



FORMAL RECORD 12

The Forced Bijection

On the Structural Necessity of the Governance Primitives in Conscious Reality

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Version: v1.6 | August 2026 **Originally published:** April 2026
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v1.6 adds a scope note to C1 clarifying that admissibility is specification-relative. The Section 7 scope restoration and the category clarification introduced in earlier versions are retained. No theorem, lemma, or proof in this record has changed since the original publication in April 2026. Every revision has clarified what the mathematics already said.

0. Dependencies and Definitions

This record depends on the following prior works. No prior result is re-derived. FR12 imports them by reference.

FR1 (Canonical Logic Sequence).

Proves that the mapping from detection to action is non-unique. Multiple valid action-mappings exist for any given input. No internal rule resolves the multiplicity. First author: Pyrate Ruby Passell.

FR2 through FR5.

Formalize declared authority, denoted δ , as a structural requirement for legitimate governance. The gate function g requires δ as input. Without δ , g equals zero. The gate is fail-closed. No system-internal process can generate δ .

FR10 (Primitive Stability Theorem).

Defines effective primitive value as the infimum under subject resistance. Proves two distinct results relevant to FR12:

(i) Ghost Authority by Silence-Dependency, establishing that δ cannot be inferred from subject silence or compliance. Silence is not consent, and an authority declaration that depends on the subject's non-contestation is not a completed declaration. This result constrains how δ may be attributed and is independent of scope.

(ii) Scope ungroundedness, establishing that a system whose jurisdictional boundary is self-defined cannot produce legitimate governance. Scope requires external grounding. This is the C3 claim that FR12 maps onto P3.

Both results follow from the same theorem but are structurally distinct. FR12 uses (ii) directly in the $C3 \rightarrow P3$ correspondence; (i) constrains the $C2 \rightarrow P2$ correspondence by ruling out silence-based δ attribution.

FR11 (GBSH Correspondence).

Names the Gildenston Functional. Establishes the initial correspondence between the governance primitives and the work of Bell, Sapolsky, and Hoffman. FR12 formalizes and closes what FR11 identified.



Definitions.

Let S be a *decision-permitting system*: any system that produces actions affecting conscious agents.

C1 (Selection Underdetermination). S admits multiple admissible mappings from input to output. No internal operator uniquely selects among them.

C1 quantifies over the set of mappings admissible under S 's declared specification, not over the mapping realized in any given execution. Determinism fixes which admissible mapping is realized. It does not reduce the admissible set to one. A system whose specification admits a single mapping is not decision-permitting regardless of the causal status of its execution.

C2 (Legitimacy Absence). S produces an action affecting a subject. No declared authorizing agent, δ , exists for that action. The action occurs without attributable authorship.

C3 (Scope Ungroundedness). S asserts applicability over a domain. The boundary defining that domain is not externally grounded. Jurisdiction is claimed from within the system's own boundary.

The three governance primitives referenced throughout are:

P1: Detection does not determine action. The mapping from input to output is non-unique, and the system must make this non-uniqueness explicit rather than collapse it internally.

P2: Authority must be declared. An external conscious agent must authorize the selected mapping, supplying the authorship the system cannot generate. This is δ .

P3: The gate cannot validate itself. Jurisdictional scope must be externally grounded. The system cannot certify its own boundary.

1. External Correspondence

Three independent results from consciousness research, neuroscience, and physics each constrain exactly one constraint class. This section establishes the correspondence and demonstrates that the variable sets of the three theorems are pairwise disjoint.

Hoffman (Conscious Realism; Fitness-Beats-Truth Theorem). Operates over agent-internal mappings, decision kernels, and perception-to-action functions. The decision kernel D connecting experience space X to action space G is non-unique. Hoffman and Prakash proved through evolutionary game theory simulations that organisms tuned to fitness always outcompete organisms tuned to truth. The interface does not reveal the structure it represents. This result constrains C1. Its variable set contains no terms for authorship, attribution, or agency origination, which are the variables of C2. It contains no terms for spatial separation, boundary, or jurisdiction, which are the variables of C3.

Sapolsky (Determined; absence of free will). Operates over the causal production of behavior across temporal chains of biological, environmental, and historical determinants. No behavior is originated by an agent. Every action is the output of prior causes extending without limit. There is no moment of authorship. This result constrains C2. Its variable set contains no terms for the multiplicity of admissible mappings, which are the variables of C1. It contains no terms for spatial boundaries, locality, or jurisdiction, which are the variables of C3.

Bell (Bell's Theorem; non-locality). Operates over joint probability distributions across spatially separated measurements. No local hidden variable theory reproduces quantum mechanical predictions.



Apparent spatial separation is not fundamental. Reality is non-local. This result constrains C3. Its variable set contains no terms for perception-to-action mappings, which are the variables of C1. It contains no terms for causal origination of agency, which are the variables of C2.

