

v. 52 n. 2 (2025): Perspectivas Contemporâneas em Filosofia da Lógica

Submetido em: 04 jul. 2025

Aceito em: 21 fev. 2025

Esta obra está licenciada com uma Licença
Creative Commons Atribuição 4.0 Internacional

Os direitos autorais da publicação pertencem às
respectivas autoras e/ou autores



Reconciling Logical Pluralism and Meaning-Theoretical Stability: Revisiting Logical Exceptionality by Rereading Dummett's Theory of Meaning and Inference

Reconciliando o Pluralismo Lógico e a Estabilidade Teórico-Semântica: Revisitando a Excepcionalidade Lógica por meio de uma Releitura da Teoria do Significado e da Inferência de Dummett

Lucas Ribeiro Vollet¹

Universidade Federal de Santa Catarina (UFSC)

ABSTRACT

The article examines how Dummett redefines the unique role of logic through a meaning-theoretical framework grounded in anti-realist philosophy. We argue that Dummett's thesis provides a non-anti-exceptionalist approach to addressing the plurality and revisability of logical systems. First, he emphasizes inference as the primary basis for meaning, with truth and assertion being justified through inferential harmony rather than through projectivist commitments to a supersensible reality. Second, it critiques classical and modal logic for their reliance on rigid realist metaphysical assumptions and their neglect of the epistemic grasp of *ingredient sense*. In contrast, Dummett's intuitionism prioritizes constructive methods of meaning-making, offering a flexible yet coherent framework for reconciling truth, assertion, and meaning. Dummett's theory of meaning will be our main focus, because if Quine's critique of deeper (intensional) foundations of meaning effectively removed the theoretical justification that distinguishes logic from other domains, then restoring logic's exceptional status requires addressing and reversing the effects of Quine's critique. Finally, the article argues that logic's unique role lies in its pragmatic ability to stabilize meaning and guide inferential practices, affirming its foundational status even within a pluralistic and fallible epistemic landscape. Although logic is continuous with the formation of meaning coming from various sources (including empirical sources), it is exceptional in the fundamental sense that it represents the *ideal stage* of justification in any *stable phase* of our judgment practice and assertion strategy.

Key-words: logical plurality. meaning-theoretical stability. logical exceptionality. inference. Dummett.

¹E-mail: luvollet@gmail.com. ORCID: <https://orcid.org/0000-0002-6300-491X>

RESUMO

O artigo examina como Dummett redefine o papel único da lógica por meio de um arcabouço teórico do significado fundamentado na filosofia antirrealista. Argumentamos que a tese de Dummett oferece uma abordagem não anti-excepcionalista para lidar com a pluralidade e a revisabilidade dos sistemas lógicos. Primeiro, ele enfatiza a inferência como a base primária do significado, com a verdade e a asserção sendo justificadas pela harmonia inferencial, em vez de compromissos projetivistas com uma realidade suprassensível. Em segundo lugar, ele critica a lógica clássica e modal por sua dependência de pressupostos metafísicos realistas rígidos e por negligenciarem a compreensão epistêmica do sentido ingrediente. Em contraste, o intuicionismo de Dummett prioriza métodos construtivos de construção do significado, oferecendo um arcabouço flexível, mas coerente, para reconciliar verdade, asserção e significado. A teoria do significado de Dummett será nosso foco principal, pois, se a crítica de Quine às fundações mais profundas (intensionais) do significado efetivamente removeu a justificativa teórica que distingue a lógica de outros domínios, então restaurar o status excepcional da lógica exige enfrentar e reverter os efeitos dessa crítica. Por fim, o artigo argumenta que o papel único da lógica reside em sua capacidade pragmática de estabilizar o significado e orientar as práticas inferenciais, afirmando seu status fundamental mesmo dentro de um cenário epistêmico pluralista e falível. Embora a lógica esteja em continuidade com a formação do significado proveniente de diversas fontes (incluindo fontes empíricas), ela é excepcional no sentido fundamental de representar o estágio ideal de justificação em qualquer fase estável de nossa prática de juízo e estratégia de asserção.

Palavras-chave: pluralidade lógica. estabilidade teórico-semântica. excepcionalidade lógica. inferência. Dummett.

INTRODUÇÃO

1.1. The main argument

This paper argues that Dummett's meaning-theoretic framework offers an alternative to anti-exceptionalist approaches to logical pluralism and revisability. Dummett redefines logic's unique role through a meaning-theoretical framework grounded in anti-realism, emphasizing inference, justification, and assertive warrantability over metaphysical commitments. By grounding logical systems in a meaning-theoretical framework, this approach preserves their reliability without resorting to universal metaphysical claims.

The paper addresses how Dummett's framework enables logic to avoid the pitfalls of dogmatism and relativism by focusing on its practical role in managing meaning, resolving inconsistencies, and guiding rational discourse effectively. By grounding logical practices in meaning-theory rather than *metaphysical absolutes*, the article illustrates how logic serves as a stabilizing force in epistemic practices, even within pluralistic and revisable frameworks. The conclusion emphasizes logic's status as a pragmatic ideal—an indispensable tool for structuring reasoning and advancing knowledge—rather than as a fixed construct bound by metaphysical commitments. This perspective highlights how Dummett's approach reconciles the fallibility and revisability of logic with its unique role in maintaining coherence and guiding rational inquiry.

Our primary focus will be on Dummett's theory of meaning, which addresses a fundamental problem: Quine's critique of the intensional foundations of meaning dismantled the theoretical basis that distinguished logic from other domains, such as the empirical sciences. By rejecting the analytic-synthetic distinction and treating meaning as contingent and holistically determined, Quine destabilized the foundation supporting logic's exceptional status. To restore logic's unique role and foundational stability, it is crucial to counter Quine's critique—a task for which Dummett's framework is particularly well-suited.

Within the development of the argumentation in the middle of the article, the focus shifts to tracing Dummett's anti-realist critique of the realist-metaphysical assumptions underlying classical and modal logic, which he views as united by their shared anti-epistemic-finitivist criteria. Dummett asserts that classical and modal logic often oversimplifies meaning by relying on binary truth-values, thereby neglecting the mediating role that sentences play in shaping the assertoric content of larger, interconnected statements. Instead of treating truth-values as standalone entities, Dummett posits that ingredient sense reveals how a sentence affects the overall content and inferential dynamics of more complex expressions. For instance, in modal contexts, the ingredient sense of a proposition is determined by its interaction with modal operators and the pragmatic conditions under which it is asserted

or evaluated. Dummett's perspective emphasizes that ingredient sense is not derived from a direct assignment of truth-values or a rigid projection of modal parameters. Instead, it emerges through mediation, shaped by the sentence's role within a network of inferential and logical relationships. Dummett's discussion of ingredient sense is a pivotal element that operationalizes his critique of traditional logical systems and bolsters his broader philosophical project of reimagining logic as a constructive discipline rooted in the dynamics of meaning and inference.

