

Logic Appendix — Relational Ontology Framework

SubMetaphysics.org

Version 1.5.6, May 2025

Prologue: Structure and Aim

This appendix integrates two tiers of logical formalism. Part I formalizes the ontological and epistemic framework that grounds moral reality in divine being. Part II models the moral-volitional dynamics of grace, conscience, suppression, and apostasy—clarifying key distinctions between prevenient and sanctifying grace, and distancing this framework from both Calvinist determinism and Arminian enablement.

Part I — Ontological and Epistemic Grounding

1. Sorts

- G — the unique Divine Being
- P — human or angelic persons (moral agents)
- K — created kinds (types/categories)

2. Core Predicates and Operators

- $V(x, y)$: x assigns intrinsic value to y
- $Instantiates(x, y)$: x brings ontological type y into being
- $Confronts(x, a, \varphi)$: x awakens agent a to moral content φ
- $C(a, \varphi)$: agent a stands in covenantal relation to φ
- $D_a\varphi$: agent a ought (deontically) to do/believe φ
- $\Box_K\varphi$: φ is necessarily true within kind K
- $Know_a\varphi$: agent a knows that φ
- φ^τ : typophoric reference to a real abstract type
- $OntType(y)$: y is a real ontological type
- $Ground_K(\varphi)$: modal ground from which φ follows for kind K

3. Axioms

- A1. $\forall y (OntType(y) \rightarrow \exists g (G(g) \wedge Instantiates(g, y)))$
- A2. $\forall a \forall \varphi (MoralAwakening(a, \varphi) \rightarrow \exists g (G(g) \wedge Confronts(g, a, \varphi)))$
- A3. $\forall g \forall g' ((G(g) \wedge G(g')) \rightarrow g = g')$
- A4. $\forall y (\exists x V(x, y) \rightarrow \exists g (G(g) \wedge V(g, y)))$
- A5. $\forall a \forall \varphi (C(a, \varphi) \wedge V(G, \varphi) \rightarrow \Box_K \varphi)$
- A6. $V(G, \varphi) \wedge C(a, \varphi) \rightarrow D_a \varphi$
- A7. $D_a \varphi \rightarrow D_a (Know_a \varphi)$
- A8. $Know_a \varphi \rightarrow \varphi$

4. Existence Axioms

- E1. $\exists y OntType(y)$
- E2. $\exists a \exists \varphi MoralAwakening(a, \varphi)$

5. Inference Rules

- Standard natural deduction
- Grounded Modal Rule (M-Ground): if $\varphi \in Ground_K(\varphi)$, then $\Box_K \varphi$
- Covenantal Deontic Rule: from $C(a, \varphi)$ and $V(G, \varphi)$ infer $D_a \varphi$

6. Sample Theorem

Relational Fidelity: If $V(G, \varphi)$ and $C(a, \varphi)$ then $D_a(\varphi \wedge Know_a \varphi)$.

7. Typophora Constraints and Validation

- **A12.** $\varphi^\tau \rightarrow (OntType(\varphi) \wedge \exists g (G(g) \wedge Instantiates(g, \varphi)))$
- **Definition.** $PseudoType(\varphi) \neg \exists g (G(g) \wedge Instantiates(g, \varphi))$
- **IR6.** $Instantiates(g, \varphi) \rightarrow \varphi^\tau$
- **IR7.** $\neg Instantiates(g, \varphi) \rightarrow \neg \varphi^\tau$

Note: Typophoric validity is not determined by human culture or consensus, but by correspondence to divine instantiation as revealed in Scripture.

For a complete glossary of terms, predicates, and typophoric categories, see the centralized project glossary at SubMetaphysics.org.

