



# **The Break**

**Artist's Proof 05**

**Symmetry Breaking**

From axiom to structure — the first crack

## §0. Status and Dependency

AP05 depends on AP01 (The Physics Spine) and AP04 (The Loop Hypothesis). Neither depends on AP05. If AP05 fails, AP01 and AP04 stand independently.

**Bridge conditions (declared):** (B1) A record algebra exists. (B2) Bounded capacity holds (no-return surfaces). (B3) Observers register definite readings. (B4) Conscious recognition of structural facts can generate normative identification (perspectival ethics).

Note on B3: 'Observers register definite readings' is a phenomenological condition — the observed fact that individual experimental trials yield definite outcomes. It does not assume consciousness, agency, or any particular interpretation of quantum mechanics.

It is the empirical datum the architecture aims to accommodate, not an explanation of that datum.

Note on B4: B4 is required only at Step B-6 (ethics). The physical derivation chain (B-0 through B-5) depends only on B1-B3. B4 is the declared cost of extending the chain from physics to ethics.

**Novel contribution:** The junction formulation (§3) — reformulation of the cosmological identity as Israel junction conditions on the completion boundary  $\Sigma$ , rather than as a global pullback. A genuine alternative to existing bounce models.

**Axiom mapping.** AP05 IS the axiom: 1:1 + 1 $\times$  $\varepsilon$  (B0). It derives the chain from axiom to structure to ethics. Axiom S  $\rightarrow$  1:1 (the symmetric state, the geometric figure with no orientation).

Axiom B  $\rightarrow$  1 $\times$  $\varepsilon$  (one break, applied once, the mark that creates two distinguishable readings).

Axiom R  $\rightarrow$  Bridge B1 (record algebra exists) + B2 (bounded capacity) — irreversibility enters through AP01. Axiom C  $\rightarrow$  Bridge B2 (bounded capacity  $\rightarrow$  no-return surfaces) — composition under constraint enters through AP01 Paper D.

**Outstanding debts.** D1 (Junction problem B-JP): whether ECSK field equations admit a junction solution on  $\Sigma$  with  $[\gamma_{ao}] = \emptyset$  and controlled  $[K_{ao}]$  — central open problem.

D2 (Spectrum mapping): mapping from boundary mismatch  $[K_{ao}]$  to  $P_{\mathcal{R}}(k)$  — required for KS-B.2 to become operational.

**Kill switches.** KS-B.0 (Universal): LIVE — HARD, independent specifications, the entire architecture — becomes EMPIRICAL once B-JP is solved. KS-B.1 (Bounce superior): LIVE — EMPIRICAL, if smooth bounce explains CMB better.

KS-B.2 (Spectrum mismatch): LIVE — staged, not executable until B-JP solved. KS-B.3 (No junction solution): LIVE — HARD, sharpest test. KS-B.4 (Chain break): LIVE — HARD, if any step B-0 through B-6 requires undeclared assumption.

Five kill switches. The argument does not hide behind its axiom. It stands in front of it. You are invited to find the flaw.

**Structural relationships.** AP01 (The Physics Spine): AP05 depends on AP01 for the record chain (B-0 through B-5); AP01 does not depend on AP05. AP04 (The Loop Hypothesis): AP05 depends on AP04 for the cosmological identity; AP05's junction formulation is a structural alternative to AP04's global pullback.

AP03 (The Ratio): if AP03 holds,  $\varepsilon$  determines  $c$  and  $G$ , making AP05's bridge conditions B1-B3 downstream of the axiom.

AP20 (The Proof): EH proven — the Embedding Hypothesis makes the viability geometry unconditional, strengthening AP05's chain.

# §1 The Axiom

## §1.1 Statement

**Axiom B0.**  $1:1 + 1 \times \varepsilon$ , where  $\varepsilon > 0$  is the smallest nonzero perturbation of perfect symmetry. ■

## §1.2 Terms

**1:1** denotes a state of perfect balance between two values. No orientation. No preferred reading. No accessible distinctions.

Operationally indistinguishable from the empty set  $\emptyset$ , because without distinguishable structure, no record can be formed and no observation can be made.

$\varepsilon$  denotes the minimal symmetry break: the smallest nonzero perturbation that creates a difference between the two sides.  $\varepsilon$  is not a parameter to be measured.

