

The Logical Problem of Evil from a Paraconsistent Perspective

FABIO MAIA BERTATO

University of Campinas

fbertato@unicamp.br

ITALA M. LOFFREDO D'OTTAVIANO

University of Campinas

italaloffdotta@gmail.com

Abstract: The logical problem of evil challenges the coherence of theism by claiming that the existence of an omnipotent, omniscient, and omnibenevolent God is incompatible with the presence of evil. Within classical logic, such an incompatibility would entail triviality, since any contradiction triggers the principle *ex contradictione sequitur quodlibet*. This paper investigates the problem by focusing on the logical relation between contradiction, triviality, and theological reasoning. It begins by examining the role played by explosion in classical logic and by tracing the historical development of non-explosive approaches to inconsistency, culminating in contemporary paraconsistent logics. Against this background, a first-order classical system is presented in which omnipotence, omniscience, and omnibenevolence are defined in a minimal but precise way and combined with the empirical premise that evil exists. It is shown that, under these assumptions, no contradiction follows, and thus the logical problem of evil does not succeed in its strongest classical form. At the same time, the analysis highlights the vulnerability of such classical solutions: once stronger theological assumptions are introduced, contradiction again threatens to trivialize the theory. The paper then argues that paraconsistent logic provides a robust framework for formal natural theology, allowing tensions between divine attributes and evil to be articulated without collapse.

Keywords: Problem of evil, Paraconsistent logic, Classical logic, Formal natural theology, Contradiction, Triviality

1. Introduction

The relation between logic and theology has long been marked by tension.¹ On the one hand, logical analysis provides clarity and precision to theological discourse, exposing hidden assumptions and testing the coherence of doctrines. On the other hand, theology often confronts mysteries and paradoxes that strain the boundaries of formal reasoning. Few issues exemplify this tension as vividly as *the problem of evil*: the challenge of reconciling the divine attributes traditionally ascribed to God with the empirical reality of suffering and injustice (Mackie 1955; Plantinga 1974b; Wilks 2004).

From the perspective of the so-called classical logic, the difficulty is stark. Omnipotence, omniscience, and perfect goodness, when considered together with the existence of evil, seem to generate contradiction. Because classical logic equates contradiction with triviality due to the principle *ex contradictione sequitur quodlibet* (or *ex falso sequitur quodlibet*), nowadays also called *the principle of explosion*, such an outcome would not merely cast doubt on specific doctrines but would collapse the entire theological system into incoherence.

Classical defenses have sought to show that no genuine contradiction follows from a careful formulation of the divine attributes, and these efforts have convinced many that the so-called *logical problem of evil* has been resolved (cf. Plantinga 1974b; Howard-Snyder 2013). Yet the reliance on a strictly explosive framework ensures that the specter of trivialization never fully disappears.

More recent advances in non-classical logic invite a different approach. Paraconsistent logics weaken the link between inconsistency and triviality, making it possible to deal with contradictions without reducing the entire theory to absurdity. This development reopens the discussion of the problem of evil on new terms. Instead of asking only whether divine attributes and the existence of evil can be rendered consistent in the classical sense, one may also ask how they interact in a setting that tolerates contradiction without collapse (Carnielli et al 2007; D'Ottaviano 1990).

The aim of this paper is to explore this possibility. We first review the role of contradiction, explosion, and triviality in classical logic, and trace the historical path that led to the emergence of paraconsistent systems. We then turn to the problem of evil, presenting a formalization (system M) that defines the divine attributes and integrates the empirical premise of evil within classical first-order logic. The system shows that, under minimal assumptions, no outright inconsistency arises. Nevertheless, because it is framed in classical logic, any contradiction would still trivialize the theory. We therefore propose a shift to a paraconsistent setting, in which the definitions of omnipotence, omniscience, and

¹ See Bocheński (1965); and Leftow (1998).

omnibenevolence can be retained while contradictions - apparent or real - are treated as manageable features rather than fatal flaws.

In doing so, we do not claim to solve the problem of evil in a definitive sense, nor to suggest that paraconsistent approaches are necessarily superior to classical ones or that classical theodicies are deficient. Our aim is methodological: to show how the choice of logical framework shapes the scope of theological reasoning, and how paraconsistency may offer additional tools for investigating tensions that arise under stronger theological assumptions. Contradictions may remain, but they need not signal the end of the rationality of the discourse (da Costa *et al* 2007; D'Ottaviano 1990). Instead, they can mark the beginning of a more nuanced inquiry into the limits of logic, the nature of divinity, and the enduring challenge posed by the reality of evil.

2. Paraconsistent Logic

2.1. Contradiction, Explosion, and Trivialization

One of the cornerstones of the Western logical tradition is the formulation of the so-called “laws of thought,” generally attributed to Aristotle. Among them, the principle of identity, the principle of the excluded middle, and above all the principle of non-contradiction occupy a central position. In its classical form, the principle of non-contradiction states, among some justifications, that it is never possible to affirm both a proposition and its negation at the same time and under the same aspect. In contemporary symbolic notation this is expressed as the prohibition of $A \wedge \neg A$, that is, $\neg(A \wedge \neg A)$, where A is a proposition and $\wedge$ and $\neg$ denote respectively the conjunction and negation operators. Historically, this principle became a decisive foundation of rational discourse, shaping not only ancient philosophy but also the subsequent development of modern logic.

Classical logic, as it came to be called and systematized in the nineteenth and twentieth centuries (see, for instance, Shoenfield 1967), has as consequence of its axioms and rules of inference the principle traditionally referred to as *ex falso sequitur quodlibet* (from the false, anything follows), *ex impossibili sequitur quodlibet* (from the impossible, anything follows), *ex contradictione sequitur quodlibet* (from contradiction, anything follows), *Law of Pseudo-Scotus*, or nowadays also *Principle of Explosion* (see Gomes and D'Ottaviano, 2017, p. 33; D'Ottaviano and Gomes 2020a, pp. 144 and 165).² According to this principle, once a contradiction, or a falsity, is admitted, any proposition whatsoever becomes derivable, i.e., it can be proved. Formally, if both A and $\neg A$ hold, then for any arbitrary proposition B it follows that B is derivable - symbolically, $A \rightarrow (\neg A \rightarrow B)$ or equivalently $(A \wedge \neg A) \rightarrow B$.

² Hereafter, referred to as the *ex falso* principle or simply *ex falso*.

$\rightarrow B$, where $\rightarrow$ denotes the conditional. This phenomenon is nowadays known as *explosion*.

Let us recall that a theory, in whose language there is a symbol for negation (for instance, “ $\neg$ ”), is *inconsistent* if there is a formula A of its language, such that A and $\neg A$ are theorems; otherwise, it is *consistent*. A theory is *trivial* if all the formulas of its language are theorems.³

Thus, in any theory grounded in classical logic, since the *ex falso* principle holds, the presence of a single inconsistency propagates through the system and renders the entire theory trivial — inconsistency is equivalent to triviality.

