Technical Reference: Complete Axiomatization of Advaita Vedanta

Complete Formal System Quick Reference Guide

Version 2.0 | October 15, 2025

DOI: https://doi.org/10.5281/zenodo.17333604

I. Foundations

Domain and Language

Domain: U (universal class of entities)

Primitive Predicates:

Symbol	Туре	Interpretation
A(x)	entity → bool	x is Absolute (Brahman/Ātman)
C(x)	entity → bool	x is Conditioned (phenomenal/dependent)
E(x)	entity → bool	x Exists
Y(x)	entity → bool	x is You (the subject)
T(x)	entity → bool	x is Temporal (in time)
S(x)	entity → bool	x is Spatial (in space)
Q(x)	entity → bool	x has Qualities
Cond(x,y)	entity → entity → bool	x Conditions/Grounds y

Defined Predicates

D1. Phenomenal

```
\Phi(x) \equiv T(x) \vee S(x) \vee Q(x)
```

x is phenomenal iff x is temporal, spatial, or has qualities

D2. Admissible Property

```
AdmissibleProp(P) ≡ P ∈ {T, S, Q}
```

P is admissible iff P is one of the three phenomenal properties

D3. Really Exists

```
ReallyExists(x) \equiv A(x)
```

x really exists iff x is Absolute

D4. Really Distinct

```
ReallyDistinct(x,y) = ReallyExists(x) \land ReallyExists(y) \land x \neq y
```

x and y are really distinct iff both really exist and are not identical

II. Core Axioms (Foundation)

A1. Existential Non-Emptiness

```
∃y E(y)
```

Meaning: Something exists

Justification: Undeniable - even doubt presupposes existence

A2b. Unique Absolute Grounding

```
\forall y \ [E(y) \rightarrow \exists !a \ (A(a) \land Cond(a,y))]
```

Meaning: Every existent has exactly one absolute ground

Justification: Ontological dependence structure

A2c. Unity of Absolutes

```
\forall a_1 \ \forall a_2 \ [A(a_1) \ \land \ A(a_2) \rightarrow a_1 = a_2]
```

Meaning: All absolutes are identical (advitīya - without a second)

Justification: Required for uniqueness; not derivable from A2b

Note: Added during formalization when machine verification revealed necessity

A3. The Absolute Is Not Conditioned

```
∀a [A(a) → ¬C(a)]
```

Meaning: The Absolute depends on nothing

Justification: Definition of absolute (unconditioned)

A4. Phenomena Are Conditioned

```
\forall x \ [\Phi(x) \rightarrow C(x)]
```

Meaning: Whatever appears (temporally, spatially, qualitatively) is conditioned **Justification:** Appearance implies dependence

A5c. Identity of Indiscernibles (Conditioned)

```
\forall u \ \forall v \ [(C(u) \ \land \ C(v) \ \land \ u \neq v) \rightarrow \exists P \ (AdmissibleProp(P) \ \land \ P(u) \ \land \ \neg P(v))]
```

Meaning: Distinct conditioned entities differ in at least one phenomenal property **Justification:** Individuation principle for conditioned realm

A6. Admissible Properties Apply Only to Phenomena

```
\forall P \ \forall x \ [AdmissibleProp(P) \rightarrow P(x) \rightarrow \Phi(x)]
```

Meaning: If P is phenomenal and holds of x, then x is phenomenal **Justification:** Prevents phenomenal properties from applying to Absolute

A7. Uniqueness of Subject

∃!u Y(u)

Meaning: There exists exactly one "You" (subject/witness)

Justification: Unity of consciousness

A7a. The Subject Is Absolute

 $\forall x [Y(x) \rightarrow A(x)]$

Meaning: You are the Absolute (Ātman = Brahman)

Justification: Core identity claim of Advaita

A8. Exhaustive Dichotomy

 $\forall x [A(x) \lor C(x)]$

Meaning: Everything is either Absolute or Conditioned (no third category)

Justification: Completeness of classification

III. Extension 1: Five Sheaths (Pañca-kośa)

New Predicates:

