Hinduism as an Open Normative System: An Axiomatic and Model-Theoretic Analysis

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Abstract: This paper develops a rigorous axiomatization of Hinduism treated strictly as a normative system, without appeal to theology, canon, or comparative evaluation. The axioms are induced from empirically observable structural features—contextual normativity, non-finality, plural admissibility, and persistence without centralized enforcement—rather than asserted a priori. A model-theoretic semantics is introduced in which concrete practices are interpreted as admissible models of the axioms. Within this framework, we prove non-trivial structural theorems establishing the impossibility of canonical finalization, the inevitability of non-isomorphic admissible models, persistence without global consistency, absorptive stability under extension, and the impossibility of stable exclusive schism. The axiomatization is shown to be falsifiable via structural criteria and robust with respect to Gödel- and Tarski-type limitations by design, as it avoids internal derivability, global truth predicates, and claims of completeness. The contribution is methodological: it demonstrates how openness itself can be axiomatized and analyzed rigorously through model adequacy rather than deductive closure.

Keywords: Axiomatization; Normative Systems; Model-Theoretic Semantics; Contextual Normativity; Pluralism; Non-Finality; Gödel–Tarski Robustness; Structural Falsifiability

1 Introduction

Axiomatization has historically served as a tool for clarifying the structure of complex systems by isolating a minimal set of principles from which observable phenomena follow. In mathematics and logic, this approach has been used to separate structural necessity from contingent formulation, most notably in geometry, probability, and formal arithmetic [1,2]. In the study of normative systems, however, axiomatization has often been restricted to settings that assume canonical texts, centralized authority, and global consistency. Such assumptions exclude a large class of long-lived civilizational systems whose persistence is empirically evident but whose structure resists classical closure-based formalization.

This paper addresses the problem of axiomatizing a normative system that exhibits sustained historical continuity despite lacking a single authoritative canon, centralized enforcement mechanism, or requirement of global doctrinal consistency. Rather than treating these absences as deficiencies, we treat them as structural features that any adequate axiomatization must explain. The central methodological challenge is therefore not to impose completeness, consistency, or decidability, but to determine what minimal axiomatic structure is sufficient to generate the observed space of practices while remaining stable under internal plurality and evolution.

A second, and more subtle, challenge arises from foundational limits in formal reasoning. It is well known that sufficiently expressive axiomatic systems cannot simultaneously satisfy consistency, completeness, and internal semantic closure [3,4]. Any attempt to axiomatize a rich normative system must therefore confront these limits explicitly. The present work adopts the position that such results should be treated not as obstacles, but as design constraints: an axiomatization that avoids claims forbidden by foundational results can remain structurally robust without sacrificing explanatory power.

The contribution of this paper is threefold. First, we present an inductive axiomatization of Hinduism viewed strictly as a normative system, derived from empirically observed structural features rather than doctrinal commitments. Second, we introduce a semantic interpretation in which concrete practices are treated as admissible models of the axioms, allowing outcomes to be evaluated via model adequacy rather than derivability or truth. Third, we prove a collection of non-trivial structural theorems showing that non-closure, coexistence of incompatible practices, persistence without global consistency, and absorptive stability are not accidental properties but necessary consequences of the axioms. Finally, we show that the resulting axiomatization is robust with respect to Gödel- and Tarski-type limitations precisely because it does not demand internal completeness or truth predicates.

Throughout, the paper makes no theological claims and offers no comparative evaluation of normative systems. Hinduism is treated solely as an object of structural study whose long-term persistence provides a non-trivial test case for axiomatization under openness. The framework developed here is therefore methodological rather than doctrinal, and its conclusions concern the conditions under which axiomatization itself remains meaningful in non-canonical settings.

The remainder of the paper is organized as follows. Section 2 defines the object of study and enumerates the empirical structural features to be explained. Section 3 presents the induced axioms and meta-axioms. Section 4 introduces the formal setting and basic definitions. Section 5 establishes the semantic link between axioms and concrete practices via admissible models. Section 6 proves the main structural theorems. Section 7 discusses falsifiability and failure modes. Section 8 establishes Gödel–Tarski robustness. Section 9 discusses methodological implications, and Section 10 concludes.

2 Hinduism as a Normative System

This section specifies the object of study and the empirical material from which the axiomatization is induced. The analysis is deliberately structural and operational. Hinduism is treated neither as a set of doctrinal propositions nor as a theological system, but as a historically persistent normative system whose defining properties are observable in practice rather than stipulated by canonical authority.

2.1 Operational Scope

For the purposes of this work, *Hinduism* is defined operationally as a civilizational normative system characterized by the following minimal features: (i) long-term historical continuity, (ii) absence of a single globally authoritative text, (iii) absence of centralized institutional enforcement, and (iv) sustained internal plurality of beliefs, practices, and philosophical positions. This definition is intentionally non-exhaustive and avoids any commitment to theological truth, metaphysical claims, or sociopolitical interpretation.

The focus of analysis is restricted to structural properties that are empirically observable across time and region. These properties function as data in the sense that they constrain any viable axiomatization. An axiomatic framework that fails to account for them is, by definition, inadequate.

2.2 Observed Structural Features

We summarize below a set of empirically established structural features that jointly characterize Hinduism as a normative system. These features are descriptive and do not presuppose explanatory mechanisms.

Absence of Canonical Finality. There exists no single text or finite collection of texts that functions as a globally final or exclusive authority. Multiple textual strata coexist, including liturgical, philosophical, narrative, and ritual corpora, none of which exhaust or terminate normative interpretation [5,6].