When every statement becomes a theorem, the system ceases to be able to distinguish between what is true and what is false, for everything is true (and false). A trivial theory is therefore useless as a framework for reasoning, since it validates indiscriminately all sentences of the language. The very possibility of developing scientific or philosophical theories depends on avoiding trivialization. In this sense, the principle of non-contradiction is not merely a logical convention but a safeguard against the collapse of rational discourse in the classical perspective.

A logic is *paraconsistent* if it can be the underlying logic of inconsistent but non-trivial theories, called *paraconsistent theories* (da Costa, 1963, pp. 3790-3792; D'Ottaviano, 1990, p. 89). That is, in paraconsistent logics, unlike in classical logic and other standard logics, such as intuitionistic logic, inconsistency does not entail triviality.

In paraconsistent logics, the scope of the principle of non-contradiction is in a certain sense restricted. In every paraconsistent logic, from a formula and its negation it is not possible, in general, to deduce any formula of the language. So, the *ex falso* is not valid in general, that is, in paraconsistent logics the notions of inconsistency and triviality are, in fact, independent notions. Thus, what characterizes paraconsistent logics is that, from a formula A and its negation $\neg A$ it is not possible to deduce any arbitrary formula B ; formally, $A, \neg A \not\vdash B$, for any B , with “ $\vdash$ ” and “ $\not\vdash$ ” standing, respectively, for deducibility and non-deducibility.

The phenomenon of explosion also has far-reaching implications in philosophical theology. Depending on how the divine attributes of omnipotence, omniscience, and perfect goodness are formulated, it is possible to construct arguments that lead to contradiction when these attributes are considered together with the existence of evil. Since the mainstream in philosophy of religion has generally assumed classical logic as the underlying framework, such contradictions, if admitted, immediately entail triviality. Theological reasoning

³ The terms “consistency” and “inconsistency” are here understood in a syntactical sense, following David Hilbert (see da Costa, Krause, Bueno, 2007).

would then collapse, because every statement would become provable and no genuine distinction could be drawn between acceptable and unacceptable claims. It is true that classical defenses against the logical problem of evil have been developed, and these aim precisely at showing that no outright contradiction follows from a careful formulation of the divine attributes.⁴ Yet the reliance on a strictly explosive logic explains why the issue has remained so central in the debate.

This situation reveals the importance of carefully analyzing the relation between contradiction and triviality. A contradiction *in itself* may not necessarily signify the end of rational discourse. Contradictory statements can arise naturally in the course of reasoning, and their presence may reflect the complexity of the phenomena under analysis rather than a defect of thought. The difficulty lies in the fact that in classical logic every contradiction is destructive, because it is tied to explosion.

The problem becomes evident when one considers scientific and philosophical theories that operate in domains of high abstraction. It is often possible to identify local inconsistencies that do not compromise the overall explanatory power of the theory. Classical logic, however, leaves no room for such local inconsistencies, without further distinctions. Once a contradiction is admitted, the entire theory collapses into triviality. This rigidity, while ensuring absolute consistency, also imposes severe limitations on the treatment of complex or paradoxical domains, especially when our knowledge of such domains is partial or provisional.

In the context of theology and metaphysics, this limitation has even greater force. If reasoning about the divine leads inevitably to contradictions under certain formulations, and if every contradiction necessarily brings triviality, then classical logic disqualifies any attempt to articulate a consistent doctrine in the presence of paradox. This reveals that the crucial issue is not merely whether contradictions arise, but whether their occurrence must always destroy the capacity of a theory to function.

The exploration of non-classical approaches arises precisely at this juncture. By decoupling inconsistency from triviality, alternative logics allow for the possibility that contradictions may exist within a theory without rendering it useless. The next step in our analysis will therefore be to examine the historical paths that prepared the ground for these developments and to understand how

⁴ On the logical problem of evil and its main formulations and developments, see Mackie (1955a), Penelhum (1966), Plantinga (1974a and 1974b), Rowe (1979), Basinger and Basinger (1994), Howard-Snyder (2013), Wilks (2004), van Inwagen (2008), and Tooley (2021). For formal and logical approaches to the problem and to theodicy, see Nieznański (2007 and 2008), Świątorzecka (2011), Bertato (2021), Silva and Bertato (2019 and 2020), and Weingartner (1974, 2011, and 2021).

the problem of explosion came to be challenged in the evolution of logical systems.

2.2. *The Historical Path to Paraconsistency*⁵

The principle of non-contradiction and the threat of explosion have not always been interpreted in the same way throughout the history of logic. Many philosophers and logicians have dealt with the possibility of logical reasoning containing contradictions, or of non-trivialization of a system of logic in the presence of contradictions, by questioning or denying the validity or inferential power of the *ex falso* principle.

Even in antiquity, traces of alternative approaches can be discerned. Heraclitus famously emphasized the unity of opposites, suggesting that contradiction might express not merely error but a deeper harmony of reality. Aristotle, although presenting the principle of (non-)contradiction as the most fundamental law of thought, also acknowledged situations in which reasoning from contrary or even contradictory premises could yield valid syllogisms. In his *Prior Analytics*, he analyzed cases where true conclusions follow from false or conflicting premises (see Gomes and D'Ottaviano 2010). Such observations indicate that the relation between contradiction and triviality was not always treated as absolute, even in the origins of logic (see Gomes and D'Ottaviano 2017).

During the medieval period, the debate surrounding contradiction and consequence gained renewed force. Thinkers such as Peter Abelard rejected the universal validity of the principle that from a contradiction anything follows. Abelard argued that a stricter conception of consequence was required, one in which the antecedent must bear an intrinsic relation to the consequent. For him, the inference from an impossibility to an arbitrary statement could not be justified, since it violated the demand for relevance in logical consequence. Other medieval authors, including Gerland of Besançon, Robertt of Melum, Petrus Hispanus, Henry of Ghent, Robert Kilwardby, William of Ockham, Nicholas of Autrecourt, Walter Burleigh, and even Thomas Aquinas in some passages, explored the limits of contradiction and the conditions under which inferences from contradictory premises should be admitted (see D'Ottaviano and Gomes 2020a and 2026). The medieval debates reveal that the validity of the *ex falso* principle was not universally accepted, and that alternative conceptions of logic

⁵ Readers already familiar with the historical development of paraconsistent logic may wish to proceed directly to the subsequent sections more directly connected with the main argumentative purpose of the paper. Nevertheless, we include this brief overview because the historical relation between contradiction, explosion, and non-trivial reasoning—especially in medieval and Latin American traditions—remains comparatively underrepresented in discussions within philosophy of religion and formal theology.

were already being articulated in order to preserve the meaningfulness of reasoning in the presence of apparent inconsistencies.