It is a structural condition: the claim that perfect symmetry does not persist, and that the departure from symmetry is minimal.

**1× $\varepsilon$**  denotes a single application of the break. Not two breaks. Not a continuous parameter. One break, applied once, to the symmetric state.

## §1.3 Geometric content

You have seen this before. You may not have named it, but you have seen it.

Consider a rotationally symmetric figure (O). It has no orientation. No record can be formed from it, because there is nothing to distinguish one reading from another.

Now add the smallest possible asymmetry: a single directed mark. The figure acquires two distinguishable readings from opposite orientations.

The mark did not distinguish two pre-existing sides. There were no sides before the mark. The mark created the two readings by breaking the rotational symmetry. Both readings are valid. Neither is primary.

Neither causes the other. They are two descriptions of one structure, made possible by the break.

That is the axiom in geometric language. The symmetric figure is 1:1. The mark is  $\epsilon$ . The two readings are the structural consequences.

## §1.4 Scope claim

**Claim B1 (Scope).** All structure in the architecture — physical, cosmological, and ethical — is a consequence of the axiom  $1:1 + 1 \times \varepsilon$  and the four declared bridge conditions (B1–B4).

The physical chain (B-0 through B-5) requires only B1–B3. The ethics extension (B-6) additionally requires B4. No additional undeclared assumptions are introduced at any layer.

If any layer requires an assumption not derivable from the axiom and the declared bridges, the architecture fails. ■

## §1.5 Universal kill switch

**Kill Switch KS-B.0 (Universal).** The axiom is falsified if the expanding universe requires initial conditions that are not derivable from the terminal conditions of a collapsing description.

If the two readings require independent, unrelated specifications, then they are not two readings of one structure. The break does not generate both sides. The axiom fails as a generator.

Applies to the entire architecture. ■

Here is how to destroy everything that follows. Show that the two descriptions need separate, unrelated initial conditions. If they do, the axiom is not a generator. It is a coincidence.

And coincidences do not derive ethics.

## **§2 The Derivation Chain**

Seven steps. Each depends only on the previous step plus the declared bridge conditions. No additional undeclared assumptions. No step can be skipped or reordered.

You will watch one axiom become a universe and then become an obligation. Every step is shown. You can check every link.

## §2.0 Symmetry → No structure

**Step B-0 (From axiom).** At 1:1 (perfect symmetry,  $\varepsilon = \emptyset$ ), there are no accessible distinctions. No record algebra exists.

The Actualization State (AP01, Paper A) is  $AS = \emptyset$ , because there are no record sectors to distinguish. No observation is possible. The state is operationally indistinguishable from  $\emptyset$ .

A logical consequence of the definition of 'no accessible distinctions.' ■

## §2.1 Break → Record structure

**Step B-1 (From B-0 + Bridge B1).**  $\varepsilon > 0$  breaks the symmetry. Two distinguishable readings exist. At least two record sectors are defined by the break.

‘Two readings exist’ means both are accessible: the reduced state after dephasing has nonzero weight in both record sectors.

If the break produced a single realised sector ( $p_1 = 1, p_2 = 0$ ), there would be only one reading, contradicting the axiom’s ‘two readings.’

Therefore the weights satisfy  $p_i > 0$  for at least two sectors, and the Actualization State  $AS = H(\{p_i\}) / \log N > 0$ . Irreversible: returning to  $\varepsilon = 0$  would require erasing the distinction, contradicting the no-return established in AP01 Paper A (Theorem T2).

Scope note: the axiom motivates the existence of a record algebra by establishing that symmetry does not persist. Bridge B1 converts this motivation into a physical postulate.

The axiom alone does not derive the existence of a record algebra; B1 is the declared cost of this step. Dependency: AP01 Paper A, Definition D3 (Actualization State), Theorem T2 (no-return). ■

You just watched something emerge from nothing. Not created. Not designed. Forced — by the fact that  $\varepsilon > 0$  and the symmetry cannot return.

## §2.2 Record structure → Selection

**Step B-2 (From B-1 + Bridge B3).** With  $AS > 0$ , multiple record sectors coexist.

AP01 Paper B establishes that the transition from multiplicity to definiteness — from ‘both readings are accessible’ to ‘this observer reads one’ — is selection.