Finally, the article addresses the challenges posed by anti-exceptionalist critiques, particularly those emphasizing the entanglement of logical systems with broader theoretical frameworks and the issues of circularity, relativism, and incommensurability. It explores Dummett's adoption of a meaning-theoretic approach to logical justification, which avoids these pitfalls by anchoring logical rules in a framework of inferential harmony and epistemic pragmatism. Dummett's openness to non-classical logics, such as intuitionistic and paraconsistent systems, provides a response to concerns about relativism and incommensurability. By grounding logical revision in a meaning-theoretic foundation, these systems are not arbitrarily adopted but reflect a dynamic response to inconsistencies and epistemic demands. This ensures that changes in logical frameworks are guided by a coherent and adaptive understanding of meaning, rather than personal preference or arbitrary relativism. Ultimately, Dummett's framework affirms the exceptional role of logic, not through rigid metaphysical commitments, but through its capacity to manage meaning, reconcile inconsistencies, and adapt to complex epistemic practices. This perspective reframes logic as a dynamic yet indispensable tool for navigating and refining our inferential practices, affirming its exceptional role even in a pluralistic and fallible epistemic landscape.

Our argument does not engage in a straightforward confrontation with anti-exceptionalism; instead, it asserts that even under the premise's successful conditions — the plurality, revisability, and fallibility of logic — it still puts logic above more fragile or empirically-driven forms of justification selection. So we actually embrace anti-exceptionalism premise—acknowledging the eli-

mination of super-properties historically attributed to logic—while demonstrating that logic retains an exceptional role. This exceptionality does not arise from metaphysical fiat but from its foundational function in shaping judgment, guiding assertion, and guiding epistemic progress. This capacity reflects a deeper, shared awareness of the structures underpinning meaning—a piece of exceptional knowledge identified as central to our ability to rationalize the validity of scientific paradigms and to reconcile their evolving methodologies with a coherent framework for inference and justification.

1. 2. Anti-exceptionalism in Logic and its origins: the coordination between logical fallibilism and Meaning-Skepticism

Quine's idea that no statement, not even logical laws, is beyond revision (Quine, 1953) forms a key foundation for anti-exceptionalism, which views logic as similar to empirical sciences. According to this perspective, logical necessity is not a fixed or intrinsic property but rather reflects our patterns of reasoning and frameworks for modal discernment, shaped by experience and subject to change (Quine, 1994). Quine's anti-essentialism adds a dramatic element to this issue by removing the dogmatic role of metaphysical essentialism from our conception of necessary truth.

Despite this radical critique, Quine maintained a conservative stance regarding the adoption of non-classical logics. For him, extensions to our reasoning systems, such as those provided by set theory or second-order logic, were merely tools for refining our capacities for identification and quantification. These additions enhance our inferential toolkit without fundamentally altering the privileged status of classical extensionality and consistency (Quine, 1986). He viewed the notion of consistency as adaptable and adjustable within the course of reasoning, but he did not see this flexibility as a challenge to the core principles of classical logic. For Quine, non-classical logics could serve specific theoretical or practical purposes but could not justify abandoning the extensional framework that defines classical logic, reinforcing his view that logical systems are instrumental constructions rather than reflections of metaphysical truths.

Moreover, for Quine, the concepts we use to enhance our capacities for identification and quantification, such as those from set theory, lack an independent ontology. Categorical theory, as developed by Eilenberg and Mac Lane (1945), offers a framework for describing mathematical structures and their relationships, focusing on objects and morphisms between these objects that satisfy specific compositional and identity properties. For Quine, these frameworks are instrumental rather than metaphysical; they serve as structuralist tools for organizing and extending our reasoning but do not reflect a separate ontological domain. In *On What There Is* (1948), Quine argues that ontological commitment must be tied to what can be quantified over within an extensional framework. Similarly, in *Word and Object* (1960), he emphasizes that mathematical and logical structures, while indispensable for practical reasoning, derive their utility from their empirical applications and are not endowed with intrinsic existence. These theories are superstructures, dependent on extensional foundations, and lack the empirical grounding required for independent ontological status.

This approach, although discussed by Quine without an explicit commitment to logical pluralism, served as a catalyst for the anti-exceptionalist position, which treats logical systems as instruments or models—much like scientific theories—used to describe and predict reasoning processes. Anti-exceptionalism advances the idea that logic is not an *a priori* discipline but a revisable, empirically grounded practice, akin to the natural sciences. T. Williamson (2017) suggests that hypotheses in logic, much like those in the natural sciences, are formulated, tested, and reformulated based on their capacity to explain and predict phenomena (Martin, 2021). This aligns with the anti-exceptionalist position, which asserts that logic's methodology mirrors that of the sciences, where theories are evaluated based on their explanatory capabilities and fit with evidence (Hjortland, 2016; Martin & Hjortland, 2020) articulate this notion by introducing the concept of logical predictivism, which posits that the justification of logical theories hinges on their ability to explain phenomena and make predictions (Martin & Hjortland, 2020). This approach moves beyond any rigidly normative or purely *a priori* conception of

logic, placing significant emphasis on the role of logical phenomena. Martin and Hjortland (2022) emphasize the theoretical virtues, such as explanatory power and adequacy to evidence, that guide the selection of logical theories. They note that "logical abductivism... proposes that logics are justified on the basis of their ability to better fit relevant data and possess other theoretical virtues to a greater extent than competitors," (Martin & Hjortland, 2022, p. 2).

Commandeur (2024), Gagino-Di Leo (2024), and Bhowmik (2024) each contribute to the discourse on anti-exceptionalism in logic, emphasizing its scientific alignment, adaptability, and responsiveness to critique. Commandeur (2024) advocates a model-based approach to integrate explanatory power and empirical adequacy, while Gagino-Di Leo (2024) highlights logical revisionism as a key to theoretical adaptability. Bhowmik (2024), in turn, questions the rejection of logic and its implications for anti-exceptionalist commitments. While their approaches differ in focus, they share a commitment to treating logic as dynamic and empirically informed, reflecting core principles of anti-exceptionalism. For brevity, we will not delve into their differences.

Our article, however, argues that there is a deeper underlying issue that has contaminated the foundations of logic to the extent of giving rise to anti-exceptionalism. We argue that the origin of Quine's anti-essentialism and logical fallibilism lies in his semantic skepticism. This position is rooted in his broader critique of intensionality, as developed in works like *Word and Object* (1960) and *From a Logical Point of View* (1953), where he argues that intensional concepts are philosophically unhelpful and fail to add explanatory clarity. But in Quine's most famous text, there is an even more dangerous catalyst for skepticism. In *Two Dogmas of Empiricism* (1953), he argues that any attempt to explain or justify the concept of analyticity ultimately relies on notions that are themselves obscure or problematic, such as possible worlds (state descriptions), semantic rules (meaning postulates), computational verificationism, and linguistic identity (synonym). According to BOGHOSSIAN (1996), there is some controversy about the correct interpretation of Quine's critique—

whether he argues that we fail to make the distinction between the analytical and the synthetic, or if, despite being cognitively equipped to do so, this distinction is not real but rather conventional and fictional. That is, “although it has an intelligible content, it is necessarily uninstantiated” (Boghossian, 1996, p. 370).