Part II — Grace, Conscience, and Moral Response

1. Core Predicates

- $D(a)$: a possesses the Deontic Modal Unit (DMU)
- $A(a)$: a apprehends the moral ought
- $S(a)$: a suppresses the apprehension (volitionally)
- $Gp(a)$: prevenient grace confronts a
- $R(a)$: a responds in moral alignment
- $Gs(a)$: sanctifying grace operative in a
- $\Gamma(a)$: a is covenantally cooperating with sanctifying grace
- $F(a)$: a has fallen away (apostasy after grace)

The Experimental Character of Regeneration

Christianity is an experimental religion, not merely doctrinal or propositional. The Deontic-Modal (DM) Unit functions not as a static moral compass but as a dynamic relational interface by which God engages the soul through morally charged choice sets. Under the influence of sanctifying grace, the regenerate person is not merely judged by past allegiance but is continually shown whether they have a heart to do God's will. These confrontational moments—offered within covenant—serve not only as tests of allegiance but as disclosures of inward transformation. In this sense, the DM Unit undergirds a key aspect of theodicy: God justifies His judgments not only on belief or profession, but on how persons respond to real choices that reveal what they love. Sanctifying grace does not bypass the will; it reorients the will and then invites it to act. The moral record is therefore not one of coercion, but of revealed character.

2. Axioms

$$A9. Gs(a) \wedge \Gamma(a) \rightarrow R(a)$$

$$A10. Gs(a) \wedge \neg\Gamma(a) \rightarrow S(a)$$

3. Inference Rules

- IR1. $D(a) \rightarrow A(a)$
- IR2. $A(a) \wedge \neg S(a) \rightarrow R(a)$
- IR3. $Gp(a) \rightarrow \neg S(a)$
- IR4. $Gs(a) \wedge \neg\Gamma(a) \rightarrow F(a)$
- IR5. $Gs(a) \wedge \Gamma(a) \rightarrow \neg F(a)$

4. Existence Axioms

- E3. $\exists a D(a)$
- E4. $\exists a Gp(a)$

5. Additional Axiom

- A11. $R(a) \wedge Know_a \varphi \rightarrow D_a(L(a, \varphi) \wedge P(a, \varphi))$

Where:

- $L(a, \varphi)$: agent a loves the truth φ
- $P(a, \varphi)$: agent a prioritizes φ above worldly ends

Clarifying Prevenient Grace: Enablement vs. Confrontation

While classical Arminian theology understands prevenient grace as a divine enablement that removes moral incapacity, this framework reconceives it as a covenantal confrontation. Prevenient grace here is not a passive preparatory condition, but a morally charged event in which God confronts the person with ontologically real truth. The human agent is not merely made able to respond; the person is confronted with φ and must respond—either by relational alignment or by suppression. This model preserves resistibility but replaces enablement with encounter. Moral accountability arises not from abstract capacity, but from being placed into a volitional crisis in relation to God's revealed will. In this way, prevenient grace initiates not neutrality, but responsibility.

Lay Summary

- God initiates moral awareness by confronting the person with truth.
- The person chooses: align with or suppress this truth.
- If aligned, the genuine moral response to divine truth—truth that is not merely declared, but ontologically real and God-instantiated—entails not only acknowledgment, but love and prioritization.
- Suppressing truth results in a relational and epistemic rupture with moral order.
- A lack of love for revealed truth marks a misalignment with the moral order revealed by God, and leads to consequential disintegration of spiritual coherence.
- Only truths that are ontologically real—instantiated by God—can bind the conscience. Claims lacking divine instantiation are pseudo-types, morally illegitimate despite cultural or ideological power.

[Divine Confrontation] $\rightarrow$ [Moral Decision] $\rightarrow$ [Know] $\rightarrow$ [Love] $\rightarrow$ [Prioritize] $\rightarrow$ [Persevere]

Appendix: Anticipated Objections and Authorial Responses

This framework is neither a sermon nor a creed. It offers a foundational structure—logical and ontological—on which theological, ethical, and epistemological claims can be assessed. It aims to clarify, not coerce.

1. “Isn’t the framework circular? You presuppose the divine being and ontological types.”

Response: This framework explicitly grounds all being and knowledge in God, not as an arbitrary postulate but because no alternative system resolves the fourfold epistemic challenge: unity, diversity, epistemic correspondence, and moral authority. Competing models fail to meet all truth tests. This is not circular—it is ontologically anchored.