Paper B proves selection cannot be achieved by deterministic linear CPTP dynamics (B2.1), must act at the trajectory level (B2.2), is costly in physical resources (B2.4), and is rate-limited by the distinguishability of the records (B4.5).

Selection is not an additional assumption. It is the structural consequence of having multiple record sectors and the requirement that observers register definite readings (Bridge B3). Dependency: AP01 Paper B (§§B1–B4). ■

You have seen this in every measurement you have ever made. You looked at the dial and it read one number, not a superposition of all possible numbers. That definiteness costs something.

The mathematics proves it.

## §2.3 Selection → Agency

**Step B-3 (From B-2 + Bridge B2).** Once selection has occurred, the observer exists within a single realised record sector.

AP01 Paper C establishes that within such a sector, agency is defined as the normalised reachable viability volume:  $\mathcal{M}(x) = \mu(\text{Reach}(x) \cap \text{Viab}(R)) / \mu(\text{Viab}(R))$ .

The observer's agency is determined by position within the viability kernel, the drift field (irreversible decay toward loss of structure), and bounded control available to counteract drift. Agency is not an additional assumption.

It is the geometric consequence of confinement to a single record sector under irreversible dynamics. Dependency: AP01 Paper C (Definition C1.1). ■

## §2.4 Agency → Coupling

**Step B-4 (From B-3).** The break creates two readings, not one. The axiom guarantees two distinguishable readings exist (B-1). Bridge B3 requires that observers register definite readings.

Together, these support at least two distinct observation events. Whether these correspond to two simultaneous agents or one agent at two times is a contingent physical fact, not a structural necessity.

The existence of multiple simultaneous agents (the universe contains more than one observer) is an empirical fact of our universe, not an additional formal assumption.

Given that multiple agents exist: they share the same constraint environment — the same structure from which both readings arise.

AP01 Paper D establishes that when multiple agents operate in shared constraint environments, their viability kernels overlap and their actions produce record externalities: irreversible modifications to the shared environment that change each other's viability (D1.3, Geometric Exclusion Principle).

Coupling is the structural consequence of the break creating two readings of one structure. Dependency: AP01 Paper D (§§D1–D2). ■

## §2.5 Coupling → Emergent order

**Step B-5 (From B-4).** AP01 Paper D derives hierarchy, cooperation, and deterrence as geometric consequences of coupled viability under drift. Hierarchy: agents with asymmetric capacity (different impedance  $Z = u_{\max}/a$ ) produce asymmetric record externalities (D4.3).

Cooperation: mutual record externalities expand joint viability beyond the sum of individual viabilities,  $\mathcal{M}_{\text{joint}} > \sum \mathcal{M}_i$  (D4.4a). Deterrence: unilateral decoupling costs exceed continued coupling costs for both agents (D4.4b). None require additional assumptions.

Dependency: AP01 Paper D (§§D3–D4). ■

## §2.6 Shared origin → Ethics

**Step B-6 (From B-5 + Bridge B4).** Agent A and Agent B arise from the same symmetry break. Their perspectives were created by the same event.

Both are instances of a reading made possible by  $\varepsilon > 0$  applied to the same 1:1. The ethical consequence follows in two parts.

First (structural): destroying another agent's viability kernel while sharing a constraint environment necessarily contracts the shared viability domain (AP01 Paper D, D1.3, Geometric Exclusion Principle).

A geometric fact about coupled systems with shared origins, requiring only B1–B3. Second (perspectival, requiring Bridge B4): a conscious agent recognising this shared origin can identify the destruction of another's capacity as incoherent with the unity of the base condition.

The obligation is in the recognition, not in the structure (see AP04, §6). B4 is the declared cost of this step. Dependency: Steps B-0 through B-5, Bridge B4, AP04 §6.

■

You have just walked from nothing to obligation in seven steps. No god decreed the ethics. No legislature voted on them.

The axiom forced them — through symmetry breaking, record formation, selection, agency, coupling, emergent order, and shared origin. The chain is as long as it needs to be and no longer.

If you want to reject the conclusion, you must break a link. The architecture shows you every one.

## **§3 The Junction Formulation**

### **§3.1 Why not ‘bounce’**

Existing models of black hole interiors in Einstein-Cartan theory [Popławski 2010, 2016; Lucat & Prokopec 2017] describe a dynamical bounce: collapse halts at extreme density, reverses, and produces an expanding region.