From Pseudo-Scotus and with the rise of modern logic in the seventeenth and eighteenth centuries, and its later formal consolidation in the nineteenth century, the classical framework became dominant. Logic was increasingly identified with the strict preservation of consistency, and contradiction was equated with irrationality. The explosive character of contradiction became entrenched in the systematizations of Frege, Russell, and Hilbert, where the preservation of consistency was regarded as a non-negotiable requirement for mathematics and science. The consequence of this consolidation was the marginalization of earlier perspectives that had allowed for more flexible treatments of contradiction. The *ex falso* principle was seen not as one possible stance but as a necessary feature of rationality.⁶

The twentieth century, however, brought a decisive turning point, with the creation of formal inconsistent and non-trivial systems. In 1948 and 1949 Stanisław Jaśkowski introduced what he called “discussive logic”, also called “discursive logic” in the literature, a system designed to tolerate contradictions without degenerating into overfilling (or overcompleteness, triviality). His work (see Jaśkowski 1948, 1949, 1969, 1999a 199b) opened the possibility of a rigorous formal system in which inconsistency did not automatically entail explosion. Soon after, and independently, Newton Carneiro Affonso da Costa developed his hierarchies of paraconsistent calculi in the 1960s, providing systematic tools to the study of inconsistent yet non-trivial theories.

Since his earliest papers in the 1950s, da Costa developed a sustained line of research on the importance of contradictory theories. In this context, he proposed a *Principle of Tolerance in Mathematics*: “From the syntactical and semantical point of view, every mathematical theory is permissible, provided it is not trivial” (da Costa 1959, 18).

Da Costa, in 1963, introduced his well-known hierarchy of *paraconsistent calculi* C_n , $1 \leq n \leq w$, the hierarchy of *predicate calculi* C_n^* , $1 \leq n \leq w$, the hierarchy of *predicate calculi with equality* $C_n^=$, $1 \leq n \leq w$, the *hierarchy of calculi of descriptions* D_n , $1 \leq n \leq w$, and the hierarchy of set theories NF_n , $1 \leq n \leq w$ (see da Costa, 1963, 1964a, 1964b, 1964c, 1964d, 1974). In his systems he defined an operator of well-behavior “ o ”, in order to characterize those formulas that behave classically, that is, those formulas A for which $\neg(A \wedge \neg A)$: $A^o \stackrel{\text{def}}{=} \neg(A \wedge \neg A)$.

Da Costa was very clear in proposing his hierarchies of paraconsistent logics as alternative axiomatic logical systems, developing as well as logics of a higher order that are able to overcome the limitations that contradictions impose on rational theories in the logical-classical paradigm.

⁶ For a thorough historical account of paraconsistent thought and paraconsistent logics, see Arruda (1989), D’Ottaviano (1990), and Gomes and D’Ottaviano (2017).

Da Costa's approach made it possible to handle contradictions as mathematical objects, and his logics inspired a large body of subsequent research in Latin America and beyond. The term "paraconsistent", to identify inconsistent but non-trivial systems, was introduced in the literature in 1976 (see D'Ottaviano and Gomes 2020b).

From the late 1970s onward, the philosophical significance of paraconsistent logic was further developed by Graham Priest, whose defense of dialetheism and analysis of true contradictions gave paraconsistency a prominent place in contemporary debates on the nature of logic, inconsistency, and rationality (see Priest 1979, 1987, 2006). This work contributed decisively to the recognition of non-explosive logics as coherent and philosophically substantive frameworks, beyond their original technical motivations.

Paraconsistent logicians, all over the world, have introduced many paraconsistent systems and obtained important results. The development of paraconsistent logic has given rise to important philosophical problems, has opened several research areas, and has facilitated the solution of significant questions in the foundations of science, which in turn motivates us to consider relevant issues in the philosophy of religion.

More recently, the development of *logics of formal inconsistency* (LFIs) has added further refinement. In these systems the notion of consistency itself is introduced as a primitive logical operator of their languages. This allows one to distinguish within the same framework between formulas that behave classically and formulas that may tolerate contradictions. The result is a highly flexible structure in which contradiction and triviality are no longer necessarily linked. LFIs represent a kind of culmination of a historical trajectory that began with ancient reflections on the harmony of opposites, passed through medieval critiques of explosion, and eventually reached modern formalizations capable of systematically decoupling inconsistency from collapse (see Carnielli *et al* 2007, Carnielli and Coniglio 2016).

The historical path to paraconsistency thus shows that the absolute identification of contradiction with triviality is not an inevitable feature of rational thought. It is the result of a particular logical choice that became dominant with the rise of classical logic. By recovering and formalizing alternative perspectives, contemporary paraconsistent logic offers a new horizon in which contradictions can be dealt with without fear of trivialization. This perspective will prove crucial when addressing the logical problem of evil and the formulation of divine attributes in a non-classical setting.

3. The Problem of Evil and Formal Natural Theology

The discussion of contradiction and triviality acquires special relevance in philosophical theology. For centuries, the coexistence of divine attributes and the reality of evil have provided a testing ground for the limits of logical reasoning concerning theological matters. The question is not merely theological but also deeply logical: does the attribution of certain perfections to the divine, when combined with empirical observations of suffering and injustice, inevitably give rise to contradiction? If classical logic is maintained as the background framework, the emergence of such a contradiction would not only threaten to trivialize the entire discourse about God but could also be invoked as a direct argument for denying the very existence of the divine. In this context, the problem of evil becomes not only an argument against theism but also a challenge to the adequacy of the logical systems presupposed in its analysis.

3.1. *The Classical Formulation*

In the mainstream philosophy of religion, the logical problem of evil is usually framed as the apparent incompatibility between the attributes ascribed to the God of classical theism and the empirical fact of evil. God is said to be *omnipotent*, meaning there is no limit to what God can bring about. God is said to be *omniscient*, meaning that nothing can be hidden from divine knowledge. God is said to be *perfectly good*, meaning that whatever God wills must be directed toward the good. When these attributes are considered alongside the premise that evil exists, the set of claims appears inconsistent. If God is both able and willing to eliminate evil, then no evil should exist; if evil nonetheless persists, then at least one of the divine attributes must be denied or reinterpreted, or God does not exist.

If the contradiction is accepted, then by the *ex falso* principle, the theological system would collapse into triviality according to the classical perspective discussed above, since from the inconsistency everything would follow. For this reason, classical defenses of theism against the logical problem of evil have sought to show that no genuine contradiction is involved. They attempt to refine the formulation of the divine attributes so that the set of propositions remains consistent. For example, one may argue that omnipotence does not include the power to do what is logically impossible, or that perfect goodness is compatible with permitting certain evils for the sake of greater goods.