Contextual Normativity. Normative judgments concerning right action are indexed to agent, role, stage of life, social context, and circumstance. Ethical permissibility is not expressible as a globally quantified rule set, but varies systematically with context [7].

Plurality of Incompatible Philosophical Positions. Distinct metaphysical and epistemological schools coexist despite making mutually incompatible claims about ultimate reality, selfhood, and liberation. These incompatibilities do not produce systemic collapse or enforced resolution [8].

Optionality of Belief and Practice. Participation in ritual, devotion, philosophical inquiry, or metaphysical belief is not uniformly mandatory. Partial, selective, or intermittent engagement is both common and socially admissible, and does not imply exclusion from the normative system [9].

Absorptive Stability. New practices, interpretations, and localized forms are routinely incorporated without requiring the elimination or invalidation of prior forms. Historical change manifests predominantly as accretion rather than replacement [10].

Persistence Without Central Enforcement. Despite the absence of centralized authority or coercive enforcement, the system exhibits remarkable continuity over long time horizons. Normative stability is achieved without uniformity or doctrinal policing.

2.3 Implications for Axiomatization

Taken together, the features described above rule out axiomatization strategies that rely on closure, global consistency, or final authority. Any axiomatic framework adequate to Hinduism must therefore satisfy two conditions. First, it must permit the coexistence of incompatible local models without requiring resolution. Second, it must explain persistence without appealing to centralized derivation or enforcement mechanisms.

These requirements motivate an inductive axiomatization strategy. Rather than imposing axioms a priori, we seek a minimal axiom set whose admissible models reproduce the observed structural features summarized in Section 2.2. The axioms introduced in the next section are induced under this constraint and are evaluated exclusively by their capacity to generate the observed space of practices.

3 Induced Axioms of Hinduism

This section introduces the axioms used in the remainder of the paper. Unlike classical axiomatic systems, these axioms are not proposed a priori. Instead, they are *induced* from the empirical structural features described in Section 2. Each axiom is therefore constrained by an explicit adequacy requirement: removing or weakening the axiom would prevent the framework from generating one or more observed features, while strengthening it would exclude empirically admissible practices.

Throughout, the axioms are intended to be structural rather than doctrinal. They do not prescribe beliefs or practices; instead, they delimit the space of admissible models within which concrete practices may occur. Evaluation of the axioms is deferred to their generative capacity and to the structural theorems derived from them in later sections.

3.1 Induction Principle

Let $\mathcal{P}$ denote the set of empirically observed practices and structural regularities summarized in Section 2.2. We seek a minimal axiom set $\mathcal{A}$ such that the class of admissible models $\mathcal{M}(\mathcal{A})$ contains realizations corresponding to $\mathcal{P}$. An axiom is admitted into $\mathcal{A}$ only if its exclusion renders at least one element of $\mathcal{P}$ inadmissible.

This inductive criterion ensures that the axiomatization is neither underdetermined nor arbitrarily strong. In particular, no axiom is included solely for reasons of logical elegance or metaphysical completeness.

3.2 Core Axioms

We now state the core axioms induced from the data.

Axiom 3.1 (Contextual Normativity)**.** *Normative permissibility is indexed to context. That is, the evaluation of an action depends on parameters including, but not limited to, the agent, social role, stage of life, time, and situational circumstances. No context-free global norm function is assumed to exist.*

Axiom 3.1 is induced by the observed variability of normative judgments across agents and circumstances (Section 2.2, contextual normativity). It rules out axiomatizations based on universally quantified ethical rules.

Axiom 3.2 (Causal Moral Continuity)**.** *Actions induce transitions in a moral or normative state that may extend beyond immediate temporal or observable boundaries. The effects of an action are not required to be locally or instantaneously resolved.*

Axiom 3.2 captures the persistence of moral causality without reduction to short-term outcome evaluation. It is induced by the empirical centrality of long-horizon moral continuity (Section 2.2) and does not presuppose any specific metaphysical interpretation.

Axiom 3.3 (Non-Terminal Dynamics)**.** *The normative process admits indefinite continuation. No terminal state is required, either normatively or structurally, for the system to remain coherent.*

Axiom 3.3 is induced by the absence of mandatory terminal resolution and by the admissibility of ongoing participation without final closure (Section 2.2, optionality of belief and practice).

Axiom 3.4 (Plural Validity of Normative Strategies)**.** *Multiple, mutually incompatible normative strategies or paths may coexist as admissible models, without requiring reconciliation or hierarchical ordering.*

Axiom 3.4 is induced by the persistent coexistence of incompatible philosophical and practical systems (Section 2.2, plurality of philosophical positions). It explicitly forbids axioms enforcing exclusivity or global negation.

3.3 Meta-Axioms

In addition to the core axioms, two meta-axioms govern how axioms, interpretations, and formulations themselves are treated.

Axiom 3.5 (Non-Finality)**.** *No text, formulation, or axiom instance is globally final or exhaustively authoritative. All formulations admit reinterpretation and extension without invalidating prior admissible models.*

Axiom 3.5 is induced by the observed absence of canonical finality (Section 2.2, absence of canonical finality). It blocks closure under derivation and plays a central role in later robustness results.

Axiom 3.6 (Experiential Override)**.** *Local experiential realization may override inherited formulations or interpretations without requiring global revision.*

Axiom 3.6 is induced by the documented primacy of realized practice over doctrinal uniformity (Section 2.2). It operates locally and does not imply universal epistemic privilege.