At a certain point in his text, Quine appears to entertain the idea that we have a conventional grasp of analytic distinctions based on our choices regarding which theoretical entities to accept in our ontology. This idea extends into his position in another famous text, *On What There Is*, where he writes:

What there is, what words refer to, is in part determined by the structure of language; but this determination is not absolute or rigid. It is determined case by case as we draw our lines around the ordinary things of the world or around numbers, functions, or other abstract entities. (Quine, 1953, p. 16)

This supports the thesis that Quine aimed only to eliminate the metaphysical instantiation of analyticity, not our cognitive grasp of it. And there is evidence that this was Quine’s intention: “(...) a boundary between analytic and synthetic statements simply has not been drawn. That there is such a distinction to be drawn at all is an unempirical dogma of empiricists, a metaphysical article of faith.” (Quine, 1953, p. 36). However, there is also evidence that Quine did not fully acknowledge the validity of the theoretical distinctions we are capable of making, nor did he consider them to be grounded as cognitive principles. Even if such distinctions were acknowledged, he did not regard them as *a priori*.

Our problem—namely, the problem of logical anti-exceptionalism—arises in either case. If we lack the *a priori* cognitive resources to ground the distinction between analytic and non-analytic, then any form of logical stability becomes unattainable. If he is right, we would always fail to represent logical laws, particularly the principle of non-contradiction, in a stable manner, as there would be no cognitive foundation—no intensional theoretical basis—to distinguish the consistency of an empirical proposition from a tautological one. This is why anti-exceptionalism emerges in conjunction with semantic skepti-

cism and Quine's holism. Had Quine not defended the collapse of the synthetic-analytic distinction, he would not have undermined logic's claim to stand above other methods of proof, such as empirical ones.

If we are correct, then the first catalyst for the idea that logic is ordinary or *unexceptional among our proof-methods* is the notion that our grasp of meaning is not cognitively active—that is, it does not involve deliberate reasoning or structured understanding—but instead reduces to an arbitrary holistic decision. This resonates with an anti-exceptionalist view where logic is revisable, much like an empirical science. Stewart Shapiro's holistic framework emphasizes this dynamic interplay, suggesting that logical data and the inferential systems they support are not fixed but are instead empirically adaptive:

Justification is a holistic matter. Our post-theoretic judgments regarding correct inference are guided by our work in logical theory — both deductive and semantic. To borrow an overworked phrase, some of the 'data', judgements of correct inference or 'intuitions', are heavily laden with theory, at least at this point in history, (Shapiro, 1991, p. 46)

Shapiro warns against the risks of dogmatism that can arise when logical frameworks are hierarchized according to metaphysical ideals. While logic is theory-laden, it must not be constrained by metaphysical assumptions that overly formalize or restrict the flexibility required for logical systems to adapt to evolving theoretical needs.

Here, once again, logic becomes non-exceptional because "meaning" is viewed with skepticism, and therefore the criterion for signification is seen as malleable. If the criterion for verifying a true proposition can stem from various sources such as its consistency with empirical evidence, other theories, or syntactic structures, then the theory regarding the truth of that proposition will lack uniformity, resulting in a set of conflicting consequences. Some will support the truth of 'p' based on one source, while others will rely on different sources, modeling truth differently. This would undermine any claim that logic is above other methods of evidence verification.

The concern here is that if logic is treated in the same way as any other empirical or theoretical system, with no special status or foundational role, it could lead to a situation where our methods of verifying or revising logical conclusions are as unstable and unreliable as casually correcting statements without a firm grounding. This includes both the more contingent and less contingent ways of defending the same proposition. Sometimes we will reach the truth of 'p' through a more peripheral route, while other times it will be through a more central path. If logical systems are no more central than other theoretical frameworks, their reliability as tools for discerning truth would be compromised, and we could end up with a situation where logical conclusions are revised on a whim, leading to confusion and undermining the very foundations of reasoning.

This leads us back to the question of whether logic should be considered exceptional among our epistemic resources, assuming that among our tools for justifying inferences and reasoning, there is always a final one, which we call logic. Our proposal, drawing from Dummett's ideas, is that we can reframe this debate without relying on the more robust, realist, and metaphysical characteristics typically associated with attempts to guarantee logic's exceptional nature. Instead, we can reframe the debate by emphasizing the pragmatic and epistemic need for stability in logic. A stable logical system is one that is anchored in a meaning-theory, which provides a foundation for understanding and justifying inferences.

2. MICHEAL DUMMETT'S THEORY OF MEANING-THEORETICAL CONDITIONS OF LOGICAL CONSEQUENCE

2.1 Reclaiming Logic: Dummett's Critique of Quine's Semantic Skepticism

Quine's collapse of the distinction between the synthetic and the analytic strips logic of explainable foundations, reducing it to an unstable framework shaped by conventional and pragmatic decisions. In contrast, Dummett's meaning-theoretic conditions reframe logic as an exceptional, dynamic tool for managing and refining meaning.

Michael Dummett critically engaged with W.V.O. Quine's anti-foundationalist stance on meaning, particularly in his early works. In a 1955 review of Nelson Goodman's *The Structure of Appearance* (1951), Dummett addressed the reductive nominalism of both Goodman and Quine. He attributed their nominalist positions to a failure to grasp Frege's intensional thesis. However, as we have seen above, the true danger to logical stability stems from Quine's semantic skepticism and holism. According to Dummett:

If a theory of meaning of (...) is construed as attributing to a speaker an un verbalized knowledge of the propositions expressed by the sentences of the theory, its explanatory force evaporates, since it provides no means whereby we can explain the ascription to an individual of a knowledge of the various distinct propositions and their deductive interconnection. That is to say: (...) it must be construed holistically, in which case its claim to give a systematic account of the mastery of a language is spurious, since a holistic view of language precludes the possibility of any such account. (1996, p. 19)

Based on this diagnosis, we propose a strategic plan to restore logic's sense of exceptionality by reinstating respect for the theory of meaning, which Quine had dismissed. By examining Dummett's philosophical journey toward anti-realism, we uncover his compelling progression toward adopting a pragmatic interpretation of Frege's theory of Sense (*Sinn*) and ultimately embracing intuitionistic logic.

2.2 Meaning-Theoretic Conditions and the Dynamics of Assertion

Dummett's work explores the complexities of Frege's philosophy, emphasizing the aspects he believed were essential to preserve for future generations. He focuses particularly on the intensional aspects of Frege's semantics and the varying degrees of strength associated with propositional assertions. One of Dummett's key arguments is that many interpreters and authors have overlooked these intensional elements and the nuanced variations in the assertive strength of statements. For him:

according to the Fregean argument, an attribution of knowledge about an object or objects is unintelligible if accompanied by the claim that no further characterization, in terms of propositional knowledge, is possible. (...). Hence there can never be such a thing as bare knowledge of the reference of an expression, that is, knowledge of the reference unmediated by any sense which is attached to the expression. (Dummett, 1996, p. 24)

Now, a new problem arises for Dummett from the fact that previous attempts to reconcile the truth conditions of sentences with the success parameters for asserting them (Hintikka's game-theoretical approach) moved too quickly and forgot the essential thing: the meaning-theoretical conditions that describe the harmony of the rules of the game. Dummett asserts that the reference to games should be made as an analogy, not as a direct application:

the concept of truth is related to that of meaning as that of a winning strategy is to that of a game; here only an analogy is intended, not an application such as that made by Hintikka. (Dummett, 1991, p. 159)

How does Dummett view the issue? 1. For him, the concept of truth is secondary. The primary concept is inference. 2. For him, truth conditions must be subordinated to the conditions under which asserting a sentence would be justifiable, that is, the conditions in which there are elements to inferentially mediate this truth. In other words, whenever we know the cognitive principle to assert a sentence, we know a theory that predicts only the true consequences of that sentence; that is, we know how to construct the principle of opposition of this sentence and its negation. We learn to assert a proposition, therefore, not through a game-theoretical model, but through our grasp of the conditions under which defending that proposition—by avoiding its false consequences—would be theoretically viable.