The point of these defenses is not to abandon the framework of classical logic but to demonstrate that, when the attributes are carefully defined, no contradiction arises and therefore no explosion ensues. This strategy has been

influential in the second half of the twentieth century, leading many philosophers to conclude that the logical problem of evil, strictly speaking, has been resolved. Yet the reliance on classical logic means that the specter of trivialization always remains in the background: if even a single contradiction were to slip through, the system would lose coherence. The subsequent exploration of non-classical approaches, therefore, does not replace classical theodicies but rather seeks to broaden the logical landscape in which the problem can be addressed.

3.2. *The Formal System M*

The attempt to clarify the logical problem of evil within a precise framework motivated Bertato (2021) to develop the formal system M. The system is based on first-order classical logic and introduces explicit definitions of the divine attributes together with axioms governing the relation between goodness, evil, and actuality. Its purpose is to determine whether the apparent tension between the God of classical theism and the existence of evil can be consistently articulated without collapsing into triviality.

In what follows, “situations” are understood simply as elements of the domain of discourse of the formal theory, that is, as possible objects or states of affairs to which predicates may be attributed. The notions of consistency, inconsistency, and triviality are employed primarily in the syntactic sense standard in paraconsistent logic, as defined in Section 2.1. Thus, when possible contradictions concerning situations are later considered in a paraconsistent framework, the contradiction is understood as arising at the level of formal predication within the theory, rather than as an intrinsic feature of situations themselves.

In M, the domain of discourse is composed of possible objects or situations.⁷ A set of predicates is introduced to capture the essential notions: a predicate for *actuality*, another for *goodness*, and another for *evil*, as well as predicates expressing the divine properties of *omnipotence*, *omniscience*, and *perfect goodness* (*omnibenevolence*). The property of *divinity* itself is defined by the conjunction of these three attributes. In addition, predicates are introduced to represent modalities of *willingness* and *knowing*. Through these elements, the system formalizes statements such as “x is omnipotent,” “x knows p,” or “p is good.”

In system M the divine attributes of classical theism are given through explicit first-order definitions. *Omnipotence* (D1) is defined as the property of a being x such that, for every situation p, if x wills p, then p is actual. *Omniscience* (D2) is defined as the property of a being x such that, for every situation p, if p is actual,

⁷ Situations may be understood here in a broad sense as configurations of elements or objects of the world, or even of more elementary situations. The central point is that the problem of evil ultimately concerns states of affairs obtaining in the world, such as suffering, injustice, or morally significant events.

then x knows p . *Omnibenevolence* (D3) is defined as the property of a being x such that, for every situation p , if x wills p , then p is good. *Divinity* (D4) is then introduced as the conjunction of these three attributes: *a being is divine if, and only if, it is omnipotent, omniscient, and omnibenevolent*.

It may be objected that the formal definitions of omnipotence, omniscience, and omnibenevolence adopted in system M are too weak to capture the richness of the classical theistic attributes. This weakness is a consequence of employing the material implication of first-order logic: under these definitions, it is at least conceivable that a being might “accidentally” satisfy all three conditions without thereby exemplifying the full causal or metaphysical force traditionally associated with them. The choice is deliberate. The aim is to work with a minimal set of assumptions, in order to test whether the logical problem of evil still arises under the weakest adequate characterizations of the divine attributes. While stronger definitions are available in literature, the attributes cannot be further weakened, since any being that does not satisfy these conditions necessarily fails to be divine. If the God of classical theism exists, then such a being will satisfy these definitions—perhaps in a richer, causal or modal sense—but if some x does not satisfy them, then it is not divine. Should these definitions prove insufficient to represent the classical conception of God, they can nonetheless be viewed as an original proposal: a set of attributes immune to the logical problem of evil.

To connect these attributes with the problem of evil, two axioms are added. Axiom A0 states that for every situation p , if p is evil, then p is not good. Axiom A1 asserts that there exists at least one situation that is both evil and actual. In addition to these axioms, the distinguished constant θ is introduced and assumed to satisfy D4, meaning that θ is taken as a possible divine being ($D(\theta)$). These assumptions are deliberately undemanding: they require only that what is evil is not good, that there exists some actual evil, and that there is at least one possible object that instantiates the divine attributes.

With these definitions and axioms in place, the system proves its first major result, Theorem T1. It establishes that the set of formulas $\{A0, A1, D(\theta)\}$ is consistent. In other words, the existence of a being θ that possesses all three divine attributes is not inconsistent with the actuality of an evil situation. The Gödel’s Completeness Theorem of first-order logic guarantees that if this set has a model, then it is consistent, and Bertato provides a straightforward set-theoretical model to demonstrate this. The upshot is that, within system M, the logical problem of evil does not succeed: the attributes of classical theism can be consistently maintained alongside the reality of evil.⁸

⁸ Nevertheless, this result depends on the deliberately minimal character of the definitions adopted in M. Stronger theological assumptions concerning divine providence, willing, or causation may reintroduce tensions capable of generating contradictions within a classical

The results obtained in M are significant. First, it can be shown that the existence of evil is consistent with the divine attributes as defined. In other words, no outright contradiction follows directly from the axioms of omnipotence, omniscience, and perfect goodness together with the axiom that evil exists. This provides a formal defense against the charge that classical theism (at least the proposed version of it) is logically incoherent. Beyond this, further theorems establish the actual existence of a divine being that satisfies the defined attributes, and even the uniqueness of such a being. In this way, the system not only addresses the problem of evil but also offers a constructive account of the existence and uniqueness of God within a formal logical framework.

For precision, the system can be stated in explicit first-order form.

Formal Presentation of System M

The formal core of system M consists of explicit first-order definitions of the divine attributes, together with a small set of axioms concerning goodness, evil, and actuality. The domain of discourse is taken to be a set of possible situations, and the language includes the following non-logical symbols:

$\alpha(p)$: “ p is actual.”
 $\delta(p) :=$ ‘ p is good’;
 $\xi(p) :=$ ‘ p is evil’;
 $W(x, p) :=$ ‘ x wills p ’;
 $K(x, p) :=$ ‘ x knows p ’;
 $OP(x)$, $OC(x)$, $OB(x)$, $D(x)$: unary predicates for omnipotence, omniscience, omnibenevolence, and divinity, respectively.
 θ : a distinguished constant symbol intended to denote a possible divine being.

Within this framework, the divine attributes can be defined as follows:

Omnipotence

D1. $OP(x) : \leftrightarrow \forall p (W(x, p) \rightarrow \alpha(p))$

(x is omnipotent if, and only if, for any situation p , x willing p implies the actuality of p .)