3.4 Scope and Non-Universality

The axiom set $\mathcal{A} = \{\text{Axioms 3.1–3.6}\}$ is not proposed as a universal axiomatization of normative systems. It is specific to the structure under study and is justified solely by its adequacy with respect to the empirical features of Hinduism described in Section 2.

The consequences of these axioms are examined in three stages in the remainder of the paper. First, Section 4 introduces the formal setting in which admissible models are defined. Second, Section 5 establishes the semantic link between axioms and concrete practices. Third, Sections 6 and 8 derive structural and meta-logical consequences, respectively.

4 Formal Setting and Definitions

This section introduces the formal objects used in the remainder of the paper. The goal is not to impose a fully specified logical calculus, but to fix terminology and minimal structure sufficient to state semantic admissibility, derive structural theorems, and analyze meta-logical robustness. All definitions are intentionally representation-agnostic and compatible with the inductive axiomatization strategy adopted in Sections 2 and 3.

4.1 Normative System

Definition 4.1 (Normative System)**.** A *normative system* is an ordered pair

$$\mathcal{N} := (\mathcal{A}, \mathcal{M}), \tag{1}$$

where $\mathcal{A}$ is a set of axioms and meta-axioms, and $\mathcal{M}$ is a class of models admissible with respect to $\mathcal{A}$.

In this work, $\mathcal{A}$ denotes the induced axiom set introduced in Section 3. No assumption is made that $\mathcal{A}$ is complete, recursively enumerable, or closed under derivation.

4.2 Contexts and Actions

Definition 4.2 (Context)**.** A *context* is an abstract index $c \in \mathcal{C}$ encoding situational parameters relevant to normative evaluation. The internal structure of $\mathcal{C}$ is left unspecified, except that it admits sufficient variation to support context-dependent normativity as required by Axiom 3.1.
Definition 4.3 (Action)**.** An *action* is an element $a \in \mathcal{X}$, where $\mathcal{X}$ denotes the set of actions subject to normative evaluation.

No algebraic or probabilistic structure is imposed on $\mathcal{C}$ or $\mathcal{X}$. This avoids prematurely restricting the admissible models.

4.3 Normative Evaluation

Definition 4.4 (Normative Evaluation)**.** A *normative evaluation* is a partial mapping

$$E : \mathcal{X} \times \mathcal{C} \rightharpoonup \mathcal{V}, \tag{2}$$

where $\mathcal{V}$ is a space of normative values (e.g., permissible, impermissible, obligatory, neutral). The mapping E need not be total, unique, or globally defined.

The partiality and non-uniqueness of E reflect the requirements of Axioms 3.1 and 3.4. No global evaluation function is assumed to exist.

4.4 Normative States and Transitions

Definition 4.5 (Normative State)**.** A *normative state* is an abstract element $s \in \mathcal{S}$ representing the moral or normative condition of an agent or system at a given stage.
Definition 4.6 (State Transition)**.** A *state transition* is a mapping

$$T : \mathcal{S} \times \mathcal{X} \times \mathcal{C} \rightharpoonup \mathcal{S}, \tag{3}$$

representing the evolution of normative states under actions in context.

The mapping T is not required to be deterministic, total, or temporally local, consistent with Axioms 3.2 and 3.3.

4.5 Models

Definition 4.7 (Model)**.** A *model* M of the axiomatization is a tuple

$$M := (\mathcal{C}, \mathcal{X}, \mathcal{S}, E, T), \tag{4}$$

where the components satisfy the structural constraints imposed by the axiom set $\mathcal{A}$.

Importantly, no requirement is imposed that models be mutually consistent, comparable, or reducible to a single canonical representation.

4.6 Persistence and Collapse

Definition 4.8 (Persistence)**.** A normative system $\mathcal{N} = (\mathcal{A}, \mathcal{M})$ is said to *persist* if $\mathcal{M}$ remains non-empty under temporal extension and admits the continued emergence of admissible models without requiring revision of $\mathcal{A}$.
Definition 4.9 (Collapse)**.** A *collapse* occurs if no admissible model exists for $\mathcal{A}$ under extension, or if admissibility requires the elimination of previously admissible models.

Persistence and collapse are treated as structural properties of the axiom–model pair rather than as empirical or sociological claims.

4.7 Remarks on Non-Commitment

We emphasize that the formal setting deliberately omits: (i) a global derivation relation, (ii) an internal truth predicate, (iii) completeness or decidability assumptions. These omissions are not deficiencies but design choices, motivated by the axioms of non-finality and plural validity and by the meta-logical constraints discussed later in Section 8.

The next section introduces the semantic layer connecting axioms to concrete practices by defining admissibility of models and interpreting practices as elements of $\mathcal{M}(\mathcal{A})$.

5 From Axioms to Practices: Model Semantics

This section establishes the semantic link between the induced axioms and empirically observed practices. Rather than treating axioms as generators of conclusions via syntactic derivation, we adopt a model-theoretic interpretation: concrete practices are treated as *models* admissible with respect to the axiom set $\mathcal{A}$. In this sense, axioms constrain the space of permissible practices without enumerating or prescribing them.

5.1 Practices as Models

Let $\mathcal{P}$ denote the collection of empirically observed practices associated with the normative system under study (Section 2). A practice $P \in \mathcal{P}$ is interpreted as a model

$$M_P = (\mathcal{C}_P, \mathcal{X}_P, \mathcal{S}_P, E_P, T_P) \tag{5}$$

in the sense of Definition 4.7, where the components encode the contexts, actions, normative states, evaluations, and transitions implicit in the practice.