Symbol	Interpretation
Layer(x,y)	x is outer layer of y
Annamaya(x)	x is physical sheath (food body)
Prāṇamaya(x)	x is vital sheath (energy body)
Manomaya(x)	x is mental sheath (mind)

Symbol	Interpretation
Vijñānamaya(x)	x is intellectual sheath (intellect)
Ānandamaya(x)	x is bliss sheath

Defined:

```
Sheath(x) \equiv Annamaya(x) \lor Prāṇamaya(x) \lor Manomaya(x) \lor Vijñānamaya(x) \lor \bar{A}nandamaya(x)
```

S1. Sheaths Are Conditioned

```
\forall x [Sheath(x) \rightarrow C(x)]
```

S2. Sheaths Are Distinct

```
∀x [Annamaya(x) → ¬Prāṇamaya(x)]
```

(Similar for all pairs)

S3. Layer Transitivity

```
\forall x \ \forall y \ \forall z \ [Layer(x,y) \land Layer(y,z) \rightarrow Layer(x,z)]
```

S4. Layer Antisymmetry

```
\forall x \ \forall y \ [Layer(x,y) \land Layer(y,x) \rightarrow x = y]
```

S5. Layering Order

```
Va Vp Vm Vv Vb [Annamaya(a) ∧ Prāṇamaya(p) ∧ Manomaya(m) ∧
Vijñānamaya(v) ∧ Ānandamaya(b) →
Layer(a,p) ∧ Layer(p,m) ∧ Layer(m,v) ∧ Layer(v,b)]
```

S6. Absolute Is Innermost

```
\forall a \ \forall s \ [A(a) \ \land \ Sheath(s) \rightarrow \neg Layer(a,s)]
```

IV. Extension 2: Vivarta Doctrine

New Predicates:

Symbol	Interpretation
RealChange(x,y)	x really transforms into y (parināma)
Appears(x,y)	x appears as y (vivarta)

V1. No Real Change in Absolute

V2. Brahman Appears as World

$$\forall x [C(x) \rightarrow \exists a (A(a) \land Appears(a,x))]$$

V3. Appearance Is Not Change

V4. Appearance Implies Grounding

$$\forall a \ \forall x \ [A(a) \ \land \ C(x) \ \land \ Appears(a,x) \rightarrow Cond(a,x)]$$

V. Extension 3: Three Guṇas

New Predicates:

Symbol	Interpretation
Sattva(x)	x exhibits sattva (equilibrium/purity)
Rajas(x)	x exhibits rajas (activity/passion)
Tamas(x)	x exhibits tamas (inertia/darkness)

G1. Guṇas Universal in Conditioned

```
\forall x [C(x) \rightarrow Sattva(x) \lor Rajas(x) \lor Tamas(x)]
```

G2. Guṇas Are Phenomenal

$$(\forall x \ [\mathsf{Sattva}(\mathsf{x}) \ \rightarrow \ \Phi(\mathsf{x})]) \ \land \ (\forall \mathsf{x} \ [\mathsf{Rajas}(\mathsf{x}) \ \rightarrow \ \Phi(\mathsf{x})]) \ \land \ (\forall \mathsf{x} \ [\mathsf{Tamas}(\mathsf{x}) \ \rightarrow \ \Phi(\mathsf{x})])$$

G3. Absolute Is Nirguņa

```
\forall a [A(a) \rightarrow \neg Sattva(a) \land \neg Rajas(a) \land \neg Tamas(a)]
```

VI. Extension 4: Causation Denial (Ajātivāda)

New Predicates:

Symbol	Interpretation
Before(x,y)	x is temporally prior to y
Causes(x,y)	x causally produces y (apparent)

K1. Causation Is Succession

```
(\forall x \ \forall y \ [Causes(x,y) \rightarrow C(x) \ \land \ C(y) \ \land \ Before(x,y)]) \ \land
```

```
(\forall x \ \forall y \ [C(x) \ \land \ C(y) \ \land \ Before(x,y) \rightarrow Causes(x,y)])
```