Omniscience

D2. $OC(x) : \leftrightarrow \forall p (\alpha(p) \rightarrow K(x, p))$

framework. For this reason, a paraconsistent approach may provide a more robust logical environment for investigating richer theological formulations without collapse into triviality.

(x is omniscient if, and only if, for any situation p , the actuality of p implies that x knows p .)

Omnibenevolence

D3. $OB(x) : \leftrightarrow \forall p (W(x, p) \rightarrow \delta(p))$

(x is omnibenevolent if, and only if, for any situation p , x willing p implies the goodness of p .)

Divinity

D4. $D(x) : \leftrightarrow OP(x) \wedge OC(x) \wedge OB(x)$

(x is divine if, and only if, x possesses the divine attributes.)

Two axioms are added to connect goodness, evil, and actuality:

A0. $\forall p (\xi(p) \rightarrow \neg\delta(p))$

(For every situation p , if p is an evil situation, then p is not a good situation.)

The next axiom states that there actually exists an evil situation.

A1. $\exists p (\xi(p) \wedge \alpha(p))$

(There exists at least a situation p that is evil and actual.)

Finally, to link these definitions to a possible divine being, we add:

A2. $D(\theta)$

(θ is divine)

From these assumptions, the following result is established:

T1. (*The Logical Problem of Evil*)

The set of wffs $\mathbf{F} = \{\forall p (\xi(p) \rightarrow \neg\delta(p)), \exists p (\xi(p) \wedge \alpha(p)), D(\theta)\}$ is consistent.

Proof. By the Soundness Theorem of First-Order Logic, it is sufficient to show that $\mathbf{F}$ has a model. It is easy to see that the following set-theoretical interpretation $*$ is a model for $\mathbf{F}$:

$$\theta^* = T;$$

$$\alpha^* = \{T, \sigma, \tau\};$$

$$K^* = \{(T, T), (T, \sigma), (T, \tau)\};$$

$$\xi^* = \{\sigma\};$$

$$\delta^* = \{\tau\};$$

$$W^* = \{(T, \tau)\}.$$

Therefore, **F** is consistent. ■

The model demonstrates that it is possible for θ to be divine (satisfying D1–D4) while there exists at least one actual evil situation (by A1), without contradiction. In this sense, the logical problem of evil, classically framed, fails within system M: the minimal definitions of omnipotence, omniscience, and omnibenevolence can coexist with the actuality of evil.

The significance of these results lies in their methodological clarity. By stating the divine attributes and the premise of evil in symbolic form, the system avoids ambiguities that often arise in informal discussions. It shows that, under classical logic, the problem of evil does not entail immediate trivialization, provided that the attributes are carefully formulated. At the same time, it reveals the limits of this approach: since the system rests on classical logic, any genuine contradiction that would emerge in an expanded version of it could, by the principle of explosion, trivialize the theory. This observation motivates the exploration of non-classical logics, which allow contradictions to be studied without collapsing into triviality, as already stated, and thus open new possibilities for formal natural theology. In particular, the motivation for considering paraconsistency arises not from the minimal consistency result itself, but from the possibility that richer and philosophically natural extensions of the theory may produce contradictions that classical logic cannot tolerate without trivialization.

4. The Problem of Evil and Paraconsistency

4.1. Contradictions Without Collapse

The formal system M shows that the divine attributes, as minimally defined, are consistent with the existence of actual evil. Yet the reliance on classical logic still leaves the framework vulnerable: again, should any contradiction arise within an expanded version of the system, explosion would immediately trivialize the theory. This fragility is not unique to theology. It reflects a structural feature of classical logic itself, in which inconsistency and triviality are inseparably linked, as already discussed.

Paraconsistent logics offer an alternative. Their central motivation is to break the automatic connection between contradiction and collapse. Recall that in a paraconsistent setting, it is possible for a theory to contain formulas A and $\neg A$ without thereby entailing every arbitrary statement B . Contradictions may occur, but they remain localized: they do not infect the whole system with triviality. This decoupling opens the possibility of treating inconsistency not as the end of

rational discourse but as a phenomenon to be studied and managed within logic itself.

The implications for philosophical theology are immediate. If reasoning about God's attributes and the reality of evil produces tensions that appear contradictory, classical logic leaves no room for exploration: such contradictions either must be dissolved by reinterpretation or else they trivialize the discourse. In a paraconsistent framework, by contrast, contradictions can be acknowledged without surrendering coherence. The system remains meaningful, and the contradictions themselves may yield new insights into the complexity of the subject matter.

This approach reframes the logical problem of evil. Instead of asking whether the divine attributes and the existence of evil are jointly consistent in a classical sense, one may ask how they interact in a system that tolerates inconsistency. It thus becomes possible to accommodate apparent contradictions between omnipotence, omniscience, perfect goodness, and the persistence of evil without the theory degenerating into triviality. So, what was once seen as a fatal defect may instead become a point of constructive analysis.

As noted earlier, the strict identification of contradiction with triviality was not universally accepted in the history of logic. Ancient and medieval debates already revealed that alternative views were possible, even if not formally developed. What matters in the present context are the modern systems that turned these intuitions into rigorous frameworks.

As said, in the mid-twentieth century, Stanisław Jaśkowski introduced discursive logic, the first formal attempt to tolerate contradictions without collapse. Soon after, Newton da Costa elaborated his hierarchy of calculi C_n , providing systematic tools for investigating inconsistent but non-trivial theories. More recently, the logics of formal inconsistency (LFIs) refined this approach by introducing consistency itself as a primitive operator, allowing classical and paraconsistent behavior to coexist within the same system.

These developments supply the conceptual background for applying paraconsistency to philosophical theology. They show that inconsistency need not entail triviality, and they provide well-defined systems in which contradictions can be localized and controlled. This makes it possible to revisit the logical problem of evil from a new perspective: rather than dissolving all apparent contradictions, one can investigate how they might be accommodated within a paraconsistent framework.

4.3. Reformulating the Problem of Evil in a Paraconsistent Setting

The system M demonstrates that, under classical logic, the divine attributes as minimally defined can coexist consistently with the actuality of evil. Yet this

consistency is fragile. Any further development that inadvertently produces a contradiction would, by the principle of explosion, trivialize the theory. It is precisely here that a paraconsistent reformulation becomes relevant.

The motivation for introducing paraconsistency does not arise from the minimal version of system M itself, which remains classically consistent. Rather, it emerges when one considers stronger and philosophically natural extensions of the theory, especially those involving divine providence, theological determinism, or stronger relations between divine willing and actuality. Such extensions may generate contradictions concerning evil, goodness, and divine causation. Within a classical explosive framework, these contradictions threaten trivialization; within a paraconsistent framework, however, they may be investigated without collapse.