Each theorem's variable set is disjoint from the other two. This is not an interpretive claim. The theorems do not contain the mathematical objects required to address the other constraint classes. Substitution across constraint classes is not merely wrong. It is ill-typed.

2. Independence Lemma

Lemma (Pairwise Non-Derivability). No constraint class C can be derived from any other constraint class or from the conjunction of the remaining two.

C1 can hold even when authorship exists and boundaries are grounded. A system with declared authority and valid jurisdiction still faces non-unique mappings. The presence of δ and the grounding of scope do not resolve the multiplicity of admissible functions from input to output.

C2 can hold even when selection is determined and boundaries are grounded. A system that deterministically selects a unique mapping within valid jurisdiction still lacks δ if no conscious agent declared it. Determinism does not produce authorship. A river consistently flows downhill. That does not mean the river chose the hill.

C3 can hold even when selection is determined and authority is declared. A system with a unique mapping and declared authority still operates under ghost authority if its jurisdictional boundary is self-derived. Internal consistency does not produce legitimate scope.

The three constraint classes are structurally orthogonal. Each can be independently satisfied or violated without affecting the others.

3. Impossibility Theorem

Theorem (Constraint Universality). No decision-permitting system S can be constructed that eliminates any constraint class without ceasing to be decision-permitting.

If S eliminates C1 by forcing a unique mapping, S collapses from decision-permitting to functionally predetermined. It retains no selection space. It may still act, but it no longer decides.

If S eliminates C2 by generating authority internally, S has selected an action-mapping without δ . Selection without δ is selection without declared authority. By FR1, undeclared selection across non-unique mappings is the condition under which g equals zero.

If S eliminates C3 by treating its boundary as fundamental, S relies on locality as a grounding assumption for jurisdiction. Locality as a grounding assumption is empirically invalidated by Bell-type results.

All three constraint classes are permanent features of any decision-permitting system. Eliminating any constraint class removes a necessary condition for decision-permitting structure, not merely a property of system behavior.



4. Minimal Resolution Theorem

Theorem (Primitive Resolution). Each governance primitive P resolves exactly one constraint class C . No primitive resolves more than one.

P_1 resolves C_1 . It makes the non-uniqueness of mapping explicit and requires the system to acknowledge rather than collapse it internally. It does not address authorship or scope.

P_2 resolves C_2 . It requires an external conscious agent to authorize the selected mapping, supplying the authorship the system cannot generate. It does not address selection multiplicity or scope.

P_3 resolves C_3 . It requires jurisdictional scope to be externally grounded, preventing the system from self-certifying its own boundary. It does not address selection multiplicity or authorship.

No primitive addresses the variables of any constraint class other than its own. The resolution is typed.

5. Uniqueness Theorem

Theorem (Forced Bijection). The mapping from constraint classes to governance primitives defined by C_1 to P_1 , C_2 to P_2 , C_3 to P_3 is the unique bijection preserving constraint-class typing.

Any alternative mapping would require a primitive to resolve a constraint class whose variables it does not contain. By the variable isolation established in Section 1 and the typed resolution established in Section 4, no such alternative mapping is well-defined.

The bijection is forced.

6. Corollary

Corollary (Consciousness-Governance Correspondence). The governance primitive triple is not specific to AI governance, institutional design, or any particular domain of application. It is the minimal and unique resolution structure for any decision-permitting system interacting with conscious agents.

The three primitives are entailed by three independent impossibility results from consciousness research, neuroscience, and physics. They were discovered independently through governance analysis. The correspondence was not constructed. It was found.

7. Implications

Hoffman, Sapolsky, and Bell each identified one constraint class independently, without reference to governance or to each other. The Three Primitives framework identified all three constraint classes and



their resolutions independently, without reference to conscious realism, determinism, or quantum mechanics.

The forced one-to-one correspondence between these four independent research programs constitutes a convergence result. This convergence is evidence that the primitive triple reflects the structure of conscious reality, not the structure of human governance preferences.

The convergence is structural: the same formal non-closure pattern appears independently in each domain. Three theorems with pairwise disjoint variable sets, derived in three fields by researchers working without reference to one another, resolve to three primitives under a mapping that admits no alternative. Under an ontology in which consciousness emerges from a substrate that the interface reveals, that alignment is a coincidence for which no mechanism is available. Under an ontology in which consciousness is fundamental, it is what the structure requires. This is a claim about the structure of conscious reality. It is not a claim that governance is a physical phenomenon.

The core corpus, FR1 through FR11, proves the primitives are structurally necessary for governance. FR12 proves they are structurally necessary for any decision-permitting interaction between conscious agents. The room was always there. This record shows it was the only room that could be built.

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Suggested citation:

Gildenston, S. (2026). The Forced Bijection: On the Structural Necessity of the Governance Primitives in Conscious Reality. Three Primitives Framework, Formal Record 12, v1.6. Melbourne, Australia. 3primitives.io. CC BY 4.0.