According to Dummett, meaning theory reflects the harmonious stability of presuppositions and their outcomes, shaping mental rules that define the boundaries of individual's assertions. Knowing the cognitive principle to assert a sentence means understanding the inferential and justificatory framework that connects the proposition to its implications. The ability to cons-

truct the principle of opposition between a sentence and its negation is central to distinguishing assertable from non-assertable propositions. For a sentence to be assertable, one must not only assert it coherently but also negate it meaningfully, showing how its falsity would conflict with logical or theoretical frameworks. This perspective aligns with Frege's view that meaning is connected to reference through judgment: "Judgments can be regarded as advances from a thought to a truth value" (FREGE, 1948, p. 217). In this way, meaning theory can be understood as a system structured to generate conditional inferences, where judgments and rules of inferences guide the understanding of logical relations.

3. EXPLORING INTENSIONALITY AND THE FOUNDATIONS OF NON-CLASSICAL LOGIC

3.1 Frege, Dummett, and the Path to Non-Classical Logic: Moving Beyond Classical Semantics

Upon closer examination, Dummett's interpretation of Frege's theory of sense (*Sinn*) reveals how it pragmatically aligns with non-classical logical principles—principles that Frege himself did not endorse and that were once considered unorthodox or even apocryphal. Let's develop this further as a critique of classical logic, while noting that Frege also did not hold a clear commitment to the reduction to first-order concepts typically associated with classical logic. Moreover, his conception of bipolarity—where every proposition is either true or false—is not explicitly tied to a commitment to classical logic. This perspective opens up an intriguing way of reading Frege's legacy: his potential affinity with non-classical systems.

To fully address the intensional characteristics of Fregean philosophy, Dummett found it necessary to move away from certain seemingly straightforward elements associated with classical semantics—specifically, the simple and direct assignment of truth-values to propositions. For Dummett, "the interesting cases are those in which the logic is non-classical, and hence the explanation of at least some of its logical constants are not even relatively straightforward" (1991, p. 26).

Classical semantics classifies propositions as true or false. In contrast, assertions are acts that can either succeed or fail. That is why propositions have truth-conditions in semantics, whereas assertions have justification criteria in pragmatics. The shift from a semantics based on truth conditions to one centered on justification is already hinted at in Wittgenstein's later work. He states: "It is what is regarded as the justification of a sentence that constitutes the Sense of the assertion" (Wittgenstein, 1974, Part I, §40). Wittgenstein's perspective is rooted in skepticism, viewing justification as nothing more than a form of rule-following, inherently fallible and subject to interpretation.

Dummett builds on this idea but moves beyond Wittgenstein's skeptical framework. For Dummett, the concept of meaning is inseparable from the concept of "justification," yet he insists this involves more than the fallible rule-following described by Wittgenstein. Instead, Dummett envisions a logical competence that goes beyond merely checking models or verifying truth conditions. This competence involves a well-defined and codifiable epistemic state, representing a systematic understanding of how assertions are justified within a logical framework, rather than relying solely on ad hoc or interpretative rule-following.

This means that the cognitive principle used to give intelligibility to different degrees of justification, for the same sentence, is the same principle that we use to contextualize this sentence according to different pragmatic parameters of assertion. These pragmatic parameters—such as the conditions under which the sentence is asserted, its role in reasoning, or its interaction with other propositions—act as mediating instruments. They help us grasp the sentence's meaning, not as an isolated statement, but as part of a dynamic process involving varying contributions to an assertive aim. We are dealing, in this case, with its ingredient aspect; linked to truth not by direct semantic designation or inductive projection, but by some route of mediation:

The distinction between different undesigned values (...) is irrelevant to the assertoric content; it serves only to characterize the ingredient sense - how the sentence affects the assertoric content of a more complex sentence of which it is part. (Dummett, 1991, p. 48)

In this sense, the "ingredient aspect" of the sentence refers to how its meaning contributes to and interacts with the meaning of more complex assertions or logical constructs. This connection is not established through a direct semantic designation (where meaning is tied rigidly to truth-values) or through simple inductive generalization. Instead, it relies on mediation—on how the sentence's meaning is shaped by its use within a network of logical, pragmatic, and inferential relationships.

For Dummett, our standards for distinguishing modal and counterfactual scenarios are also established pragmatically. This will become clear when we extend his critique of classical logic to modal logic. The distinctions between necessity and possibility, or between actual and hypothetical situations, are not intrinsic to the language itself. Instead, they arise from how language is used in practice, particularly through the use of modal operators (such as "necessarily" or "possibly") and other auxiliary structures. As Dummett puts it, "in a language without modal operators and auxiliaries, no difference [in ingredient sense] could be perceived" (DUMMETT, 1991, p. 48).

3.2 Platonic Realism and its Intersection with Classical Logic and Modal Logic: shifting to the pragmatic use of modal operators to navigate necessity, possibility, and hypothetical scenarios.

Non-classical types of inference (non-classical ways of computing logical consequence and consistency) are also interesting since they show that there are various perspectives on the nature of logic. However, it is important to note that some non-classical logics, despite their differences from classical logic, are still based on projection methods that make them ideologically similar to classical logic. These systems rely on idealized data—whether in the form of possible worlds or other theoretical constructs—to define the truth or consistency of propositions. In this sense, they do not fully depart from the

idealized assumptions of classical logic. For example, in possible-worlds semantics, the truth of a proposition is evaluated across a range of possible worlds, which are not real-world entities but conceptualized models used to project logical relations.

The semantics of possible worlds presents a form of realism distinct from the truth-theoretical assumptions of classical logic. Both perspectives, however, share a commitment to anti-finitivism, which becomes their central theme. Anti-finitivism, in this context, opposes the view that logical systems must be confined to finite or strictly computational conditions. Rather, it embraces a broader, more expansive framework for understanding truth and meaning.

When viewed through the lens of anti-finitivism, modal logic can be understood as a coherent extension of classical logic into richer dimensions. Classical logic operates within a framework where truth conditions are limited to the actual world or a fixed set of premises. In contrast, modal logic—through the semantics of possible worlds—extends the scope of truth conditions by projecting them across multiple possible worlds, introducing a more complex structure of possibilities.

According to anti-finitivism, the core of both classical logic and modal logic is the realistic-metaphysical belief that assumes a realistic sense of verification for the assumptions of p , meaning that the method of verification is not mediated or affected by other factors, such as language, meaning-theory, or consciousness. Instead, it assumes an idealized verification process. Dummett introduces the notion of a hypothetical intelligence to illustrate the connection between metaphysical realism and verification.