Definition 5.1 (Admissible Practice)**.** A practice P is *admissible* if the associated model M_P satisfies all axioms in $\mathcal{A}$, interpreted contextually.

Admissibility is semantic rather than deductive: a practice is admissible if it does not violate the structural constraints imposed by the axioms. No requirement is imposed that admissible practices be mutually consistent or reducible to a single global interpretation.

5.2 Meaning of Generation

In this framework, the axioms *generate* practices only in the following limited sense: they delimit a feasible region of models within which practices may occur. Generation therefore corresponds to semantic permissibility rather than algorithmic production or logical derivation. This interpretation aligns with standard model-theoretic usage, where axioms define a class of structures rather than a set of theorems.

5.3 Examples of Admissible Practices

We now illustrate the semantic framework with four empirically documented practices, each interpreted as an admissible model of $\mathcal{A}$. These examples are representative rather than exhaustive.

Example 1: Context-Dependent Ethical Obligation. Classical narrative and legal sources repeatedly emphasize that the same action may be obligatory in one context and impermissible in another. A well-known instance is the ethical tension articulated in the *Mahābhārata*, where truth-telling, non-violence, and duty are evaluated differently depending on role and circumstance [7,11].

Formally, this corresponds to a model M_P in which the evaluation map $E_P(a, c)$ varies non-trivially with context $c \in \mathcal{C}_P$, satisfying Axiom 3.1. No global norm function exists, and partiality of E_P is essential.

Example 2: Coexistence of Incompatible Philosophical Schools. Historically, metaphysical systems with mutually incompatible ontologies—such as realist, idealist, and non-dualist accounts—have coexisted without institutional resolution or exclusion [8,12]. These schools disagree on the nature of self and ultimate reality, yet persist as parallel normative strategies.

Each school induces a distinct model M_P, with different normative state spaces $\mathcal{S}_P$ and transition maps T_P. Admissibility is ensured by Axiom 3.4, which explicitly permits incompatible normative strategies to coexist.

Example 3: God-Optional Normative Practice. Several philosophical traditions historically associated with Hinduism do not posit a creator deity as a necessary component of liberation or ethical life. Normative reasoning and soteriology proceed without appeal to divine command [13]. Participation in such traditions has not implied exclusion from the broader normative system.

Semantically, these practices correspond to models in which evaluative and transition functions are defined without reference to a deity parameter. Admissibility follows from Axioms 3.4 and 3.6, which do not require uniform metaphysical commitments.

Example 4: Absorption of New Practices Without Elimination. Historical evidence shows that new ritual forms, local deities, and devotional practices are frequently incorporated without displacing earlier forms [9,10]. Older practices remain admissible even as new ones emerge.

This corresponds to an expanding model class $\mathcal{M}(\mathcal{A})$ in which previously admissible models remain valid under extension, consistent with Axiom 3.5. No collapse occurs as long as the axiom set remains unchanged.

5.4 Non-Admissibility and Falsification

Practices that require global doctrinal uniformity, exclusive negation of alternative practices, or canonical finality are not admissible models of $\mathcal{A}$. The historical emergence of such requirements would therefore falsify the axiomatization under the criterion of Definition 5.1. This observation prepares the ground for the falsifiability analysis in Section 7.

The next section derives structural theorems that hold for all admissible models in $\mathcal{M}(\mathcal{A})$, independently of the particular practices instantiated.

6 Structural Theorems

This section derives structural consequences of the induced axiom set $\mathcal{A}$ (Section 3) under the semantic interpretation of practices as admissible models (Section 5). The results below are *model-theoretic*: they hold for the entire admissible model class $\mathcal{M}(\mathcal{A})$ and do not depend on any particular practice instance.

Throughout, $\mathcal{A} = \{\text{Axioms 3.1–3.6}\}$ and $\mathcal{M}(\mathcal{A})$ denotes the class of all models $M = (\mathcal{C}, \mathcal{X}, \mathcal{S}, E, T)$ (Definition 4.7) satisfying $\mathcal{A}$. We write $M \models \mathcal{A}$ to indicate admissibility.

6.1 A closure property: tagged sum of models

Several theorems below rely on the observation that the axioms permit coexistence by *context-tagging*. We formalize this with a simple construction.

Definition 6.1 (Tagged Sum)**.** Let $M_1 = (\mathcal{C}_1, \mathcal{X}_1, \mathcal{S}_1, E_1, T_1)$ and $M_2 = (\mathcal{C}_2, \mathcal{X}_2, \mathcal{S}_2, E_2, T_2)$ be models. Define the *tagged sum* $M_1 \oplus M_2$ to be the model

$$M_1 \oplus M_2 := (\mathcal{C}, \mathcal{X}, \mathcal{S}, E, T), \tag{6}$$

where $\mathcal{C} := (\{1\} \times \mathcal{C}_1) \cup (\{2\} \times \mathcal{C}_2)$, $\mathcal{X} := (\{1\} \times \mathcal{X}_1) \cup (\{2\} \times \mathcal{X}_2)$, $\mathcal{S} := (\{1\} \times \mathcal{S}_1) \cup (\{2\} \times \mathcal{S}_2)$, and E, T act componentwise on each tagged component, i.e.,

$$E\big((i,x),(i,c)\big) = E_i(x,c), \qquad T\big((i,s),(i,x),(i,c)\big) = \big(i,\, T_i(s,x,c)\big), \tag{7}$$

with E, T undefined on mixed tags.