In a paraconsistent framework, the formal definitions of omnipotence, omniscience, and omnibenevolence can be preserved, but contradictions that might arise from their relation with evil no longer entail triviality. For instance, if a situation p were both classified as evil and, under certain unknown conditions, as good, classical logic would collapse: from $\delta(p) \wedge \neg \delta(p)$ everything would follow. In a paraconsistent system, however, this contradiction may remain local. Indeed, the theory continues to function, and the contradiction itself becomes an object of analysis rather than a logical catastrophe.

Moreover, one may adopt a stronger theological assumption according to which a situation p is actual *if and only if* it is willed by God. In system M only the forward direction holds—if God wills p , then p is actual. Assuming the converse as well amounts to a strong form of *theological determinism* or *providential control*. Together with omnibenevolence and the existence of actual evil situations, this generates the conclusion that at least some evil situations are also good, since whatever God wills is, by definition, good.

Classical theodicies have traditionally attempted to avoid this result through distinctions between divine willing and divine permission, primary and secondary causation, creaturely freedom, or greater-good defenses. The present paper does not claim that such strategies necessarily fail, nor that classical theology is therefore inadequate. Rather, the point is methodological: these distinctions are required precisely because, under stronger assumptions concerning divine providence and actuality, significant logical tensions emerge within an explosive framework.

A paraconsistent approach allows such tensions to be investigated directly without immediate collapse into triviality. In this sense, paraconsistency is proposed not as a replacement for classical theodicies, but as a more flexible logical environment for studying theological systems that may plausibly generate contradictions under stronger metaphysical assumptions.

This shift allows us to reframe the logical problem of evil. Instead of asking whether the attributes and the existence of evil are strictly consistent, the question becomes whether they can be articulated within a framework that tolerates inconsistency without trivialization. The problem of evil is no longer a fatal objection to theism but a test case for the adequacy of different logical settings. If contradictions emerge, they need not dissolve the discourse but may highlight tensions in our concepts of divinity, goodness, and evil.

Paraconsistent reformulation thus broadens the scope of formal natural theology. It acknowledges that human attempts to describe the divine may inevitably generate contradictions, yet it refuses to treat these as proof of irrationality. Rather, contradictions can be interpreted as signals of complexity, pointing toward aspects of reality that classical logic is ill-suited to capture. By decoupling inconsistency from triviality, paraconsistent logic makes it possible to develop a theology that is both formally rigorous and resilient in the face of paradox.

4.4. Advantages and Open Questions

As emphasized at several points throughout this paper, the main advantage of adopting a paraconsistent setting is its robustness: contradictions, when they arise, do not trivialize the theory. This feature opens conceptual space for theological formulations that classical logic would immediately rule out. One such case is the stronger, deterministic version of omnipotence. As stated, in system M, this assumption generates a contradiction; within a paraconsistent framework, however, the theory remains meaningful, allowing the contradiction to be examined rather than suppressed.

At the same time, open questions remain. Which paraconsistent logic provides the most adequate basis for theology—minimal systems such as mbC, QmbC, the hierarchies of da Costa, modal many-valued approaches like J3 (see D’Ottaviano and da Costa 1970), or other LFIs that treat consistency as a primitive operator? And how should contradictions be interpreted theologically—as merely apparent, reflecting human cognitive limits, or as real, intrinsic to the divine reality? The answers to these questions will determine the direction of a paraconsistent natural theology.

At this point, it is worth indicating how a specific paraconsistent framework may be used to refine the methodological proposal advanced in this paper. Suppose that system M, or any similar formal system intended to capture the divine attributes and the problem of evil, is taken to be grounded not in classical logic but in a paraconsistent logic of formal inconsistency such as QmbC. In such a setting, one may explicitly regulate the scope of inconsistency by means of the consistency and inconsistency operators, typically denoted respectively by $\circ$ and

•, with $\bullet A$ defined as $\neg \circ A$. In particular, well-formed formulas φ concerning God—divine willing and knowing, the divine attributes, axiological values, and theological propositions more generally—may be placed under the scope of the closed inconsistency operator $\bullet (\bullet \varphi)$. By contrast, sentences ψ concerning the merely natural, scientific, or human domain may remain under the scope of the open consistency operator $\circ (\circ \psi)$, thereby behaving classically. Interpreted philosophically, this distinction corresponds to a position sharing certain methodological affinities with apophatic theology or negative theology: what concerns God is, to a significant extent, beyond full conceptual transparency, and therefore may legitimately tolerate inconsistency without collapse.⁹ Within such a framework, one may consistently articulate a form of theological determinism—according to which a situation p obtains if and only if it is willed by God—even if this leads to situations that are both good and evil. Whether such cases are understood as involving genuine contradictions, in a dialetheist sense, or as merely apparent contradictions compatible with classical metaphysics, remains a further extra logical question. Crucially, paraconsistent logical tools allow both interpretations to be formally accommodated, without trivializing the theory or foreclosing rational analysis.

So, one may note that paraconsistent approaches need not presuppose that reality itself is contradictory, nor that classical logic is abandoned at the metaphysical level. In some interpretations, paraconsistency may instead be understood from an informational or epistemic perspective, in which the underlying reality remains classically structured, while human agents have access only to partial, limited, or apparently conflicting information concerning it. Under such conditions, contradictions may arise at the level of representation, knowledge, or formal description without implying that reality itself is intrinsically inconsistent. Interpreted theologically, this allows one to preserve a fundamentally classical conception of divine reality and theological truth, while employing paraconsistent logical tools as a way of managing the epistemic limitations and conceptual tensions that emerge in human discourse about God.

⁹ The affinity suggested here between paraconsistency and apophatic theology should not be understood as an identification between apophaticism and the acceptance of contradictions. Strong forms of apophatic theology often avoid precisely the kind of positive predication required for explicit contradictions to arise. The present proposal remains fundamentally cataphatic, since it formally employs positive predicates concerning divine attributes. The comparison with apophatic theology is intended only in a limited methodological sense, namely, insofar as both approaches recognize the limitations of ordinary conceptual frameworks in discourse about God.

Conclusions

The logical problem of evil has traditionally been understood as a decisive challenge to the coherence of classical theism. Framed within classical logic, the apparent incompatibility between omnipotence, omniscience, perfect goodness, and the existence of evil threatens not merely particular doctrines but the rational integrity of theological discourse as a whole, since any genuine contradiction entails triviality by the principle of explosion. For this reason, much of the literature has focused on dissolving or avoiding contradiction through increasingly refined formulations of the divine attributes.

This paper has argued that such a strategy presupposes a substantive and often unexamined logical commitment. The force of the logical problem of evil depends crucially on the background logic in which it is formulated. By making explicit the link between contradiction and triviality in classical logic, we have shown that the problem is as much a problem about logic as it is about theology.