It follows that our knowledge of the truth-conditions of sentences whose truth we cannot or cannot always recognise directly as true, (...) will involve our forming, by analogy with our own faculties, the conception of a hypothetical being with superhuman powers. (...) It would not do to attribute to such a hypothetical being the power to recognise counterfactual reality (the truth or falsity of counterfactual conditionals) directly, unless we were given some account of what such a power

would be like; perhaps the possible- worlds picture, when construed realistically, is intended to do just that. (Dummett, 1991, p. 345-6)

Platonic realism, both in its traditional form and in the semantics of possible worlds, plays a critical role in shaping our understanding of logical structures and inferences. Platonic realism, in its traditional sense, posits that abstract entities, such as numbers, sets, and mathematical objects, exist independently of human thought and can be discovered or recognized through intellectual engagement.

These entities are timeless, objective, and exist in a realm of their own, independent of the empirical world.

The role of models in Platonic realism—especially in both traditional logic and possible worlds semantics—also aligns with the Platonic view. In possible worlds semantics, a model consists of a possible world (or set of worlds) along with a valuation function that assigns truth values to propositions within those worlds. This suggests that instead of abstractly viewing possible worlds as idealized projections, we assume that a computational model can generate or simulate different worlds and evaluate the truth conditions in each one.

Even though the worlds themselves are abstract, the model serves as a concrete instantiation of possible reality, providing a way to reason about how propositions behave in different possible scenarios. In a sense, there is no fundamental divergence between classical logic and modal logic. This is because these models—whether in classical logic or possible worlds semantics—are always reducible to classical extensions, even if only as extensions of a propositional function, hypothetical or theoretical extensions. This means that any model used in the semantics of possible worlds can ultimately be expressed through classical logical terms, typically by mapping propositions to their truth values in various worlds.

Dummett confronts the semantics of possible worlds' philosophical presuppositions multiple times in his second study on Frege (1983). In a lengthy chapter delving into Kripke's concept of rigidity, he shares concerns about the ability of humans to describe stable and unchanging modal parameters:

If the hypothetical circumstances are sufficiently close to the actual ones, the identification of actual individuals as involved in them is unproblematic: the question is whether there are uniform general principles governing such identifications in all cases (...). My belief (...) is that there are no uniform general principles. (Dummett, 1983, p. 600)

The assumption that there are supra-sensible checks for hypothetical extensions is a realist assumption. In *Logical Basis of Metaphysics*, Dummett writes:

An appeal to hypothetical beings is of no help to us in giving an account of the meaning we attach to the sentences of our language (...) [they] are of the useless kind that Wittgenstein caricatured in his example of its being five o'clock on the sun; when asked what that means, one says, 'Well, it means that it is on the sun just the same as it is here when it is five o'clock here'. (Dummett, 1983, p. 348).

This suggests that this process uses a similarity parameter to determine how closely a given possible world resembles the actual world or other possible worlds, which in turn affects the verification of propositions. However, the question then becomes how we determine this parameter, a question that Dummett argues can only be answered pragmatically. He believes that any non-pragmatic response would lead to dogmatism.

4. CONSTRUCTING TRUTH AND MEANING: DUMMETT'S ANTI-REALIST FRAMEWORK AND ITS PRAGMATIC IMPLICATIONS

4.1. Inference Over Truth: The Constructive Basis of Meaning

By emphasizing the connection between meaning, inference, and the justification of assertions, Dummett's meaning-theoretic foundation parallels intuitionism's focus on constructive proof as the basis of truth, making the two approaches inherently compatible. Heyting's intuitionistic interpretation of connectives can be applied to logical combinations of statements in order to accomplish this construction:

by appeal to Heyting's explanations we have a specific account of propositions and of species: a proposition is a decidable specification of constructions (in those that are and those that are not proofs of the statement) (Dummett, 1991, p. 29)

This kind of knowledge is not about projecting, analogizing, or inductively inferring truth from examples. Instead, it is constructive knowledge—we build the truth of the sentence through logical steps. Meaning is not simply a matter of attaching fixed references to terms but is something that emerges from the context of discourse and the inference rules that govern it. We don't need a "supercomputer" or a perfect being that knows the truth absolutely. We are justified in asserting a sentence if we can show how it can be constructed within a logical system, even if we might be wrong.

This approach results in a semantic system that aligns with rational strategies of assertion, where the justification for an assertion depends on its logical construction, not merely on external truth conditions. By grounding truth and meaning in pragmatic, constructive reasoning, Dummett's view helps reconcile pragmatic concerns (how we justify assertions) with semantic concerns (what meanings are assigned to statements).

4.2. Anti-Realism and Epistemic Justification in Semantic Theory: Justification, Assertion, and the Transition from Conjecture to Truth

Dummett systematically critiqued the metaphysical assumptions that shaped classical logic and the tenets of possible-world semanticists. He argued that constructing a language's meaning-theory must avoid the metaphysical-realistic assumptions embedded in classical logic, which presupposes that truth values exist independently of human understanding. Similarly, Dummett critiqued the projectivist assumptions of modal logic, which project hypothetical possibilities onto our logical evaluations.

In contrast, intuitionism promotes an anti-realist stance, rejecting the idea that truth exists independently of human cognition. Intuitionism advises against approaching problems in a mechanical, calculator-like manner, emphasizing instead the importance of justifications that are internally grounded. We will use an excerpt from the Gianluigi Bellin's outstanding paper to better

illustrate how Dalla Pozza and Garola's methodology might be used to systematize this anti-realist conclusion through intuitionism:

This is Dalla Pozza and Garola's pragmatic interpretation of intuitionistic logic: if α denotes a proposition, the elementary expression $\vdash \alpha$ stands for an assertion and $\vdash \alpha$ is justified just in case we have conclusive evidence that α is true; in the case of a mathematical statement α , "conclusive evidence" is a proof of α . Moreover, an assertive expression of conditional type $A \supset B$ is justified by providing a method that transforms a justification of an assertive type A into a justification of an assertive type B . (Bellin, 2011, p. 3)

This means that the process of justification is rooted in our cognitive or epistemic capacities, rather than in the need for external verification. In this way, what is considered *a priori* is not about external facts but pertains to how we know and justify our beliefs. While the framework for justifying propositions may evolve with new propositional information, it remains fundamentally *a priori*.

This approach is particularly beneficial to pragmatism, a philosophical field rooted in anti-realism. Both classical and contemporary forms of pragmatism share the view that "truth" is the most practical explanation, grounded in the theoretical costs and adjustments required to maintain the coherence and utility of a belief system (JAMES, 1907; DEWEY, 1938). This perspective emphasizes the pragmatic value of truth in guiding action and decision-making, focusing on what works in a given context rather than on abstract or absolute definitions of truth. Within this framework, if the justifications are consistent, a transition can be constructed from conjecture to assertion.

A conjecture may be converted into a justified assertion if the proof (conclusive evidence) for its content becomes available. The description of a conjecture can be potentially asserted even if they may be not effectively asserted" (Chiffi; Giorgio, 2017, p. 12).