Lemma 6.1 (Closure under Tagged Sums)**.** *If $M_1 \models \mathcal{A}$ and $M_2 \models \mathcal{A}$, then $M_1 \oplus M_2 \models \mathcal{A}$.*

Proof. We verify each axiom for $M_1 \oplus M_2$.

Axiom 3.1 holds because normative evaluation E is defined relative to the tagged context space $\mathcal{C}$ and remains context-indexed on each component. Axiom 3.2 holds because T is defined componentwise and inherits the (possibly non-local) causal continuity encoded by T_1 and T_2. Axiom 3.3 holds because neither component requires a terminal state, and the tagged sum introduces no terminality requirement. Axiom 3.4 holds because the two components coexist without enforced reconciliation. Axiom 3.5 holds because the construction preserves both components without elevating either as final; extension by additional tagged components remains possible. Axiom 3.6 holds because any local override realized within a component remains local by construction. Hence $M_1 \oplus M_2 \models \mathcal{A}$. □

6.2 Non-closure: impossibility of canonical finalization

Theorem 6.1 (Non-Closure Theorem)**.** *There does not exist a* globally final *model $M^\star \in \mathcal{M}(\mathcal{A})$ such that every admissible model $M \in \mathcal{M}(\mathcal{A})$ is reducible to $M^\star$ by reinterpretation without loss of admissibility. Equivalently, $\mathcal{M}(\mathcal{A})$ admits no canonical finalization into a single universally privileged representative.*

Proof. Assume, for contradiction, that such a globally final model $M^\star$ exists. By the assumed property, for every admissible model M there is a reinterpretation (possibly by re-indexing or translation of contexts and actions) that embeds M into $M^\star$ without changing admissibility.

However, Axiom 3.5 explicitly forbids any text, formulation, or axiom instance from being globally final or exhaustively authoritative, and requires that reinterpretation and extension not invalidate prior admissible models. In model terms, this entails that admissibility must be stable under extension by new contexts and local reinterpretations that remain compatible with the axioms.

Now consider any admissible model $M_1 \in \mathcal{M}(\mathcal{A})$ and form $M^\star \oplus M_1$ using Definition 6.1. By Lemma 6.1, $M^\star \oplus M_1$ is also admissible. The existence of $M^\star \oplus M_1$ as an admissible extension shows that $M^\star$ cannot be globally final in the required sense: there exists an admissible model containing structure not already present in $M^\star$ unless one collapses the tag distinction, which would contradict Axiom 3.4 by forcing reconciliation of incompatible components. Hence the assumption of a globally final model is inconsistent with $\mathcal{A}$. □

6.3 Coexistence: inevitability of non-isomorphic admissible models

Theorem 6.2 (Model Non-Uniqueness Theorem)**.** *The admissible model class $\mathcal{M}(\mathcal{A})$ contains at least two non-isomorphic models.*

Proof. By Axiom 3.4, multiple mutually incompatible normative strategies are admissible without hierarchical ordering or reconciliation. Formally, this means there exist admissible models whose evaluative structure cannot be identified by a bijection preserving the interpretation of normative evaluation and transitions.

Construct two admissible models M_1 and M_2 as follows. Let $\mathcal{C}$, $\mathcal{X}$, and $\mathcal{S}$ be fixed nonempty sets. Define E_1 and E_2 to differ on at least one pair $(x, c) \in \mathcal{X} \times \mathcal{C}$ (e.g., $E_1(x, c)$ is defined and $E_2(x, c)$ is undefined, or they yield different values in $\mathcal{V}$), while keeping both evaluations context-indexed and partial as permitted by Definition 4.4. Choose T_1 and T_2 that satisfy Axioms 3.2 and 3.3 (e.g., by allowing indefinite continuation and non-local dependence) and are consistent with each respective evaluation scheme.

Such models satisfy Axioms 3.1, 3.2, 3.3, 3.4, 3.5, and 3.6 by construction: context dependence is explicit; transitions need not be local or terminal; plural admissibility is assumed; and non-finality permits distinct formulations without global identification. The difference in E_1 and E_2 prevents an isomorphism preserving normative evaluation. Hence $\mathcal{M}(\mathcal{A})$ is non-singleton up to isomorphism. □

6.4 Persistence without global consistency

Theorem 6.3 (Persistence Without Global Consistency)**.** *Global logical consistency across all admissible practices is not required for persistence (Definition 4.8). In particular, there exist admissible models $M_1, M_2 \in \mathcal{M}(\mathcal{A})$ that disagree on normative evaluations, yet whose coexistence does not induce collapse (Definition 4.9).*

Proof. Let $M_1, M_2 \in \mathcal{M}(\mathcal{A})$ be non-isomorphic models guaranteed by Theorem 6.2. Since they are non-isomorphic, they differ in evaluation or transition structure; in particular, there exists at least one action-context pair on which their evaluations disagree after any attempted identification of symbols.