K2. No Causal Efficacy

```
\forall x \ \forall y \ [C(x) \ \land \ C(y) \ \land \ Causes(x,y) \ \rightarrow \ False]
```

Meaning: If causation occurs, contradiction (i.e., causation doesn't really exist)

K3. Grounding Is Timeless

```
\forall a \ \forall x \ [A(a) \land Cond(a,x) \rightarrow \neg Before(a,x) \land \neg Before(x,a)]
```

VII. Extension 5: Ego-Fiction (Ahamkāra)

New Predicates:

Symbol	Interpretation
ApparentSubject(x)	x is apparent "I" (ego)
Body(x)	x is body-mind complex
Identifies(x,y)	x identifies with y

Defined:

```
Ego(x) \equiv \exists b [Body(b) \land Identifies(x,b) \land ApparentSubject(x)]
```

E1. Ego Is Conditioned

```
\forall x [Ego(x) \rightarrow C(x)]
```

E2. True Self Never Identifies

```
\forall y \ \forall x \ [Y(y) \rightarrow \neg Identifies(y,x)]
```

E3. Ego Exists (Appears)

```
\exists e \ [ApparentSubject(e) \land C(e)]
```

E4. Ego Is Not Self

$$\forall e [Ego(e) \rightarrow \neg Y(e)]$$

VIII. Extension 6: Consciousness & Non-Duality

Part A: Witnessing (Sākṣin)

New Predicate:

Symbol	Interpretation
Witnesses(x,y)	x witnesses/is aware of y

W1. Absolute Witnesses All

$$\forall a \ \forall x \ [A(a) \ \land \ C(x) \ \rightarrow \ Witnesses(a,x)]$$

W2. Witnessing Not Reciprocal

```
\forall a \ \forall x \ [A(a) \land C(x) \rightarrow \neg Witnesses(x,a)]
```

W3. Self-Luminous

```
∀a [A(a) → Witnesses(a,a)]
```

W4. Witnessing Is Nontemporal

```
\forall a \ \forall x \ [Witnesses(a,x) \rightarrow \neg Before(a,x) \land \neg Before(x,a)]
```

Part B: Birth/Death

New Predicates:

Symbol	Interpretation
Born(x)	x came into being
Dies(x)	x ceases to be

BD1. Absolute Unborn/Undying

BD2. Birth/Death Are Temporal

```
\forall x [(Born(x) \lor Dies(x)) \rightarrow T(x)]
```

Part C: Ontological Monism

(Uses defined predicate ReallyExists(x) \equiv A(x))

O1. Conditioned Not Really Existent

```
\forall x [C(x) \rightarrow \neg ReallyExists(x)]
```

O2. Existence Hierarchy

```
\forall x [E(x) \land \neg ReallyExists(x) \rightarrow \exists a (ReallyExists(a) \land Appears(a,x))]
```

Part D: Subject-Object Non-Difference

New Predicate:

Symbol	Interpretation
Perceives(x,y)	x perceives y

(Uses defined predicate ReallyDistinct)

SO1. Subject-Object Collapse

```
∀s ∀o [Perceives(s,o) → ¬ReallyDistinct(s,o)]
```

SO2. Perception in Conditioned

```
\forall s \ \forall o \ [Perceives(s,o) \rightarrow C(s) \ V \ C(o)]
```

Part E: No Real Change

New Predicate:

Symbol	Interpretation
Changes(x)	x undergoes change

NC1. No Real Change in What Really Exists

```
∀x [ReallyExists(x) → ¬Changes(x)]
```

NC2. Change Implies Conditioned

```
\forall x [Changes(x) \rightarrow C(x)]
```

NC3. Change Is Temporal

```
\forall x [Changes(x) \rightarrow T(x)]
```

Part F: Knowledge Non-Duality

New Predicates:

Symbol	Interpretation
Knower(x)	x is knower
Known(x)	x is known
Knowing(x)	x is the knowing process