The most robust strategy for assertion can also be developed as justifiable assertability. In other words, a shift from conjectural content to assertive content is possible. It is important to recognize that the possibility of cons-

tructing this transition is epistemically guaranteed, but it is not available as a projection or a Platonic reality.

The conditions pertaining to the theory of meaning, particularly those that attribute meanings to the logical connectives of negation and implication, play a vital role in establishing a balance between an assumption and its outcomes. What matters is that harmonic introduction and elimination rules, in the sense that Gentzen (1969) originally used the word, can anchor even speculative expansions or the assertability of conjectural propositions. The conditions in question serve as anchors in facilitating the reconciliation between an assumption and its subsequent ramifications. Specifically, they contribute to the formation of a framework that represents the consequences that are excluded as a result of the initial assumption made in an assertion.

4.3. Anti-realism and the Shifting Grounds of Truth Assertions: Ingredient-Sense and Modal Divergence: Understanding Truth Variations

One way to understand the difference between straightforward meaning-assignment and ingredient-sense in Dummett is as follows.

Proposition p is the statement: "Unicorns are horses with horns."

Belief B_1 and B_2 are two different speakers' beliefs about p , each shaped by modal parameters and projective presuppositions.

The two speakers may agree on the truth value of the proposition p , meaning:

$B_1(p) = B_2(p)$ where both $B_1(p)$ and $B_2(p)$ are either true or false.

Even though the truth values are the same, the semantic-ingredient meanings that the two speakers assign to p can differ. This can be captured as:

$M_1(p) \neq M_2(p)$

where $M_1(p)$ and $M_2(p)$ represent the semantic meanings assigned to the proposition by Speaker 1 and Speaker 2, respectively. These ingredient-meanings might be influenced by different modal assumptions, contextual background, or projective presuppositions.

Let's say that two native competent speakers, interviewed by a linguist, mark the proposition p "true," but each speaker uses different modal parameters (based on distinct projective presuppositions) to select the truth of this classification. We can imagine this as the way each speaker has learned about p , based on different scientific conceptions about the production (the productive element) of unicorns. For example, while both may believe that horses with horns are unicorns, one might believe that this is due to a scientific understanding where horns and horses are productive of unicorns, while the other may think that unicorns emerge due to other elements being combined with horses and horns. This divergence can be less scientific as well. Both may believe that unicorns are mythical creatures that exist only in stories or fiction, but they might still think that the broader mythical conditions for horses with horns to produce a unicorn involve different folkloric elements. The divergence is, ultimately, a meaning-theoretical one: concerning the ingredient sense assigned, rather than the straightforward semantic value.

A classical logician and a possible-worlds semanticist will have difficulty *distinguishing* these *differences*. Dummett addresses this issue by emphasizing the explanatory role of ingredient sense in understanding the interaction between simpler and more complex semantic constructs. He critiques the straightforward assignment of modal values to counterfactual scenarios, arguing that it fails to account for the deeper purpose of such evaluations. Dummett critiques Kripke's thesis of rigid designators (Kripke, 1980), particularly its use as a modal identifying tool (a linguistic mechanism used to distinguish or track entities across worlds), by highlighting that crucial oversight. Dummett explains:

Kripke fails to ask for what purpose we need to consider the truth-value of a sentence with respect to a counterfactual situation. The answer is that we need the notion only in order to explain the contribution of that sentence to the content of more complex sentences, of which it is a constituent; it serves, on a particular semantic theory, to explain the ingredient sense of that sentence (Dummett, 1981, p. 582)

Classical logicians and possible-worlds semanticists are unable to distinguish between two different interpretations of the same proposition when modal parameters differ. They are unable to frame the ingredient-sense. In the classical case, the assumption that the truth of a proposition must be either true or false, without considering the role of context or modal presuppositions, leads to an inability to account for these differences. In the case of modal logic, the issue is different: since the parameter for modal discernment is projective—an imagined hypothetical extension treated as actual—any possible world in which a unicorn is a horse with horns is indistinguishable from any other, regardless of the ingredient-factors that could produce this horse with horns in one world but would be *counterproductive* in another world. This points out that the causal conditions that could produce a unicorn in one world (e.g., a certain biological or mythical explanation) might be incompatible with the factors needed in another world where unicorns are also horses with horns. However, because the modal system treats these worlds as equivalent (in terms of the logical evaluation), those differences in the production mechanisms and epistemic states do not matter for the evaluation of the proposition. This critique aligns with concerns raised by hyperintensional theories², which emphasize the need for more fine-grained distinctions in semantic evaluation than those provided by standard possible-world semantics.

Here, anti-realists have an advantage as these variations can be expressed as varying epistemic degrees of justification; speakers have various (sometimes conflicting) justifications in favor of the same (actual or possible) extension. They formulate their defense of the proposition ‘p’ in disparate ways, which may reflect superficial differences in logical “routes”, but may also reflect deep differences in intensional choices. As Dummett suggests, these intensional choices (i.e., the theories of meaning that speakers adopt) can lead to substantial disagreements.

The point lies in the fact that such disagreements in meaning are not always easy to resolve or articulate within the framework of a realist me-

² Hyperintensional approaches, such as those discussed by CRESSWELL (1975) and YABLO (2014), argue that traditional modal frameworks fail to account for differences in cognitive or epistemic content when evaluating propositions across possible worlds..

taphysics, which may struggle to reconcile the variety of underlying meanings that shape speakers' beliefs. The advantage of anti-realism here lies in its ability to accommodate the idea that variations in belief or interpretation can be framed as differing degrees of justification. Unlike realism, which often assumes that propositions and modal concepts correspond to an objective reality that is independent of our beliefs or justifications, anti-realism focuses on the ways in which truth, modality and meaning are constructed or justified within particular contexts.

5. RETHINKING LOGICAL EXCEPTIONALITY: STABILITY, MEANING AND LOGICAL FOUNDATIONS IN EPISTEMIC GROUNDS

5.1 The Challenge of Justifying Logical Systems: Stability and Meaning

A common approach among anti-exceptionalist theorists is the thesis that logical systems intertwine with other theoretical systems and cannot be isolated from them. This removes another central tenet of the exceptional status traditionally associated with logic, that which speaks of its role as the central core of our justification and demonstration systems. This creates new problems: How can the rules of logic be justified? What kind of fact, evidence, or demonstration would be adequate to justify the choice of a rule such as *modus ponens*? This issue, popularized by Lewis Carroll's (1985) famous paradox, has been the subject of much debate. Recently, Gerhard Schurz advanced the discussion. For Schurz: "every description of evidence for or against a given logic *L* presupposes a metalogic for describing this evidence and drawing conclusions from it about the status of *L*" (2022, p. 30).

The author touches on some delicate points. One is that logical frameworks can sometimes be circular. Another is that logical systems might be adjusted or revised without properly addressing foundational concerns; attempts to evaluate different logical systems often fail to provide a neutral or objective framework. Furthermore, the author points out the problems of relativism and incommensurability: the choice of a logical system often appears subjective, based on intuition or personal preference rather than objective

reasoning. Additionally, those who support different logical systems seem to be in deep disagreement, and this conflict cannot be resolved through rational debate or framed neutrally, since any attempt to do so inherently relies on adopting a specific logic.