The formal system *M* illustrates this point. Within a first-order classical framework, and under minimal definitions of omnipotence, omniscience, and omnibenevolence, the existence of evil does not generate inconsistency. This result shows that the logical problem of evil, at least in its strongest classical form, does not follow automatically from the standard divine attributes. At the same time, the analysis reveals the fragility of any classical solution: once stronger theological assumptions are introduced, especially assumptions concerning divine providence, theological determinism, or stronger relations between divine willing and actuality, the system becomes vulnerable to contradiction and, consequently, to trivialization.

Paraconsistent logic offers a principled alternative. By decoupling inconsistency from triviality, it allows contradictions—whether apparent or real—to be accommodated without collapsing the theory. From this perspective, the logical problem of evil is no longer a fatal objection to theism, but a test case for evaluating different logical frameworks and their suitability for theological reasoning. Rather than eliminating all tensions at the cost of conceptual distortion, a paraconsistent setting makes it possible to study such tensions in a controlled and rigorous way.

The contribution of this paper is therefore primarily methodological. We do not claim to have solved the problem of evil, nor to have demonstrated that contradictions are unavoidable in theology. Instead, we have shown that the rational assessment of the problem depends on the logical tools employed. By expanding the logical framework beyond classical logic, paraconsistent approaches open new possibilities for formal natural theology, in which paradox and inconsistency need not signal irrationality, but may instead mark the limits of our conceptual representations of the divine.

Bibliography

- Arruda, A. I. 1989. "Aspects of the Historical Development of Paraconsistent Logic." In *Paraconsistent Logic: Essays on the Inconsistent*, edited by Graham Priest, Richard Routley, and Jean Norman, 99–130. München: Philosophia Verlag. <https://doi.org/10.2307/j.ctv2x8v8c7.6>
- Basinger, D., and R. Basinger. 1994. "The Problem with the 'Problem of Evil'." *Religious Studies* 30, no. 1: 89–97. <https://doi.org/10.1017/S0034412500022745>
- Beebe, J. R. 2003. "The Logical Problem of Evil." *Internet Encyclopedia of Philosophy*. <https://iep.utm.edu/evil-log/>
- Bertato, F. M. 2021. "Sketch for a Formal Natural Theology: Existence and Uniqueness of God." *Manuscrito* 44, no. 4: 607–630. <https://doi.org/10.1590/0100-6045.2021.v44n4.fb>
- Bocheński, J. M. 1965. *The Logic of Religion*. New York: New York University Press.
- Carnielli, W. A., M. E. Coniglio, and J. Marcos. 2007. "Logics of Formal Inconsistency." In *Handbook of Philosophical Logic*, 2nd ed., vol. 14, edited by Dov M. Gabbay and Franz Guenther, 1–93. Amsterdam: Elsevier. https://doi.org/10.1007/978-1-4020-6324-4_1
- Carnielli, W. A., and M. E. Coniglio. 2016. *Paraconsistent Logic: Consistency, Contradiction and Negation*. Logic, Epistemology, and the Unity of Science Series. New York: Springer. <https://doi.org/10.1007/978-3-319-33205-5>
- da Costa, N. C. A. 1959. "Observações sobre o Conceito de Existência em Matemática." *Anuário da Sociedade Paranaense de Matemática* 2 (2ª série): 16–19.
- da Costa, N. C. A. 1963. "Calculs Propositionnels pour les Systèmes Formels Inconsistants." *Comptes Rendus Hebdomadaires des Séances de l'Académie des Sciences* 257 (A–B): 3790–3793.
- da Costa, N. C. A. 1964a. "Calculs des Prédicats pour les Systèmes Formels Inconsistants." *Comptes Rendus Hebdomadaires des Séances de l'Académie des Sciences* 258 (A–B): 27–29.
- da Costa, N. C. A. 1964b. "Calculs des Prédicats avec Égalité pour les Systèmes Formels Inconsistants." *Comptes Rendus Hebdomadaires des Séances de l'Académie des Sciences* 258 (A–B): 1111–1113.
- da Costa, N. C. A. 1964c. "Calculs de Descriptions pour les Systèmes Formels Inconsistants." *Comptes Rendus Hebdomadaires des Séances de l'Académie des Sciences* 258 (A–B): 1366–1368.
- da Costa, N. C. A. 1964d. "Sur un Système Inconsistant de la Théorie des Ensembles." *Comptes Rendus Hebdomadaires des Séances de l'Académie des Sciences* 258 (A–B): 3144–3147.
- da Costa, N. C. A. 1974. "On the Theory of Inconsistent Formal Systems." *Notre Dame Journal of Formal Logic* 15, no. 4: 497–510. <https://doi.org/10.1305/ndjfl/1093891487>

- da Costa, N. C. A., D. Krause, and O. Bueno. 2007. "Paraconsistent Logics and Paraconsistency." In *Philosophy of Logic*, edited by Dale Jacquette, 791–911. Amsterdam: Elsevier. <https://doi.org/10.1016/B978-044451541-4/50023-3>
- D'Ottaviano, I. M. L. 1990. "On the Development of Paraconsistent Logic and da Costa's Work." *The Journal of Non-Classical Logic* 7, no. 1/2: 89–152.
- D'Ottaviano, I. M. L., and N. C. A. da Costa. 1970. "Sur un Problème de Jaśkowski." *Comptes Rendus de l'Académie des Sciences de Paris* 270 (A–B): 1349–1353.
- D'Ottaviano, I. M. L., and R. L. Epstein. 1988. "A Many-Valued Paraconsistent Logic." *Reports on Mathematical Logic* 22: 89–103.
- D'Ottaviano, I. M. L., and E. L. Gomes. 2020a. "Gerland's 'Dialectica' and Paraconsistency." *Edukacja Filozoficzna* 70: 143–170. <https://doi.org/10.14394/edufil.2020.0020>
- D'Ottaviano, I. M. L., and E. L. Gomes. 2020b. "Baptizing Paraconsistent Logics: The Unique Touch of Miró Quesada." *South American Journal of Logic* 6, no. 2: 1–22.
- D'Ottaviano, I. M. L., and E. L. Gomes. Forthcoming 2026. "Nicholas of Autrecourt and Paraconsistency." In *Walter Carnielli on Reasoning, Paraconsistency, and Probability*, edited by Alfredo Freire, Henrique Antunes, and Abílio Rodrigues. Outstanding Contributions to Logic. Cham: Springer.
- Feser, E. 2023. "What Is Classical Theism?" In *Classical Theism: New Essays on the Metaphysics of God*, edited by J. Fuqua and R. C. Koons, 9–25. New York–Abingdon: Routledge. <https://doi.org/10.4324/9781003202172-3>
- Gomes, E. L., and I. M. L. D'Ottaviano. 2010. "Aristotle's Theory of Deduction and Paraconsistency." *Principia* 14, no. 1: 71–97. <https://doi.org/10.5007/1808-1711.2010v14n1p71>
- Gomes, E. L., and I. M. L. D'Ottaviano. 2017. *Para Além das Colunas de Hércules: Uma História da Paraconsistência, de Heráclito a Newton da Costa*. Campinas: Editora Unicamp. <https://doi.org/10.7476/9788526815001>
- Howard-Snyder, D. 2013. "The Logical Problem of Evil: Mackie and Plantinga." In *The Blackwell Companion to the Problem of Evil*, edited by J. P. McBrayer and D. Howard-Snyder. <https://doi.org/10.1002/9781118608005.ch2>
- Hume, D. 2007 1779. *Dialogues Concerning Natural Religion and Other Writings*. Cambridge: Cambridge University Press. <https://doi.org/10.1093/oseo/instance.00044084>
- Jaśkowski, S. 1948. "Rachunek Zdań dla Systemów Dedukcyjnych Sprzecznych." *Studia Societatis Scientiarum Torunensis* 1, no. 5, Sectio A: 55–77.
- Jaśkowski, S. 1949. "O Koniunkcji Dyskusyjnej w Rachunku Zdań dla Systemów Dedukcyjnych Sprzecznych." *Studia Societatis Scientiarum Torunensis* 1, no. 5, Sectio A: 171–172.