2. “Isn’t it unfair to obligate people to truth they haven’t heard?”

Response: Not all moral judgment is propositional. Those who have not known Christ by name may still be judged as having the Spirit of the Father (cf. Matthew 25). The model accounts for *moral alignment in spirit*, not merely *doctrinal familiarity*. It is a covenantal model, not a creedal gate-keeping.

3. “Axiom A11 makes love and prioritization sound performative or moralistic.”

Response: These are not arbitrarily commanded emotions—they are covenantal responses. God declares that righteousness and prioritization are linked (cf. “seek first the kingdom,” Matthew 6:33; cf. Parable of the Sower). The model reflects divine order, not moral performance.

4. “Prevenient grace sounds too forceful—does it override free will?”

Response: Not at all. Grace here is *confrontational*, not *coercive*. God awakens, but does not compel. This differs from classical Arminianism in emphasis, not in principle: moral awareness is initiated by God, and volitional response remains intact.

5. “Allowing apostasy undermines divine sovereignty.”

Response: Divine sovereignty is not diminished by volitional response—it is demonstrated in permitting it. Judgment presumes that agents can truly respond. If anything, permitting apostasy *enhances* sovereignty, for God brings about His consequent will without negating human agency. This appendix is not the place to develop that further, but the logic does not require determinism.

6. “Typophora isn’t fully formalized—how do we distinguish valid from pseudo types?”

Response: Typophora (φ^τ) marks real, God-instantiated abstract types (e.g. justice, mercy). Pseudo-types are excluded by *lack of divine instantiation*. God defines both the category and its modal ground. This is a cornerstone of the framework, to be developed further.

7. “Isn’t this too rigid or exclusive?”

Response: This is not rigid; it is *rooted*. It does not codify behavior but reveals moral ontology. It is a map of moral reality, not a demand for allegiance. Its invitation is clear: all who align with the moral order God reveals—regardless of creed or awareness—respond rightly.

Footnote. The calculus secures divine justice by modeling confrontation as relationally instantiated, obligation as DM-mediated, and judgment as disclosure of volitional alignment or suppression. See Appendix C for full theological exposition.

Relational-Submetaphysical Sequent Calculus

0. Overview

The calculus extends the ordinary Gentzen sequent system by

- a **posture index** $\gamma \in \{\varphi \text{ (reverent)}, \alpha \text{ (autonomous)}\}$ carried on the turnstile $\vdash_\gamma$;
- an **ADM annotation** $\langle A, D, M \rangle$ (axiological, deontic, modal) on every atomic type;
- a **legitimacy predicate** $\text{LegitType}(\tau)$ rejecting pseudo-types and lone $\Box_C$ forms.

A derivation is *covenantally valid* only when $\gamma = \varphi$ and every formula occurring in it satisfies LegitType .

1. Type Grammar

$\text{Base} ::= \text{Truth} \mid \text{Life} \mid \text{Justice} \mid \dots$

$\text{Ty} ::= \text{Base} \mid \text{Ty} \rightarrow \text{Ty} \mid \Box_O \text{Ty} \mid \Box_C \text{Ty} \mid \langle A, D, M \rangle \text{Ty}$

Legitimacy Predicate

$\text{LegitType}(\text{Base } b) := b \in \text{RevealedBases}$

$\text{LegitType}(\tau_1 \rightarrow \tau_2) := \text{LegitType}(\tau_1) \wedge \text{LegitType}(\tau_2)$

$\text{LegitType}(\Box_O \tau) := \text{LegitType}(\tau)$

$\text{LegitType}(\Box_C \tau) := \perp$

$\text{LegitType}(\langle A, D, M \rangle \tau) := \text{LegitType}(\tau)$

2. Inference Rules (all side-conditions $\gamma = \varphi$ & LegitType)

Identity (Id)

$$\frac{}{\Gamma, A:\tau \vdash_\varphi A:\tau, \Delta} \text{LegitType}(\tau)$$

Implication Right ($\rightarrow R$)

$$\frac{\Gamma, A \vdash_\varphi B}{\Gamma \vdash_\varphi A \rightarrow B} \rightarrow R$$