Stability, in this context, does not require a metaphysical commitment but refers to the internal coherence and consistency of logical systems, ensuring they remain reliable tools for reasoning over time. This stability is, we argue, what we achieve when we have clarity and theoretical transparency about the foundations of our logical practice. When we talk about a meaning-theory, we refer to a broad theoretical knowledge of what is not absurd, which globally encompasses our general understanding of what exceeds the limits of meaning within a global system of knowledge. This involves more than just a basic and classically unified knowledge of logical laws; it extends to an understanding of the general management of meaning—a kind of "management" of what is considered valid and coherent within a system of thought.

5.2 Logic as a Tool for Managing Meaning and Inconsistencies

Dummett prefers intuitionism over classical logic precisely because of its greater flexibility in dealing with logical data, especially those that, despite not fitting the law of excluded middle, are still considered logical. The same is true for paraconsistent logic. Recent and earlier work in *inconsistency management* aligns with this theoretical horizon. The idea that contradictions need not signify a complete breakdown but rather indicate areas for further exploration and refinement within a system, is central to Carl Hewitt's concept of *Inconsistency Robustness*. According to Hewitt, contradictions in logic have been a progressive development, not "game stoppers." These inconsistencies can be viewed as opportunities for further exploration, instead of something to be "swept under the rug" by dismissing their existence. Such denial has historically delayed mathematical development (Hewitt, 2011). This view is supported by earlier work in paraconsistent logic, notably by Da Costa (1974). These perspectives emphasize that, rather than focusing solely on the removal of inconsistencies, logic should be viewed as a tool for navigating and

managing inconsistencies, ensuring that thought processes remain *productive* even in the face of conflicting information. Essentially, logic functions as a tool to manage the complexities of reasoning, ensuring that meanings are stabilized and inconsistencies are resolved throughout our epistemic processes.

By grounding logic in a meaning-theory, we reframe the issue in a way that is favorable to logic pluralism and logical fallibilism, without collapsing into logical nihilism or relativism. This reframe allows us to address the theory-ladenness of logical data—acknowledging that our logical systems are influenced by broader theoretical frameworks—while still maintaining the need for stability and internal coherence. It avoids the pitfalls of dogmatism, ensuring that logical systems remain adaptable without reducing them to empirical claims or abstract metaphysical truths. It also avoids the risk of circularity that can arise when logical frameworks are used to justify themselves, as this would complicate the justification of logic without a deeper theoretical foundation.

We can now imagine that logic is grounded in a meaning-theory that reflects the cognitive processes of an individual who understands the rules for evaluating, asserting, and defending propositions. In this way, logic becomes part of the ongoing process of meaning-making. This process not only helps us form and maintain coherent meanings but also guides us in addressing inconsistencies or situations where meanings break down. This does not rule out a fallible and plural view of logic. However, it prevents instability and restores a sense of exceptionality that resists being entirely eradicated. The capacity for conflict between logical theories, or different ways of defending a proposition, is not catastrophic to logic's exceptionality from the anti-realist or pragmatist perspective. According to these views, we no longer seek anything beyond the best assertion strategy available at any given historical moment.

What will distinguish the logical from the illogical, then, is not empirical, but rather an epistemic ideal. This perspective allows us to reconcile logic's fallibility and plurality with its distinctive and exceptional characteristics. For what stands out as logical, as opposed to illogical, in our assertion/judgment strategy is precisely that piece of knowledge that functi-

ons uniquely in the development of our self-understanding, i.e., our meaning-theoretical awareness, which enables us to navigate and articulate the boundaries of what is considered valid within our cognitive structure. This knowledge serves as the foundation for advancing our understanding, providing a framework within which we can critically assess and refine the concepts and methods that guide our reasoning, ensuring that they align with evolving standards of epistemic practice.

6. CONCLUSION

This article has argued for a reframing of logical exceptionalism through the lens of Dummett's meaning-theoretical framework. By addressing the challenges posed by anti-exceptionalism and its origins in Quinean skepticism, we have shown that logic retains a unique role, not through metaphysical absolutes but through its capacity to stabilize meaning, reconcile inconsistencies, and guide inferential practices.

By grounding logic in meaning-theory that emphasizes inference, justification, and constructive reasoning, Dummett provides a pathway for reconciling logical plurality and fallibility with stability and coherence, ensuring that logic remains indispensable even within pluralistic and revisable epistemic landscapes.

The article further highlights the importance of recognizing ingredient sense, pragmatic justification, and inferential harmony as key components of logical practice. These elements allow for the meaningful integration of non-classical logics, such as intuitionistic and paraconsistent systems, without succumbing to relativism or circularity. In doing so, Dummett's framework affirms that logic is exceptional in its epistemic role, serving as a pragmatic ideal that transcends empirical and metaphysical constraints.

This reimagining of logical exceptionalism underscores its continued 29 relevance as a cornerstone of our meaning-making processes and cognitive practices. Our analysis also shows that non-classical conditions, particularly those embracing flexibility in the face of contradictions and violations of the law of excluded middle, provide a unique opportunity to rethink the exceptio-

nal nature of logic. Rather than relegating logic to the instability of so-called "lesser" or more fragile means of proof, such as empirical methods, the anti-classical and anti-realist critique invites us to see logic as an adaptable yet foundational epistemic framework. This perspective affirms logic's role as a robust tool for structuring meaning and guiding epistemic practices, even in the face of theoretical pluralism and fallibility.

Dummett's philosophy of logic represents a powerful counterpoint to anti-exceptionalism by emphasizing the integral role of meaning-theoretical assumptions in shaping logical systems. In contrast to the views of prominent anti-exceptionalists, such as Quine and Williamson, who argue that logic is revisable and should be treated as a tool akin to natural sciences, we assert that even within the framework of logical revisability and fallibility, there remains a foundational role for logic. We argue, first, that the fallibility and revisability of logic depend on the specific adoption of new meaning frameworks and, therefore, is not a blind or dogmatic revision based solely on the arbitrary abandonment of certain logical systems in favor of others. This is the main difference between Dummett and Quine: while Quine argues that no theory of meaning—whether intensional or related to analyticity—can fundamentally explain or justify a logical theory, Dummett takes the opposite stance. His theory implies that what we understand as logical at any given moment in our epistemic practices is grounded in a framework of meaning that stabilizes the distinction between what is logical and what is illogical.

Dummett goes beyond simply acknowledging that logical systems are shaped by external frameworks or theories; he emphasizes that the internal development of these frameworks through epistemic judgment is crucial. This process ensures that the meaning-theory, which stabilizes the distinction between 30 what is logical and what is illogical, plays a foundational role in shaping our logical practices and our understanding of logic itself.

It is that piece of exceptional knowledge, rooted in the meaning-theoretical awareness that we all possess, which allows us to defend our normative boundaries and knowledge paradigms, to represent the triumph over long-standing riddles and absurdities. The study of the conditions for the formation

of meaning is what enables epistemic clarity to replace inadequate thought parameters, rationalize shifts from mythical (or superstitious) to positivistic-scientific modes of rationality, and refine those modes further as their limitations are identified. This foundational aspect of knowledge, deeply connected to our shared capacity for managing and stabilizing meaning, invites further exploration within phenomenological fields, particularly those examining ideality and the structures underpinning meaning. However, a detailed investigation of these phenomenological dimensions lies beyond the scope of this article and must be left for future work.