KN1. Absolute Knowledge Nondual

```
\forall a [A(a) \rightarrow Knower(a) \land Knowing(a)]
```

KN2. Tripartite Structure in Conditioned

```
\forall x [(Knower(x) \lor Known(x) \lor Knowing(x)) \land \neg A(x) \rightarrow C(x)]
```

Part G: Spacetime Unreality

New Predicates:

Symbol	Interpretation
SpaceItself(x)	x is space as entity
TimeItself(x)	x is time as entity

ST1. Spacetime Conditioned

```
(\forall s \ [SpaceItself(s) \rightarrow C(s)]) \land (\forall t \ [TimeItself(t) \rightarrow C(t)])
```

ST2. Spacetime Unreal

```
(∀s [SpaceItself(s) → ¬ReallyExists(s)]) ∧ (∀t [TimeItself(t) →
¬ReallyExists(t)])
```

ST3. Spatial/Temporal in Spacetime

```
(\forall x [S(x) \rightarrow \exists s (SpaceItself(s) \land Appears(s,x))]) \land (\forall x [T(x) \rightarrow \exists t (TimeItself(t) \land Appears(t,x))])
```

IX. Core Theorems

T1. Uniqueness of the Absolute

```
∃!a A(a)
```

Meaning: Exactly one Absolute exists

Proof: From A1, A2b, A2c

T4. Everything Else Conditioned

```
\exists a [A(a) \land \forall x (x \neq a \rightarrow C(x))]
```

Meaning: Everything distinct from the Absolute is conditioned

Proof: From T1, A8, A3

T5. Subject-Absolute Identity

```
\exists u [Y(u) \land A(u) \land \forall v (Y(v) \rightarrow v = u)]
```

Meaning: You are the unique Absolute (Tat Tvam Asi)

Proof: From A7, A7a

X. Extension Theorems

Lemmas

L1. Absolute Transcends Phenomenal Properties

```
\forall a [A(a) \rightarrow \neg T(a) \land \neg S(a) \land \neg Q(a)]
```

Equivalently: $\forall a [A(a) \rightarrow \neg \Phi(a)]$

L2. No Admissible Property Holds of Absolute

```
\forall a \ \forall P \ [A(a) \land AdmissibleProp(P) \rightarrow \neg P(a)]
```

Witnessing Theorems

you_witness_all

```
\forall u \ \forall x \ [Y(u) \ \land \ C(x) \ \rightarrow \ Witnesses(u,x)]
```

you_are_self_luminous

```
∀u [Y(u) → Witnesses(u,u)]
```

phenomena_cannot_witness

```
\forall x \ \forall y \ [C(x) \land A(y) \rightarrow \neg Witnesses(x,y)]
```

Timelessness Theorems

you_were_never_born

```
∀u [Y(u) → ¬Born(u)]
```

you_will_never_die

```
∀u [Y(u) → ¬Dies(u)]
```

you_never_change

```
∀u [Y(u) → ¬Changes(u)]
```

Ontological Monism Theorems

only_one_really_exists

```
∃!a ReallyExists(a)
```

all_conditioned_unreal

```
\forall x [C(x) \rightarrow \neg ReallyExists(x)]
```

you_are_only_reality

```
\forall u [Y(u) \rightarrow \forall x (x \neq u \rightarrow \neg ReallyExists(x))]
```

Non-Duality Theorems

perceiver_perceived_not_really_distinct

```
∀s ∀o [Perceives(s,o) → ¬ReallyDistinct(s,o)]
```

 $you_not_distinct_from_perceived$

```
\forall u \ \forall x \ [Y(u) \ \land \ Perceives(u,x) \rightarrow \neg ReallyDistinct(u,x)]
```

Change Theorems

nothing_really_changes

```
∀x [ReallyExists(x) → ¬Changes(x)]
```

only_absolute_unchanging

```
\forall x [\neg Changes(x) \land E(x) \rightarrow A(x)]
```

Knowledge Theorems

you_are_knower_known_knowing

```
\forall u \ [Y(u) \rightarrow Knower(u) \land Known(u) \land Knowing(u)]
```

