
# DESIGN PRINCIPLES (21)
# These are engineering choices. They represent GOOD ways to
# implement the framework, but are not logically necessary.
# A different implementation could make different choices and
# still be consistent with the axioms.
# ============================================================
"design_principles": [
    {"old_id": "1.4", "new_id": "P1", "name": "Hierarchical State Nesting",
```

```
 "statement": "States nest hierarchically with containment relations.",
 "why_principle": "Useful organizational choice but not required by the axiom

{"old_id": "5.1", "new_id": "P2", "name": "Reverse Engineering Stance",
 "statement": "Extract structure from high-dimensional observations by workin
 "why_principle": "Methodological choice. Forward simulation is equally valid

{"old_id": "6.2", "new_id": "P3", "name": "Continuity Guards",
 "statement": "Implement explicit runtime checks that operations preserve top
 "why_principle": "Implementation choice. Could also rely on architectural co

{"old_id": "8.1", "new_id": "P4", "name": "Frequency Window Analysis",
 "statement": "Analyze signals within bounded frequency windows to reveal sca
 "why_principle": "Useful decomposition strategy but not the only way to do m

{"old_id": "10.1", "new_id": "P5", "name": "Neuro-Symbolic Integration",
 "statement": "Combine neural pattern recognition with symbolic reasoning via
 "why_principle": "Architecture choice. Pure neural or pure symbolic systems

{"old_id": "10.2", "new_id": "P6", "name": "Regime Classification",
 "statement": "Classify inputs into operational regimes and route to speciali
 "why_principle": "MoE-style design choice. A single general model is equally

{"old_id": "10.3", "new_id": "P7", "name": "Expert Selection",
 "statement": "Route to specialized expert models based on detected regime.",
 "why_principle": "Follows from P6 but is not axiomatically required."},

{"old_id": "11.1", "new_id": "P8", "name": "Value-Guided Search",
 "statement": "Search is guided by the value-warped geometry: expand toward h
 "why_principle": "Algorithmically efficient but not the only valid search st

{"old_id": "11.2", "new_id": "P9", "name": "DSL Composition",
 "statement": "Build solutions by composing typed primitives from a domain-sp
 "why_principle": "Design choice for verifiability. Free-form generation is a

{"old_id": "11.3", "new_id": "P10", "name": "Program Synthesis",
 "statement": "Find program P in DSL such that ∀i: P(x_i) = y_i.",
 "why_principle": "Specific search formulation. Other formulations (optimizat

{"old_id": "12.1", "new_id": "P11", "name": "Guard Implementation",
 "statement": "Implement continuity guards as explicit validation functions G
 "why_principle": "Implementation specification for A3/A5."},

{"old_id": "12.2", "new_id": "P12", "name": "Verification Loop",
 "statement": "Generate → Verify → Feedback → Iterate until verified.",
 "why_principle": "Process design. Single-pass generation with post-hoc verif
```

```
    {"old_id": "12.3", "new_id": "P13", "name": "Commit vs Resolve",
     "statement": "Propose → Resolve (verify) → Commit (execute). Never commit wi
     "why_principle": "Safety pattern. Optimistic execution with rollback is an a

    {"old_id": "13.1", "new_id": "P14", "name": "SANS Architecture",
     "statement": "Symbolic Abstract Neural Search: unified architecture combinin
     "why_principle": "Specific architecture. Other architectures can implement t

    {"old_id": "17.3", "new_id": "P15", "name": "Activation Cascade",
     "statement": "Activation of a knowledge node propagates to connected nodes v
     "why_principle": "Spreading activation is one activation model. Attention-ba

    {"old_id": "17.4", "new_id": "P16", "name": "Context Window Management",
     "statement": "Active context W(C) = {v ∈ V | relevance(v, C) > θ} selects th
     "why_principle": "Resource management strategy. Full-graph activation is val

    {"old_id": "18.1", "new_id": "P17", "name": "Intent-to-Function Mapping",
     "statement": "Map intent to candidate functions via KIM similarity search.",
     "why_principle": "Retrieval strategy. Rule-based or learned routing are alte

    {"old_id": "18.2", "new_id": "P18", "name": "Axiom Activation Signature",
     "statement": "Each function call is annotated with the axioms it invokes, cr
     "why_principle": "Traceability choice. Implicit activation without annotatio

    {"old_id": "18.3", "new_id": "P19", "name": "Composition Operator",
     "statement": "Functions compose subject to type and axiom compatibility chec
     "why_principle": "Type-safety choice. Unchecked composition is faster but le

    {"old_id": "19.1", "new_id": "P20", "name": "Solution Pathway",
     "statement": "A solution is a pathway γ = ((f₁, x₁), ..., (f_n, x_n)) throug
     "why_principle": "Representational choice for solutions as term series."},