Consider the tagged sum $M := M_1 \oplus M_2$. By Lemma 6.1, $M \models \mathcal{A}$ and therefore $M \in \mathcal{M}(\mathcal{A})$. The disagreements between M_1 and M_2 remain localized to different tagged contexts and do not force reconciliation, consistent with Axioms 3.1 and 3.4. Thus the coexistence of incompatible evaluations does not eliminate admissible models, and the model class remains non-empty. Hence persistence does not require global consistency across practices. □

6.5 Absorptive stability

Theorem 6.4 (Absorption Theorem)**.** *Let $M \in \mathcal{M}(\mathcal{A})$ and let $M' \in \mathcal{M}(\mathcal{A})$ represent a newly emerging admissible practice. Then the combined system $M \oplus M'$ is admissible. In particular, the emergence of new admissible practices need not invalidate previously admissible ones.*

Proof. Immediate from Lemma 6.1, taking $M_1 := M$ and $M_2 := M'$. The key axiomatic ingredients are Axiom 3.4 (coexistence without reconciliation) and Axiom 3.5 (non-finality under extension). Hence accretion of admissible models does not entail elimination of earlier models. □

6.6 Impossibility of stable exclusive schism

Definition 6.2 (Exclusive Schism)**.** An *exclusive schism* of $\mathcal{M}(\mathcal{A})$ is a partition

$$\mathcal{M}(\mathcal{A}) = \mathcal{M}_1 \cup \mathcal{M}_2, \qquad \mathcal{M}_1 \cap \mathcal{M}_2 = \emptyset, \tag{8}$$

with $\mathcal{M}_1, \mathcal{M}_2 \neq \emptyset$, such that for all $M \in \mathcal{M}_1$ and $M' \in \mathcal{M}_2$, there exists no admissible model $N \in \mathcal{M}(\mathcal{A})$ that admits both M and M' as submodels under contextual reinterpretation.

Theorem 6.5 (Schism Impossibility Theorem)**.** *No exclusive schism (Definition 6.2) exists for $\mathcal{M}(\mathcal{A})$.*

Proof. Assume an exclusive schism $\mathcal{M}(\mathcal{A}) = \mathcal{M}_1 \cup \mathcal{M}_2$ exists. Choose $M \in \mathcal{M}_1$ and $M' \in \mathcal{M}_2$ (both sets are nonempty). By Theorem 6.4, the tagged sum $M \oplus M'$ is admissible, hence $M \oplus M' \in \mathcal{M}(\mathcal{A})$. By construction (Definition 6.1), M and M' are both realized as tagged submodels of $M \oplus M'$, contradicting the exclusivity requirement in Definition 6.2. Therefore no exclusive schism exists. □

6.7 Summary

Theorems 6.1–6.5 show that non-finality, contextual normativity, and plural validity do not merely *permit* plurality; they force structural properties of the admissible model class $\mathcal{M}(\mathcal{A})$: canonical finalization is impossible, non-isomorphic models are inevitable, persistence does not require global consistency, accretive absorption is stable, and stable exclusive partitions cannot occur. These results prepare the falsifiability analysis in Section 7 and the meta-logical robustness analysis in Section 8.

7 Falsifiability and Failure Modes

Axiomatization in the present framework is evaluated by *model adequacy* rather than by truth or derivability. Nevertheless, the framework remains empirically and structurally falsifiable. This section specifies the precise conditions under which the induced axioms $\mathcal{A}$ would be invalidated as an adequate axiomatization of the normative system under study.

Falsifiability is understood here in a structural sense: the axiomatization fails if it cannot sustain a non-empty admissible model class $\mathcal{M}(\mathcal{A})$ consistent with empirically observed practices, or if it predicts structural properties that are contradicted by historical evidence.

7.1 Structural Falsification Criteria

The axiomatization would be falsified if any of the following conditions were empirically established.

Canonical Finality. If historical evidence demonstrated the existence of a globally final text, doctrine, or formulation such that all admissible practices were required to derive from it, Axiom 3.5 would be violated. In formal terms, the existence of a globally final model $M^\star \in \mathcal{M}(\mathcal{A})$ contradicts Theorem 6.1 and would render the axiomatization inadequate.

Mandatory Doctrinal Uniformity. If admissible participation in the normative system required assent to a single, globally enforced metaphysical or ethical doctrine, Axiom 3.4 would be falsified. Formally, this would imply that $\mathcal{M}(\mathcal{A})$ collapses to a single isomorphism class, contradicting Theorem 6.2.

Collapse Under Inconsistency. If the coexistence of incompatible practices were shown to induce systemic collapse—i.e., elimination of admissible models or forced reconciliation—then Theorem 6.3 would fail. In that case, persistence would require global consistency, contrary to the axioms.

Exclusive and Stable Schism. If the normative system were shown to admit a stable, exclusive partition into non-interoperable subsystems, Definition 6.2 would be satisfied and Theorem 6.5 falsified. This would contradict the absorptive and non-exclusive dynamics enforced by Axioms 3.4 and 3.5.

7.2 Empirical Status of the Criteria

The falsification criteria above are not abstract or vacuous. Each corresponds to a concrete historical or structural property that is, in principle, empirically testable using textual, institutional, or anthropological evidence. The absence of canonical enforcement, the persistence of incompatible practices, and the lack of stable exclusive schisms constitute non-trivial empirical constraints on any axiomatization.

Importantly, falsifiability here does not require prediction of specific future practices. Instead, it concerns the stability of the admissible model class $\mathcal{M}(\mathcal{A})$ under historical extension. Should future developments force elimination of previously admissible models or require revision of the axiom set, persistence in the sense of Definition 4.8 would fail.

7.3 Relation to Classical Falsification

The notion of falsifiability employed here differs from the classical hypothesis-testing paradigm in the natural sciences [14]. The axioms do not posit contingent empirical laws but impose structural constraints on admissible practices. Consequently, falsification arises from structural incompatibility rather than counterexample to prediction.