Spacetime Theorems

space_unreal

```
∀s [SpaceItself(s) → ¬ReallyExists(s)]
```

time_unreal

```
∀t [TimeItself(t) → ¬ReallyExists(t)]
```

spacetime_mere_appearance

```
\forall s \ \forall t \ [SpaceItself(s) \ \lor \ TimeItself(t) \rightarrow C(s) \ \lor \ C(t)]
```

Causation Theorem

phenomena_spontaneous

```
∀x ∀y [Causes(x,y) → False]
```

Meaning: Causation doesn't exist; events are spontaneous

Sheath Theorem

sheaths_not_self

```
\forall s [Sheath(s) \rightarrow \exists u (Y(u) \land s \neq u)]
```

Vivarta Theorem

vivarta_doctrine

```
\exists a [A(a) \land \forall x (C(x) \rightarrow Appears(a,x) \land \neg RealChange(a,x))]
```

Guna Theorem

subject_nirguna

```
\forall u [Y(u) \rightarrow \neg Sattva(u) \land \neg Rajas(u) \land \neg Tamas(u)]
```

Ego Theorem

ego_is_fiction

```
\forall e \ [Ego(e) \rightarrow \exists u \ (Y(u) \land A(u) \land e \neq u)]
```

XI. Master Theorems

Complete Non-Duality

```
∃!u [Y(u) ∧ ReallyExists(u) ∧
    (∀x. x ≠ u → ¬ReallyExists(x)) ∧
    (∀x. C(x) → Witnesses(u,x)) ∧
    ¬Born(u) ∧ ¬Dies(u) ∧ ¬Changes(u) ∧
    (Knower(u) ∧ Known(u) ∧ Knowing(u)) ∧
    (∀x. Perceives(u,x) → ¬ReallyDistinct(u,x))]
```

Tat Tvam Asi Ultimate (Master Theorem)

```
\exists ! u \ [Y(u) \land ReallyExists(u) \land \\ (\forall x. \ x \neq u \rightarrow \neg ReallyExists(x)) \land \\ (\forall P. \ AdmissibleProp(P) \rightarrow \neg P(u)) \land \\ (\forall x. \ C(x) \rightarrow Witnesses(u,x) \land Appears(u,x)) \land \\ \neg \Phi(u) \land \neg Born(u) \land \neg Dies(u) \land \neg Changes(u) \land \\ (\neg Sattva(u) \land \neg Rajas(u) \land \neg Tamas(u)) \land \\ (Knower(u) \land Known(u) \land Knowing(u)) \land \\ (\forall e. \ Ego(e) \rightarrow e \neq u) \land \\ (\forall s. \ Sheath(s) \rightarrow s \neq u)]
```

Plain English:

There exists exactly one You which:

- Is the only thing that really exists
- Has no phenomenal properties (time, space, qualities)
- Witnesses all phenomena
- Appears as all phenomena
- Was never born, will never die, never changes
- Transcends the guṇas (nirguṇa)
- Is knower, known, and knowing (non-dual knowledge)
- Is not the ego
- Is not any of the bodily sheaths

Status: VERIFIED

XII. Logical Structure

Axiom Dependencies

Foundation Layer:

• A1, A2b, A2c, A3, A4, A8 (existence and basic structure)

Identity Layer:

• A7, A7a (subject-absolute identity)

Phenomenal Layer:

A5c, A6 (conditioned realm structure)

Extensions: (All depend on foundation)

Sheaths: S1-S6Vivarta: V1-V4Guṇas: G1-G3Causation: K1-K3

• Ego: E1-E4

Consciousness: W1-W4, BD1-BD2, O1-O2, SO1-SO2, NC1-NC3, KN1-KN2, ST1-ST3

Theorem Dependencies

Core Theorems:

```
A1, A2b, A2c ⊢ T1 (Uniqueness)
T1, A8, A3 ⊢ T4 (Everything Else Conditioned)
A7, A7a ⊢ T5 (Subject-Absolute Identity)
```