- Jaśkowski, S. 1969. "Propositional Calculus for Contradictory Deductive Systems." *Studia Logica* 24: 143–157. <https://doi.org/10.1007/BF02134311>
- Jaśkowski, S. 1999a. "A Propositional Calculus for Inconsistent Deductive Systems." *Logic and Logical Philosophy* 7: 35–56. <https://doi.org/10.12775/LLP.1999.003>
- Jaśkowski, S. 1999b. "On the Discussive Conjunction in the Propositional Calculus for Inconsistent Deductive Systems." *Logic and Logical Philosophy* 7: 57–59. <https://doi.org/10.12775/LLP.1999.004>
- Leftow, B. 1998. "Classical Theism." In *Routledge Encyclopedia of Philosophy*. Taylor & Francis. <https://doi.org/10.4324/9780415249126-K030-1>
- Mackie, J. L. 1955. "Evil and Omnipotence." *Mind* 64, no. 254: 200–212. <https://doi.org/10.1093/mind/LXIV.254.200>
- Margaris, A. 1967. *First-Order Mathematical Logic*. New York: Dover Publications.
- Mizrahi, M. 2013. "New Puzzles About Divine Attributes." *European Journal for Philosophy of Religion* 5, no. 2: 147–157. <https://doi.org/10.24204/ejpr.v5i2.238>
- Nieznański, E. 2007. "Aksjomatyczne Ujęcie Problemu Teodycei." *Roczniki Filozoficzne* 55, no. 1: 201–217.
- Nieznański, E. 2008. "Elements of Modal Theodicy." *Bulletin of the Section of Logic* 37, no. 3/4: 253–264.
- Pearce, K. L. 2020. "Intentionality, Belief, and the Logical Problem of Evil." *Religious Studies* 56, no. 3: 419–435. <https://doi.org/10.1017/S0034412519000088>
- Penelhum, T. 1966. "Divine Goodness and the Problem of Evil." *Religious Studies* 2, no. 1: 95–107. <https://doi.org/10.1017/S0034412500002614>
- Pereda, R. 2025. "Problems from the Category 'Classical Theism'." *TheoLogica: An International Journal for Philosophy of Religion and Philosophical Theology*, published online February 15, 2025. <https://doi.org/10.14428/thl.v9i2.84413>
- Perrine, T. 2023. "Humean Arguments from Evil against Theism." *Internet Encyclopedia of Philosophy*. <https://iep.utm.edu/humeevil/>
- Plantinga, A. 1974a. *The Nature of Necessity*. Oxford: Oxford University Press.
- Plantinga, A. 1974b. *God, Freedom, and Evil*. Grand Rapids, MI: Wm. B. Eerdmans.
- Plantinga, A. 2009. "Transworld Depravity, Transworld Sanctity, and Uncooperative Essences." *Philosophy and Phenomenological Research* 78, no. 1: 178–191. <https://doi.org/10.1111/j.1933-1592.2008.00237.x>
- Priest, G. 1979. "The Logic of Paradox." *Journal of Philosophical Logic* 8, no. 1: 219–241. <https://doi.org/10.1007/BF00258428>
- Priest, G. 1987. In *Contradiction: A Study of the Transconsistent*. Dordrecht: Martinus Nijhoff. <https://doi.org/10.1007/978-94-009-3687-4>
- Priest, G. 2006. In *Contradiction: A Study of the Transconsistent*. 2nd ed. Oxford: Oxford University Press. <https://doi.org/10.1093/acprof:oso/9780199263301.003.0015>

- Rowe, W. 1979. "The Problem of Evil and Some Varieties of Atheism." *American Philosophical Quarterly* 16: 335–341.
- Shoenfield, J. R. 1967. *Mathematical Logic*. Reading, MA: Addison-Wesley Publishing Company.
- Silva, G. B. da, and F. M. Bertato. 2019. "A First-Order Modal Theodicy: God, Evil, and Religious Determinism." *South American Journal of Logic* 5, no. 1: 49–80.
- Silva, G. B. da, and F. M. Bertato. 2020. "Formal Theodicy: Religious Determinism and the Logical Problem of Evil." *Edukacja Filozoficzna* 70: 93–119. <https://doi.org/10.14394/edufil.2020.0018>
- Świątorzecka, K. 2011. "Some Remarks on Formal Description of God's Omnipotence." *Logic and Logical Philosophy* 20: 307–315. <https://doi.org/10.12775/LLP.2011.020>
- Tooley, M. 2021. "The Problem of Evil." In *The Stanford Encyclopedia of Philosophy* (Winter 2021 Edition), edited by E. N. Zalta. <https://plato.stanford.edu/entries/evil/>
- van Inwagen, P. 2008. *The Problem of Evil*. Oxford: Oxford University Press. <https://doi.org/10.1093/oxfordhb/9780195331356.003.0009>
- Weingartner, P. 1974. "Religiöser Fatalismus und das Problem des Übels." In *Der Modernismus: Beiträge zu seiner Erforschung*, edited by E. Weinzierl, 369–404. Graz: Styria.
- Weingartner, P. 2011. *An Axiomatic Study of God: A Defence of the Rationality of Religion*. Boston: De Gruyter.
- Weingartner, P. 2021. *Theodicy – From a Logical Point of View*. Berlin: Peter Lang. <https://doi.org/10.3726/b18326>
- Wilks, I. 2004. "The Structure of the Contemporary Debate on the Problem of Evil." *Religious Studies* 40, no. 3: 307–321. <https://doi.org/10.1017/S0034412504006900>