Examining ideological premises in Frege's semantics: An investigation of some standards of uniforming thinking about meaning in the beginnings of analytic philosophy

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ABSTRACT

The present article starts from the assumption that the dominant faction of the authors of the first phase of analytic philosophy – influenced mainly by the work of Gottlob Frege – had a more or less delimited idea of what logic should be, and that this idea founded their own ideology, understood as a standardizing set of ideas about *meaning and its scientific parameters*. We argue that devising principles for truth-value assignment based on semantic parameters (for effectively selection of well-formed-formulas) has led to an ideological view that is in harmony with both empiricist-positivist dogma, as well as popular sociological perspectives about the conditions for mutual communication and understanding. These conditions are intended to parallel the standards for evidence and inference available in the natural sciences and the criteria for sociological standardization of shared assumptions for effective communicative exchange. In a short appendix we conclude the article by unfolding some perspectives for an alternative view of the concept of meaning, possible thanks to the flexibility of logical parameters (through non-classical logic and semantics) and the critique of the dogmas of the first phase of analytic philosophy (Quine).

KEYWORDS

Frege; Semantics; Philosophy of language; Analytical philosophy.

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Examinando premissas ideológicas na semântica de Frege: Uma investigação de alguns padrões de pensamento uniformizado sobre o significado nas primícias da filosofia analítica

RESUMO

O presente artigo parte do pressuposto de que a facção dominante dos autores da primeira fase da filosofia analítica – influenciada principalmente pela obra de Gottlob Frege – tinha uma ideia mais ou menos delimitada do que deveria ser a lógica, e que essa ideia fundamentava sua própria ideologia, entendida como um conjunto normatizador de ideias sobre o significado e seus parâmetros científicos. Argumentamos que a elaboração de princípios para atribuição de valor de verdade com base em parâmetros semânticos (para seleção efetiva de *well-formed-formulas*) levou a uma visão ideológica que está em harmonia com o dogma empirista-positivista, bem como com as perspectivas sociológicas populares sobre as condições para a comunicação e compreensão coletiva. Essas condições pretendem ser paralelas aos padrões de evidência e inferência disponíveis nas ciências naturais e aos critérios de padronização sociológica de suposições compartilhadas para uma troca comunicativa efetiva. Em um breve apêndice concluímos o artigo desdobrando algumas perspectivas para uma visão alternativa do conceito de significado, possível graças à flexibilidade dos parâmetros lógicos (através da lógica e semântica não clássicas) e da crítica aos dogmas da primeira fase da filosofia analítica (Quine).

PALAVRAS-CHAVE

Frege; Semântica; Filosofia da linguagem; Filosofia analítica.

Introduction

According to Paul Thom in *Logic and its objects: a medieval Aristotelian view*, "...sometimes what motivates a reforming logician is a new vision of what logic should be. I think that the major reformers of the nineteenth century had this sort of motivation" (2014, p. 158). The present article starts from the assumption that the dominant faction of the authors of the first phase of analytic philosophy had a more or less limited idea of what logic *should be*, and that this idea established its own ideology, understood as a standardizing set of ideas about *meaning and its scientific parameters*. Our discussion will focus on how these uniforming ideas – which have matured into philosophical foresight (or straightforward empiricist and proof-theoretic ideologies) – have been associated with the evolution of semantic interpretation that followed Gottlob Frege's conceptual innovations.

What we will call the ideological core of this motivation was a unified program for delineating the difference between meaning and pseudo-meaning, which took up various forms of meaning-theoretical presuppositions to establish a coherent, unified theory of meaning that was immune to violations of the principle of compositionality. However, we will challenge the scientific coloration of this assumption by raising the suspicion that extensionalism – in its various facets (we will revisit Russell, Wittgenstein, Carnap, Davidson) – was an ideological presupposition that served to justify the supremacy of a conception of what is sayable, expressible, or a conclusion amenable to explicit characterization. The course of our argument begins with an account of Frege's insight about meaning, which became the key to a conception of semantic value; and ends with an account of the ideological inclinations associated with the innovations that semantics brought to logic.

We argue that devising principles for truth-value assignment based on semantic parameters (for effectively selection of well-formed-formulas) has led to an ideological view that is in harmony with both empiricist-positivist dogma, as well as popular sociological perspectives about the conditions for mutual communication and understanding, found in authors like Donald Davidson (*Truth and talk*) and Robert Brandom (*Making it explicit*; *Articulating reasons*). In a short appendix we conclude the article by unfolding some perspectives for an alternative view of the concept of meaning, possible thanks to the flexibility of logical parameters (through non-classical logic and semantics) and the critique of the dogmas of the first phase of analytic philosophy (Quine).

Frege's contribution to a scientific semantics

To start off, let's use a traditional quote from Frege's work responsible for sparking a career of independent discussion in formal semantics: "Every declarative sentence concerned with the referents of its words is, therefore, to be regarded as a proper name, and its referent, if it exists, is either the true or the false" (FREGE, 1948, p. 216).