    {"old_id": "19.2", "new_id": "P21", "name": "Geometry Activation",
     "statement": "Each problem activates a specialized (M, g_v) geometry.",
     "why_principle": "Dynamic geometry selection. A single fixed geometry could
],

# ============================================================
# HEURISTICS (8)
# These are practical rules of thumb. They work well in
# practice but have exceptions or lack formal justification.
# ============================================================
"heuristics": [
    {"old_id": "9.3", "new_id": "H1", "name": "Parameter Importance Inversion",
     "statement": "Surface parameters (coordinates, labels) matter less than deep
     "why_heuristic": "Generally true but has exceptions (edge cases where surfac
```

```
    {"old_id": "15.2", "new_id": "H2", "name": "Yield Extraction via Iteration",
     "statement": "Iterated prompting extracts more value than single queries: Y(
     "why_heuristic": "Empirically useful pattern for LLM interaction. Not formal

    {"old_id": "15.3", "new_id": "H3", "name": "Compositional Prompting",
     "statement": "Complex solutions emerge from composed simple prompts: T_P = T
     "why_heuristic": "Practical observation about LLM interaction. Sometimes a s

    {"old_id": "16.1", "new_id": "H4", "name": "Specify-Search-Verify Loop",
     "statement": "The core collaboration loop: Human specifies → AI searches → H
     "why_heuristic": "Good default process but not always optimal. Some tasks be

    {"old_id": "16.2", "new_id": "H5", "name": "Trust Calibration",
     "statement": "Autonomy ∝ Verifiability / Cost. Grant more autonomy when veri
     "why_heuristic": "Sensible scaling rule but the proportionality constant is

    {"old_id": "19.3", "new_id": "H6", "name": "Geodesic Search Strategy",
     "statement": "Find shortest path on active geometry using value-weighted heu
     "why_heuristic": "Specific algorithmic strategy. Many search algorithms coul

    {"old_id": "19.4", "new_id": "H7", "name": "Term-Series Execution Protocol",
     "statement": "Execute solution pathway step-by-step with verification at eac
     "why_heuristic": "Good safety practice but the step granularity and rollback

    {"old_id": "20.1", "new_id": "H8", "name": "Abstraction Ladder",
     "statement": "Organize processing at levels 0 (concrete) through n (abstract
     "why_heuristic": "Useful organizational metaphor. The number of levels and t
],

# ============================================================
# INTEGRATION PROTOCOL (1 — formerly 20.3)
# This is the master execution protocol that chains everything.
# It's neither axiom nor theorem — it's the WORKFLOW.
# ============================================================
"protocol": {
    "old_id": "20.3",
    "new_id": "PROTOCOL",
    "name": "Integration Protocol",
    "statement": "Context → Geometry → Plan → Refine → Execute → Learn",
    "steps": [
        "1. Context: Identify state space X, select ontology (A1)",
        "2. Geometry: Define value function v, compute g_v (A2, D3, D4)",
        "3. Plan: Find geodesic pathway on (M, g_v) (T1, P8)",
        "4. Refine: Verify topological consistency (A3, A5, D8)",
        "5. Execute: Run term series with guards (P11, P12, H7)",
        "6. Learn: Update KIM based on outcome (P15, H4)",
    ],
```

```
},
}


# ============================================================
# SUMMARY STATISTICS
# ============================================================

def print_summary():
    counts = {
        "Axioms": len(restructuring["axioms"]),
        "Definitions": len(restructuring["definitions"]),
        "Theorems": len(restructuring["theorems"]),
        "Design Principles": len(restructuring["design_principles"]),
        "Heuristics": len(restructuring["heuristics"]),
        "Protocol": 1,
    }
    total = sum(counts.values())

    print("=" * 60)
    print("JONES FRAMEWORK RESTRUCTURING SUMMARY")
    print("=" * 60)
    print()
    print(f"Original: 67 items all labeled 'Axiom'")
    print(f"Restructured: {total} items properly classified")
    print()
    for category, count in counts.items():
        pct = count / total * 100
        print(f"  {category:20s}: {count:3d}  ({pct:4.1f}%)")
    print()
    print("=" * 60)
    print()

    # Print the mapping
    print("ID MAPPING (old → new):")
    print("-" * 60)
    for category_name, key in [("AXIOMS", "axioms"), ("DEFINITIONS", "definitions
                               ("THEOREMS", "theorems"), ("DESIGN PRINCIPLES", "
                               ("HEURISTICS", "heuristics")]:
        print(f"\n  {category_name}:")
        for item in restructuring[key]:
            old = item["old_id"]
            new = item["new_id"]
            name = item["name"]
            print(f"    {old:6s} → {new:6s}  {name}")

    p = restructuring["protocol"]
```

```
    print(f"\n  PROTOCOL:")
    print(f"    {p['old_id']:6s} → {p['new_id']:10s}  {p['name']}")


if __name__ == "__main__":
    print_summary()
```