Cut

$$\frac{\Gamma \vdash_\varphi A \quad \Gamma', A \vdash_\varphi \Delta}{\Gamma, \Gamma' \vdash_\varphi \Delta} \text{Cut}$$

Ontological Necessitation ($\Box_O \text{Nec}$)

$$\frac{\Gamma \vdash_\varphi \tau}{\Gamma \vdash_\varphi \Box_O \tau} \text{LegitType}(\tau)$$

Constructed Necessity $\Box_C$ has *no* introduction rule. Any attempt to derive $\Box_C \tau$ directly is ill-typed.

3. Worked Proofs

3.1 Legitimate Example

Premise: $\Box_O \text{Justice}(p \rightarrow q)$ Goal: $\text{Justice}(p \rightarrow q)$

$$\frac{\Box_O \text{Justice}(p \rightarrow q)}{\text{Justice}(p \rightarrow q)} \Box_O\text{-Elim}$$

All types are legitimate, posture is φ , hence the sequent closes covenantally.

3.2 Illegitimate Example (Ontic Fraud)

Premise: $\Box_C \text{Affirm}(x)$ Goal: $\text{Affirm}(x)$

$$\frac{\Box_C \text{Affirm}(x)}{\text{Affirm}(x)} \Box_C\text{-Elim (syntactic)}$$

The derivation is syntactically correct, but $\text{LegitType}(\Box_C _)$ fails; therefore the sequent is **rejected** as an ontological fraud.

4. Meta-theoretic Notes

- **Soundness:** Every sequent derivable with $\gamma = \varphi$ and legitimate types is satisfied in every covenantal model.
- **Cut-elimination:** Holds for $\gamma = \varphi$; any proof with illicit posture or pseudo-types cannot invoke the rules.
- **Consistency:** No formula of the form $\Box_C _$ is provable from legitimate premises.

Moral Filtering and Ontological Admissibility in Logical Form

This logic is not merely syntactic. Every sequent operates under moral filtration.

A proposition cannot be treated as epistemically accessible or inferentially sound unless its referents are ontologically real and covenantally permitted. Thus, logical admissibility is constrained by typological legitimacy, and epistemic posture determines whether inference proceeds as revelation or simulation. This system affirms that truth is relationally disclosed, not neutrally derived, and logic is therefore not an abstract apparatus but a moral instrument.

Epistemic Access and Posture

The DM Unit functions as a gate of epistemic access. Only those morally aligned ($\gamma = \phi$) receive access to ontologically instantiated truth ($\text{Know}\phi$). Epistemic blindness is not a result of ignorance, but of volitional suppression. See A7–A8 and IR2–IR3.

Not all apparent coherence is valid. An emerging class of fallacy involves pseudo-referential simulation: when implicature, presupposition, or typophoric suggestion simulate logical force without ontological grounding.

These arguments appear sound but operate through discursive fraud—they rely on uninstantiated types or unauthorized claims of necessity (■C). The system detects this via the failure of LegitType and the $\gamma \neq \phi$ posture. These arguments appear sound but operate through discursive fraud—they rely on uninstantiated types or unauthorized claims of necessity (■C). The system detects this via the failure of LegitType and the $\gamma \neq \phi$ posture.

Symbol and Operator Legend

- $\blacksquare\gamma$ — Sequent with epistemic posture γ (ϕ = reverent, α = autonomous)
- $\blacksquare O$ — Ontological Necessity
- $\blacksquare C$ — Constructed or Claimed Necessity (invalid without divine instantiation)
- τ — Typophoric expression referring to a real ontological type
- LegitType — Predicate validating ontological legitimacy

Note: ‘ $::=$ ’ denotes a syntactic definition of base types—non-reducible moral realities.