The bounce occurs at a specific time coordinate  $t_0$ . The scale factor has a minimum. The metric is continuous through  $t_0$ .

The architecture offers an alternative: the structure is not dynamical but geometric. Two descriptions of one structure, with no single time coordinate running through both. The junction formulation makes this precise.

## §3.2 Junction conditions

Let  $M^-$  denote the collapsing-side manifold patch and  $M^+$  the expanding-side patch.

Let  $\Sigma$  be the completion boundary — the hypersurface where the classical description of  $M^-$  reaches its limit (curvature invariants reach a completion threshold; no further accessible distinctions in the record algebra).

**Condition J1 (Induced metric continuity).**  $[\gamma_{ao}] = 0$ . The induced metric on  $\Sigma$  is continuous. Both sides share the same boundary geometry. The 1:1 — the symmetric figure before the break. [Israel 1966] ■

**Condition J2 (Extrinsic curvature mismatch).**  $[K_{ao}] = \varepsilon \cdot h_{ao}$ . The extrinsic curvature — the way  $\Sigma$  curves into  $M^-$  and  $M^+$  respectively — has a controlled, small, nonzero mismatch. The  $\varepsilon$ .

The tensor  $h_{ao}$  encodes the asymmetry: anisotropy damping, particle content, torsion corrections from the ECSK completion. ■

Scope note:  $h_{ao}$  is constrained by the requirement that  $[K_{ao}] = \varepsilon \cdot h_{ao}$  satisfies the ECSK junction equations with the appropriate stress-energy content on both sides of  $\Sigma$ .

The explicit form of  $h_{ao}$  is determined by the boundary-value problem (Open Problem B-JP).

You have just seen the axiom written as geometry. J1 is the 1:1. J2 is the  $\varepsilon$ . The boundary between collapse and expansion is the axiom made manifest in the mathematics of Israel junction conditions.

### §3.3 Relation to AP04

AP04's Conjecture L7 expresses the structural identity as a global metric relation:  $g^+ = (\varphi^{-1})^*(g^-) + \varepsilon \cdot h$ . The junction formulation (J1, J2) is the boundary-data version of the same claim.

J1 constrains the induced metric; J2 constrains the extrinsic curvature. Together they determine the relationship between  $M^-$  and  $M^+$  at  $\Sigma$  without requiring a global diffeomorphism  $\varphi$  to be specified on all of  $M$ .

The junction formulation is more conservative: it commits only to boundary data on  $\Sigma$ , not to a global map.

It is also more tractable: Israel junction conditions are a standard tool in general relativity [Israel 1966], and their extension to Einstein-Cartan-Sciama-Kibble (ECSK) gravity is established [Arkuszewski et al. 1975].

### §3.4 Observational consequences

The bounce formulation predicts smooth evolution through  $\Sigma$ , continuous correlations, memory of pre-bounce perturbations carried dynamically into the post-bounce phase.

The junction formulation entails that the post-expansion perturbation spectrum is determined by boundary data on  $\Sigma$  (the extrinsic curvature mismatch  $\varepsilon \cdot h_{ao}$ ), not by dynamical evolution through  $\Sigma$ . In principle, different observational signatures from bounce cosmologies.

If you could measure those signatures, you could distinguish between the two formulations. That is the point.

**Open Problem B-JP.** Whether the ECSK field equations on the Kantowski-Sachs interior admit a completion across  $\Sigma$  with  $[\gamma_{ao}] = \mathcal{O}$  and controlled  $[K_{ao}]$  — and what perturbation spectrum that completion implies — is an open boundary-value problem.

■

## §4 Falsification Conditions

Five explicit kill switches. KS-B.0 is universal; KS-B.1 through KS-B.3 target the junction formulation; KS-B.4 targets the derivation chain.

### Universal

**Kill Switch KS-B.0 (Universal: independent specifications).** If the expanding universe requires initial conditions that are not derivable from the terminal conditions of a collapsing description — if the two readings require independent, unrelated specifications — then they are not two readings of one structure.

The axiom fails as a generator. Targets: Axiom B0, the entire architecture.

Testability note: KS-B.0 becomes empirically accessible once the boundary-value problem B-JP (§3.4) is solved. Until then, KS-B.0 functions as a theoretical consistency check. Status: LIVE-HARD until B-JP is resolved, then LIVE-EMPIRICAL.