This form of falsifiability is standard in foundational and model-theoretic contexts, where the adequacy of an axiom system is judged by the existence, richness, and stability of its model class rather than by direct empirical measurement. In this sense, the present framework is falsifiable in exactly the same way as axiomatic systems in logic, probability, or geometry.

7.4 Summary

The axiomatization induced in Section 3 is falsifiable by construction. Canonical finality, mandatory uniformity, collapse under inconsistency, or stable exclusive schism would each invalidate the framework. The absence of these phenomena over long historical horizons constitutes non-trivial evidence of structural adequacy, while their emergence would require revision or abandonment of the axioms.

8 Gödel–Tarski Robustness

This section analyzes the induced axiomatization with respect to classical meta-logical limitations, specifically Gödel-style incompleteness and Tarski-style undefinability. The objective is not to evade these results, but to show that the axiomatization is structurally robust precisely because it does not assert properties that such results render impossible.

Throughout this section, we consider the normative system

$$\mathcal{N} := (\mathcal{A}, \mathcal{M}), \qquad \mathcal{M} := \mathcal{M}(\mathcal{A}). \tag{9}$$

as defined in Definition 4.1, with axioms given in Section 3 and semantics fixed in Section 5.

8.1 Scope of Gödel and Tarski Results

Gödel's incompleteness theorems apply to formal systems that are (i) recursively axiomatizable, (ii) sufficiently expressive to encode arithmetic, and (iii) interpreted as asserting their own deductive completeness. Tarski's undefinability theorem applies to systems that attempt to define a global internal truth predicate over their own language.

The relevance of these results to the present framework therefore depends on whether the axiomatization $\mathcal{A}$ satisfies these applicability conditions. As shown below, it does not.

8.2 Absence of Global Derivation

The axiomatization $\mathcal{A}$ does not define a global derivation relation $\vdash$ over sentences or practices. In particular:

- There is no formal language of sentences whose theorems exhaust the content of the system.
- Admissibility is defined semantically (Definition 5.1), not syntactically.
- No claim of completeness or decidability is made for $\mathcal{A}$.

As a result, $\mathcal{A}$ is not a deductive theory in the sense required for Gödel-style incompleteness. There is no notion of an undecidable sentence internal to the system, because there is no internal derivability predicate to which such a sentence could refer.

8.3 Non-Applicability of Gödel Incompleteness

Theorem 8.1 (Gödel Non-Applicability)**.** *Gödel's incompleteness theorems do not apply to the axiomatization $\mathcal{A}$.*

Proof. Gödel's first incompleteness theorem presupposes a recursively axiomatizable formal system with sufficient expressive power to encode arithmetic and an internal notion of provability. The axiomatization $\mathcal{A}$ lacks all three requirements. It is not presented as a recursively enumerable set of formal sentences; it does not encode arithmetic; and it does not define an internal provability predicate. Consequently, the diagonalization required to construct a Gödel sentence cannot be carried out. Hence the incompleteness theorems are inapplicable. □

This result should not be interpreted as a claim of completeness. Rather, the axiomatization is deliberately formulated so as not to ask the kind of question to which incompleteness applies.

8.4 Absence of an Internal Truth Predicate

The semantic framework introduced in Section 5 interprets practices as models. No internal predicate of the form "this practice is true" is defined within the system. In particular:

- Truth is not evaluated globally across $\mathcal{M}(\mathcal{A})$.
- Admissibility is relative to axioms, not a truth predicate.
- Multiple admissible models may coexist without semantic reconciliation.

These features are direct consequences of Axiom 3.5 (Non-Finality) and Axiom 3.4 (Plural Validity).
Theorem 8.2 (Tarski Robustness)**.** *The axiomatization $\mathcal{A}$ admits no internal global truth predicate.*

Proof. Assume, for contradiction, that there exists an internal predicate True that assigns a truth value to all admissible practices or formulations. Such a predicate would necessarily privilege a global semantic evaluation across $\mathcal{M}(\mathcal{A})$. This contradicts Axiom 3.5, which forbids global finality, and Axiom 3.4, which permits incompatible admissible models. Therefore no such predicate can exist. □

By construction, the axiomatization avoids the conditions under which Tarski's undefinability theorem would arise.

8.5 Immunity to Diagonalization

Gödel-style diagonal arguments rely on the existence of a single formal language with a uniform semantic interpretation. In the present framework, semantic interpretation is context-indexed (Axiom 3.1) and model-relative. There is no uniform interpretation function across all admissible models.

Theorem 8.3 (Diagonalization Immunity)**.** *No self-referential contradiction of Gödel type can be constructed within $\mathcal{N}$.*

Proof. Diagonalization requires a uniform encoding of syntactic objects and a global semantic interpretation. In $\mathcal{N}$, neither requirement is satisfied. Contextual normativity prevents uniform interpretation, and plural admissibility prevents global semantic closure. Consequently, no diagonal sentence asserting its own non-admissibility can be formed. □

8.6 Meta-Consistency Without Object-Level Consistency

Finally, we distinguish between object-level consistency and meta-level coherence.

Definition 8.1 (Meta-Consistency)**.** The axiomatization $\mathcal{A}$ is *meta-consistent* if the admissible model class $\mathcal{M}(\mathcal{A})$ remains non-empty under extension and reinterpretation.