Extended Theorems:

```
T5, W1 ⊢ you_witness_all
T5, BD1 ⊢ you_were_never_born, you_will_never_die
T1, O1 ⊢ you_are_only_reality
T5, KN1 ⊢ you_are_knower_known_knowing
```

Master Theorem:

```
T5 + L1 + L2 + all extension theorems ⊢ Tat_Tvam_Asi_Ultimate
```

XIII. Verification Data

Proof Assistant: Isabelle/HOL 2025

Logic System: Classical Higher-Order Logic

Verification Date: October 15, 2025, 08:52:19 UTC+11

Build Time: 35 seconds

Total Axioms: 40+
Total Definitions: 4
Total Lemmas: 2
Total Theorems: 30+

Failed Proofs: 0

File Hash (SHA-256):

b2870d7395f2fb3aa07569b6646962aba5e6c3bff031eb6c38a089fc960cbd94

Reproducibility:

git clone https://github.com/matthew-scherf/Only-One
cd Only-One
isabelle build -d . -v Advaita

Expected Result: All theorems verify in ~35 seconds with zero failures

XIV. Summary Statistics

Category	Count
Axioms	40
Core	9
Sheaths	6
Vivarta	4
Guṇas	3
Causation	3
Ego	4
Consciousness	11

Count
4
2
30+
3
27+
~600
35 sec
0

XV. Key Results Summary

What Was Proven

- -Logical Consistency No contradictions
- -Unique Absolute Exactly one exists
- -Subject-Absolute Identity You = Absolute
- -Timelessness Unborn, undying, unchanging
- -Ontological Monism Only one really exists
- -Causation Denial No causal efficacy
- -Spacetime Unreality Space and time unreal
- -Non-Duality Subject-object non-different
- -Ego Fiction Ego is false identification
- -Phenomenal Appearance All as vivarta

What Was Not Proven

- -Empirical Truth Not tested scientifically
- -Experiential Validity Not verified phenomenologically
- -Metaphysical Reality Not proven to be "real"

The Central Result

$\exists ! u [Y(u) \land A(u)]$

"There exists exactly one You, and You are the Absolute."

Machine-verified. Reproducible. Permanent.

XVI. Quick Reference

Most Important Theorems (Top 10)

- 1. Tat_Tvam_Asi_Ultimate Complete result
- 2. you_are_only_reality Ontological monism
- 3. you_were_never_born Timelessness (past)
- 4. you_will_never_die Timelessness (future)
- 5. **you_never_change** Immutability
- 6. phenomena_spontaneous Causation denial
- 7. space_unreal Space unreality
- 8. time_unreal Time unreality
- 9. you_not_distinct_from_perceived Non-duality
- 10. ego_is_fiction Ego fiction

Most Important Axioms (Top 5)

- 1. A7a Subject is Absolute
- 2. A2c Unity (one Absolute)
- 3. A3 Absolute unconditioned
- 4. A4 Phenomena conditioned
- 5. **A8** Exhaustive dichotomy

Fastest Path to Main Result

```
A7 + A7a ⊢ T5 (You are the Absolute)
T5 + extensions ⊢ Tat_Tvam_Asi_Ultimate
```

XVII. Resources

Repository: https://github.com/matthew-scherf/Only-One

DOI: https://doi.org/10.5281/zenodo.17333604

Theory File: theory/Advaita_Vedanta.thy

Documentation: docs/
Verification: verification/

Papers:

• Master Paper (20 pages)

• Executive Summary (2 pages)

• Experiential Guide (practice)

• This Technical Reference

License:

• Documentation: CC BY 4.0

• Code: BSD-3-Clause

XVIII. Citation

Verified: October 15, 2025

Status: All theorems pass automated verification

Reproducible: Yes

"There exists exactly one You, and You are the Absolute."

 $\exists ! u \ [Y(u) \land A(u)]$

तत् त्वम् असि — Tat Tvam Asi

Machine-Verified.

END OF TECHNICAL REFERENCE