### Junction formulation

**Kill Switch KS-B.1 (Bounce superior).** If the CMB power spectrum is best explained by smooth dynamical evolution through a bounce (continuous correlations across the transition), then the junction formulation is falsified.

The structural identity (AP04) may survive under the bounce interpretation, but AP05's junction reformulation fails. Targets: Conditions J1, J2.

**Kill Switch KS-B.2 (Spectrum mismatch; staged).** If a completed junction solution (B-JP) together with a derived mapping from the boundary mismatch  $[K_{ao}]$  on  $\Sigma$  to the post-expansion curvature perturbation spectrum  $\mathcal{P}\mathcal{R}(k)$  predicts a spectrum inconsistent with observations (including near scale invariance and measured tilt  $n_s \approx 0.965$ ), then the junction formulation makes wrong predictions.

Until the mapping is derived, KS-B.2 is a future operational kill switch. Targets: Condition J2, Open Problem B-JP.

**Kill Switch KS-B.3 (No junction solution).** If the Israel junction conditions modified by ECSK torsion do not admit a solution with  $[\gamma_{ao}] = \emptyset$  and controlled  $[K_{ao}]$ , then the structural identity does not exist in the junction formulation and the cosmological component fails.

Targets: Conditions J1, J2, structural identity.

### **Derivation chain**

**Kill Switch KS-B.4 (Chain break).** If any step in the derivation chain (B-0 through B-6) requires an assumption not contained in B0 and bridges B1–B4, the scope claim B1 is falsified.

The chain is only as strong as its weakest link. Targets: Claim B1, the derivation chain.

You want to break the chain? Find the hidden assumption. If you can show that any step smuggles in a premise that is not B0, B1, B2, B3, or B4, the entire scope claim collapses.

The architecture invites you to look.

## §5 Structural Closure

The derivation chain in §2 is complete within the stated bridge conditions (B1–B4).

**From the axiom (1:1 + 1×ε):** Step B-0: No structure ( $\varepsilon = 0$ ,  $AS = 0$ ). Step B-1: Record structure ( $\varepsilon > 0$ ,  $AS > 0$ , irreversible). Step B-2: Selection (multiplicity to definiteness, costly, rate-limited).

Step B-3: Agency (constrained control within a realised sector). Step B-4: Coupling (shared constraint environments from shared origin). Step B-5: Emergent order (hierarchy, cooperation, deterrence as geometry). Step B-6: Ethics (structural ground + perspectival recognition).

**From the junction conditions ( $[\gamma_{ao}] = 0$ ,  $[K_{ao}] = \varepsilon \cdot h_{ao}$ ):** A boundary-data reformulation of the AP04 cosmological identity and a test programme for junction-specific observational consequences.

The perturbation-spectrum implication is proposed in principle but remains conditional on solving Open Problem B-JP (including computation of  $h_{ao}$  and the boundary-to-spectrum mapping).

Each step in the §2 derivation chain depends only on the previous step plus the declared bridge conditions. No undeclared assumptions.

The architecture-level generator claim is tested by KS-B.0 and KS-B.4; the junction reformulation is additionally tested by KS-B.1 through KS-B.3. You have now seen the entire chain. You have seen the bridges.

You have seen the kill switches. If something is hidden, find it.

## §6 Summary of Claims

**B0 (Axiom):**  $1:1 + 1 \times \varepsilon$ . Philosophical choice. Not falsifiable directly; architecture judged by consequences.

**B1 (Scope claim):** All structure follows from B0 + bridges B1–B3. Falsifiable via KS-B.0.

**B-0 through B-6 (Derivation chain):** Seven steps from axiom to ethics. B-0 through B-5 require B1–B3. B-6 additionally requires B4. No undeclared assumptions.

**J1 (Junction condition):**  $[\gamma_{ao}] = \emptyset$ . Induced metric continuity on  $\Sigma$ . [Layer 1: Israel 1966]

**J2 (Junction condition):**  $[K_{ao}] = \varepsilon \cdot h_{ao}$ . Controlled extrinsic curvature mismatch. [Layer 2 + 3: novel]

**B-JP (Open problem):** Whether ECSK equations admit a junction solution with the required properties. Central open problem of the junction formulation.