REFERÊNCIAS

BELLIN, Gianluigi. Assertions, hypotheses, conjectures, expectations: Rough-sets semantics and proof-theory. In: PEREIRA, L.; HAEUSLER, E.; DE PAIVA, V. (eds). *Advances in Natural Deduction*. Trends in Logic, v. 39. Springer, Dordrecht, 2011.

BOGHOSSIAN, P. A. Analyticity Reconsidered. *Noûs*, 30(3), 360-391, 1996. <https://doi.org/10.2307/2216275>

BHOWMIK, N. *Adopting and rejecting logic*. IRNBU Repository, 2024. Available at: <https://ir.nbu.ac.in/handle/123456789/5204>

BUNGE, Mario. *Semantics II: Interpretation and truth*. Dordrecht, Holland: D. Reidel Publishing Company, 1974.

CARROLL, Lewis. What the Tortoise said to Achilles. *Mind*, v. 4, n. 14, p. 278-282, 1895. <https://doi.org/10.1093/mind/IV.14.278>.

CHIFFI, D.; GIORGIO, A. Assertions and Conditionals: A Historical and Pragmatic Stance. *Studia Humana*, v. 6, 2017. <https://doi.org/10.1515/sh-2017-0004>.

COMMANDEUR, L. *Models and monism*. *Asian Journal of Philosophy*, 2024. Available at: <https://link.springer.com/article/10.1007/s44204-024-00216-0>.

CORCORAN, John. Notes on the Founding of Logics and Metalogic: Aristotle, Boole, and Tarski. In: MARTÍNEZ, C. et al. *Current Topics in Logic and Analytic Philosophy/Temas Actuales de Lógica y Filosofía Analítica*. Santiago de Compostela: Imprenta Universidade de Santiago de Compostela, 2007. p. 147-170.

CRESSWELL, M. J. *Hyperintensional logic*. Springer, 1975.

DA COSTA, N. C. A. On the Paraconsistency of Logical Systems. *Journal of Philosophical Logic*, v. 3, n. 1, p. 29-42, 1974.

DEWEY, John. Logic: *The theory of inquiry*. New York: Henry Holt and Company, 1938.

DUMMETT, Michael. *The Logical Basis of Metaphysics*. Cambridge, MA: Harvard University Press, 1991.

DUMMETT, Michael. *The Philosophical Basis of Intuitionistic Logic*. In: **Truth and Other Enigmas**. Cambridge, MA: Harvard University Press, 1975. p. 215-247.

DUMMETT, Michael. *The Interpretation of Frege's Philosophy*. London: Gerald Duckworth & Co Ltd, 1983.

DUMMETT, Michael. *The Seas of Language*. Oxford: Clarendon Press, 1996.

DUMMETT, Michael. Review of The Structure of Appearance by Nelson Goodman. *Philosophical Review*, v. 64, n. 4, p. 573-575, 1955.

EILENBERG, Samuel; MAC LANE, Saunders. General theory of natural equivalences. *Transactions of the American Mathematical Society*, v. 58, n. 2, p. 231-294, 1945.

FERRARI, Filippo; MARTIN, Ben; FOGLIANI SFORZA, Maria Paola. Anti-exceptionalism about logic: an overview. *Synthese*, v. 201, n. 2, p. 1-9, 2023.

FINN, S. The adoption problem and the epistemology of logic. *Philosophical Studies*, v. 178, n. 6, p. 1981-1997, 2021. <https://doi.org/10.1007/s11098-020-01484-0>.

FREGE, Gottlob. Sense and Reference. *The Philosophical Review*, v. 57, n. 3, p. 209- 230, 1948.

GAGINO-DI LEO, J. M. Local or global logical revision. *PhilPapers*, 2024. Available at: <https://philpapers.org/rec/LEOLOG>. Accessed on: 27 Nov. 2024.

GENTZEN, Gerhard. **Collected papers**. Edited by M. E. Szabo. Amsterdam: North Holland, 1969.

HEWITT, Carl. **Inconsistency Robust Direct Logic: A Minimal Fix to Classical Mathematical Logic**. MIT Press, 2011.

HJORTLAND, Ole Thomassen. Anti-exceptionalism about Logic. *Philosophical Studies*, v. 174, p. 631-658, 2016.

JAMES, William. *Pragmatism: A new name for some old ways of thinking*. New York: Longmans, Green, and Co., 1907.

KRIPKE, Saul A. *Naming and Necessity*. Cambridge, MA: Harvard University Press, 1980.

LINDENBAUM, Adolf; TARSKI, Alfred. On the limitations of the means of expression of deductive theories. In: CORCORAN, J. (Ed.). *Logic, semantics, meta-mathematics*. Indianapolis: Hackett, 1983. p. 384-392.

MARTIN, B. *Logic as a science*. *Philosophy Compass*, 2021. Available at: <https://unknownscience.net>.

MARTIN, B.; HJORTLAND, O. T. *Logical abductivism and predictivism*. *Philosophy Compass*, 2020. Available at: <https://unknownscience.net>

MARTIN, Ben; HJORTLAND, Ole Thomassen. Logical data and anti-exceptionalism. *Synthese*, v. 200, n. 1, p. 1-24, 2022. <https://doi.org/10.1007/s11229-022-03653-7>.

QUINE, Willard Van Orman. *Two Dogmas of Empiricism*. In: *From a Logical Point of View*. Cambridge: Harvard University Press, 1953. p. 280-302.

QUINE, Willard Van Orman. *The Ways of the Paradox*. Cambridge: Harvard University Press, 1994.

QUINE, Willard Van Orman. *On What There Is*. In: *From a Logical Point of View*. Cambridge: Harvard University Press, 1948. p. 1-19.

QUINE, Willard Van Orman. *Word and Object*. Cambridge: MIT Press, 1960.

RUSSELL, Bertrand. *On Denoting*. *Mind*, v. 14, n. 56, p. 479-493, 1905.

SCHANG, F. A general semantics for logics of affirmation and negation. *Journal of Applied Logics: If CoLog Journal of Logics and Their Applications*, v. 8, n. 2, p. 593- 614, 2021.

SCHURZ, Gerhard. Meaning-preserving translations of non-classical logics into classical logic: Between pluralism and monism. *Journal of Philosophical Logic*, v. 51, 34 n. 1, p. 1-29, 2022. <https://doi.org/10.1007/s10992-021-09608-6>.

SHAPIRO, Stewart. *Foundations without foundationalism: A case for second-order logic*. Oxford: Oxford University Press, 1991.

WILLIAMSON, Timothy. *Semantic paradoxes and abductive methodology*. Oxford: Oxford University Press, 2017.

WITTGENSTEIN, Ludwig. *Philosophical Investigations*. Translated by G. E. M. Anscombe. Oxford: Blackwell, 1967.

WITTGENSTEIN, Ludwig. *Philosophical Grammar*. Oxford: Blackwell, 1974.

YABLO, S. *Aboutness*. Princeton University Press, 2014.