Theorem 8.4 (Meta-Consistency Theorem)**.** *The axiomatization $\mathcal{A}$ is meta-consistent even though object-level consistency across all admissible models is neither assumed nor required.*

Proof. Meta-consistency follows directly from the closure of $\mathcal{M}(\mathcal{A})$ under tagged sums (Lemma 6.1) and from the absence of any requirement enforcing reconciliation or elimination of incompatible models. Object-level inconsistency does not imply collapse (Theorem 6.3); hence meta-consistency is preserved. □

8.7 Summary

The axiomatization is Gödel–Tarski robust not because it escapes foundational limitations, but because it is designed in full recognition of them. By abandoning global derivability, internal truth predicates, and claims of completeness, the framework remains structurally expressive without triggering incompleteness or undefinability. Robustness here is therefore a consequence of architectural restraint rather than logical evasion.

9 Methodological Implications

The axiomatization developed in this paper has implications that extend beyond the particular normative system under study. These implications are methodological rather than doctrinal. They concern how axiomatization itself should be approached when the object of study lacks canonical authority, centralized enforcement, or global consistency.

9.1 Axiomatization Without Canon

Classical axiomatization typically presupposes a fixed corpus of authoritative statements from which axioms are distilled. The present work demonstrates that such a presupposition is not necessary. Instead, axioms may be induced from persistent structural features of practice, provided those features are sufficiently stable and well-documented.

In this approach, axioms do not encode content but constrain admissibility. Their role is to delimit the space of possible models rather than to generate a closed deductive theory. This shift allows axiomatization to remain meaningful even when no canonical text or final formulation exists.

9.2 Model-Theoretic Evaluation of Normative Systems

Treating practices as models rather than conclusions has two important consequences. First, evaluation shifts from internal derivability to external adequacy: a practice is assessed by whether it satisfies the axioms, not by whether it can be derived from them. Second, plural admissibility becomes a structural property rather than a defect to be repaired.

This model-theoretic stance aligns normative analysis with established practice in logic and foundations, where axioms define classes of structures rather than single intended models. It also provides a principled way to accommodate diversity without relativism, since admissibility remains constrained by axioms.

9.3 Structural Rather Than Propositional Falsifiability

The falsifiability criteria developed in Section 7 illustrate a broader methodological point: axiomatic frameworks for open systems should be falsifiable at the level of structure rather than proposition. Failure occurs when the axioms can no longer sustain a non-empty or stable model class consistent with observed practice.

This notion of falsifiability is particularly suited to long-lived normative systems, where predictive precision is neither feasible nor desirable. Instead, robustness under extension and reinterpretation becomes the primary evaluative criterion.

9.4 Foundational Restraint as a Design Principle

The Gödel–Tarski robustness results in Section 8 highlight a general design principle: axiomatizations of rich normative domains should avoid commitments to internal completeness, global truth predicates, or canonical derivations. Such commitments are not merely difficult to justify; they are structurally incompatible with openness and plurality.

Foundational restraint—explicitly declining to assert what cannot be maintained—emerges here not as a limitation but as a source of robustness. By refusing closure, the axiomatization remains stable under growth, reinterpretation, and internal diversity.

9.5 Generalizability

Although this paper focuses on a specific normative system, the methodology is not system-specific. Any domain characterized by long-term persistence, decentralized authority, and internal plurality may be amenable to a similar treatment. The essential requirements are the availability of empirically observable structural features and a willingness to evaluate axioms by model adequacy rather than deductive power.

In this sense, the present work contributes not a theory of belief or practice, but a framework for axiomatizing openness itself.

9.6 Summary

The methodological implications of this work can be summarized as follows: axiomatization need not presuppose canon, completeness, or uniformity; practices may be treated as admissible models rather than derived conclusions; falsifiability may be structural rather than propositional; and foundational restraint can enhance rather than diminish robustness. These principles together define a viable approach to axiomatizing normative systems that resist closure.

10 Conclusion

This paper set out to address a specific foundational question: whether a long-lived normative system lacking canonical authority, centralized enforcement, and global doctrinal consistency can nevertheless admit a rigorous axiomatization. By treating Hinduism strictly as an object of structural analysis, we developed an inductive axiom set $\mathcal{A}$ derived from empirically observable features, introduced a model-theoretic semantics in which practices are interpreted as admissible models, and proved a collection of non-trivial structural theorems governing the resulting model class $\mathcal{M}(\mathcal{A})$.

The central result is that openness is not an obstacle to axiomatization. On the contrary, non-finality, contextual normativity, and plural admissibility impose strong structural constraints. From these constraints follow inevitabilities: the impossibility of canonical finalization, the necessity of non-isomorphic admissible models, persistence without global consistency, absorptive stability under extension, and the impossibility of stable exclusive schism. These properties are not postulated; they are forced by the axioms.

The framework is falsifiable by construction. Canonical finality, mandatory doctrinal uniformity, collapse under inconsistency, or stable exclusive partition would each invalidate the axiomatization. Its continued adequacy therefore depends not on agreement with doctrine, but on the ongoing existence of a non-empty and stable admissible model class consistent with observed practice.

Finally, the axiomatization is shown to be robust with respect to classical meta-logical limitations. By design, it avoids global derivability, internal truth predicates, and claims of completeness, and therefore does not trigger Gödel-style incompleteness or Tarski-style undefinability. Robustness here is achieved not by evasion, but by architectural restraint.

The contribution of this work is thus methodological rather than doctrinal. It demonstrates that axiomatization remains meaningful for normative systems that resist closure, provided axioms are evaluated by their capacity to delimit admissible models rather than to generate exhaustive conclusions. More broadly, it suggests that openness itself can be a subject of rigorous formal analysis, without reduction to relativism or loss of explanatory power.

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