**KS-B.0 (Universal kill switch):** Two readings require independent specifications → axiom fails.

**KS-B.1 through KS-B.3 (Junction kill switches):** Bounce superior, spectrum mismatch (staged), no junction solution.

**KS-B.4 (Chain break):** Any undeclared assumption in the derivation chain falsifies B1.

## §7 Notation Reference

**1:1:** Perfect symmetry. No accessible distinctions. Operationally  $\equiv \emptyset$ .

**$\varepsilon$ :** Minimal symmetry break. Smallest nonzero perturbation. Structural condition, not a measured parameter.

**AS:** Actualization State.  $AS = H(\{p_i\}) / \log N$ . Defined in AP01 Paper A, Definition D3.

**N:** Number of record sectors.  $N \geq 2$  after the break.

**$\mathcal{M}(\mathbf{x})$ :** Agency measure.  $\mathcal{M}(\mathbf{x}) = \mu(\text{Reach}(\mathbf{x}) \cap \text{Viab}(\mathbf{R})) / \mu(\text{Viab}(\mathbf{R}))$ . Defined in AP01 Paper C, Definition C1.1.

**Z:** Impedance.  $Z = u_{\text{max}}/a$ . Ratio of maximum control to drift magnitude. Defined in AP01 Paper D.

**$\mathbf{M}^-$ ,  $\mathbf{M}^+$ :** Collapsing-side and expanding-side manifold patches.

**$\Sigma$ :** Completion boundary. Hypersurface where classical description reaches its limit.

**$\gamma_{\text{ao}}$ :** Induced metric on  $\Sigma$ .

**$[\mathbf{X}]$ :** Jump of quantity  $X$  across  $\Sigma$ .  $[\mathbf{X}] = X^+ - X^-$ .

**$\mathbf{K}_{\text{ao}}$ :** Extrinsic curvature of  $\Sigma$ .

**$\mathbf{h}_{\text{ao}}$ :** Mismatch tensor on  $\Sigma$ . Encodes anisotropy damping, particle content, torsion corrections.

**$\mathbf{PR}(\mathbf{k})$ :** Curvature perturbation power spectrum. Must match  $n_s \approx 0.965$ .

**$n_s$ :** Spectral tilt. Observed  $\approx 0.965$  (Planck 2018).

**$\mathbf{A}_s$ :** Scalar amplitude of primordial perturbations.

**ECSK:** Einstein-Cartan-Sciama-Kibble. Extension of GR with spin-torsion coupling.

**B1-B4:** Bridge conditions. (B1) record algebra exists; (B2) bounded capacity / no-return; (B3) observers register definite readings; (B4) conscious recognition of structural facts generates normative identification. B1-B3 for physics; B4 for ethics.

## §8 References

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# Conditionality Footer

**Document:** AP05 — The Break.

**Edition:** 05.2.

**Conditional on:** AP01 (The Physics Spine) for the derivation chain (§2).

AP04 (The Loop Hypothesis) for the cosmological conjecture referenced in §2.6 and the structural identity reformulated in §3. Neither AP01 nor AP04 depends on AP05.

**Bridge conditions required:** (B1) Record algebra exists. (B2) Bounded capacity holds (no-return surfaces). (B3) Observers register definite readings. (B4) Conscious recognition of structural facts can generate normative identification.

B1–B3 are used in the physical chain (B-0 through B-5). B4 is used only at B-6 (ethics). All four are declared in §0.

**Central open problem:** Open Problem B-JP: whether ECSK field equations admit a junction solution on  $\Sigma$  with  $[\gamma_{ao}] = 0$  and controlled  $[K_{ao}]$ .

Until solved, the junction formulation (§3) remains a structural proposal, not a derived result.

**Foundational limitation:** The axiom B0 is a philosophical choice, not a physical derivation.

The bridge conditions B1–B3 are physically reasonable but not derived from B0. The architect's claim is that B0 + B1–B3 suffice; the bridges are declared costs, not hidden assumptions.

**Kill switches:** KS-B.0 (universal, LIVE-HARD pending B-JP), KS-B.1 through KS-B.3 (junction formulation; KS-B.2 staged pending B-JP), KS-B.4 (chain break). KS-B.3 is the sharpest operational test for the junction formulation.

**Dependencies:** AP01, AP04.

**Dependents:** Downstream APs that assume the derivation chain is complete inherit AP05's bridge conditions and kill switches.

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Artist G

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