Frege's (1892) concept of truth as reference (today: semantic value) is particularly neutral, not to say harmless, from the philosophical point of view. It is a functional conception aimed at determining the dependence between complex propositions and the contribution of their constituents. The truth-functional theory of truth has proved successful in establishing the semantic insight that meaning is a function of the contribution of its components; empirical linguistics, like philosophy of language in general, has taken advantage of the assumption that the coherent and unified study of a language must capture precisely this aspect of expressions, namely, the aspect according to which expressions are compositionally coordinated:

> whenever A and B are understood sentences, then also 'A and B' would appear to be meaningful. This is brought under control in the meaning theory by expressing the condition for the application of the key concept P to 'A and B' in terms of P applied to A and P applied to B. The most popular candidate for a key concept has undeniably been truth: the content of a sentence is given by its 'truth-condition'. (SUNDHOLM, 1986, p. 473)

The idea of truth is a key concept, because it is a sufficiently general parameter to test whether any model consistent with the proposition of a linguistic expression is indifferent or indistinguishable from the models of another expression in a single aspect: in terms of what it denies or implies. The feature sought in this distinction is general enough to guarantee a sense in which the expressions are semantically identical, i.e., they are not capable of producing semantic discrepancies or reversals of truth values. These expressions are equivalent from the perspective of the logical category they represent because of this characteristic, which allows them to be substituted without altering the truth value. This allows for a complete theory of how to inductively extend the understanding of the syntax of any language – to the extent that any syntactic structure articulates a structural knowledge that is fully captured by the understanding of the categories.

The lesson is that sentences that have the same meaning leave out exactly the same amount of information, making them sufficiently similar to each other to serve as semantic categories with the same structural contribution – that is, sentences that are compositionally identical. The goal is to make the structural congruence as coarse-grained and general as

82

possible so that the communication works, regardless of the particular or specific content of the belief behind the assertion. This work on expanding the possibility space is what makes any projection of the true to the exclusion of all possible falsehoods. It assigns true values for anything that is not false in the same projection of meaning. The net of truth catches every non-false statement. It enables the generalization of every truth statement and gives it unlimited universality within that projection. Alonzo Church is of the opinion that with respect to two true sentences that are semantically interchangeable: "the most remarkable thing they have in common is that they are both true" (CHURCH, 1956, p. 225).

A language system characterized by satisfying the meaning conditions outlined by these principles, in its most efficient state, enables a mechanical procedure for identifying the meaning of any sequence of signs that correlates with the ability to find proof for it:

> A theorem of a logical system is a well-formed-formula for which there exist a proof, in the mathematical sense of existence. Church gives plausibility arguments for the various requirements of effectiveness. That there be an effective test or criterion for being well-formed is required if a logical system is to be theoretically usable in a system of communication. (ANDERSON, 1998, p. 130).

Since it is possible to take a stand on how any logical category can be extended or used to compose new sentences without inconsistency by delimiting the extension and the anti-extension of "is true", this reasoning is the basis of a recursive theory of language learning, and the absence of this insight would amount to a reversion to a time when there were no objective and accessible tests for assessing the notion of *meaning*. The insight contained here was explored primarily by Montague and Donald Davidson: "the extension of a formula is a function of the extensions (ordinary extensions) of those of its parts not standing within indirect contexts (that is [...] not standing within the scope of an operator)" (MONTAGUE, 1970, p. 74).

But the Frege-influenced landscape is vast, and the absence of his theoretical presuppositions, which were meant to reduce arithmetic to logic, is comparable to the reentry of meaning theory into mysticism.

This description of Frege's study of language's power to express mathematical relations shows his vocation to begin the study of semantics as a study of the substantive meaning of the structural units of language, thus promoting an effect of scientific maturation of this discipline. The common core content features that structure languages to articulate more or less specific denotations are revealed by the functional units used to describe relations and subsumptions of content. This raises the possibility that all that is required for a theory of interpretation is knowledge of the logical framework of the participants in a communicative exchange. We can

quote Donald Davidson, a late heir to this project, who in *Radical interpretation* (1973) writes that to devise "a theory of truth for an unknown language", we are to "first look for the best way to fit our logic [...] on to the new language" (DAVIDSON, 1984, p. 125-40).

Ideological bent of scientific semantics

Frege's semantic insight was almost lost in the early days of analytic philosophy, as it was integrated into philosophical programs laden with ideological presuppositions. We will cite three. Bertrand Russell brought Frege's advances to England and used them as a critical foundation against the idealistic holism and coherentism that was trying to gain the upper hand among the neo-Hegelians. Russell's correspondence theory and the period in which he advocated a version of empiricism made his theory of meaning an attempt to hijack Frege's notion of reference and make it the basis of an analytic reductionism. The interest was to remove the inferential weight implied in Frege's conception of referential indistinguishability – the role of truth as the parameter used for inferential strategies – and to eliminate second-order terms such as class and identity (existence, etc.) and other newly named incomplete symbols in order to defend a phenomenalist version of the relation between propositions and their verifiers.

For Russell (1905), the question of the truth of a proposition was a problem of the possible analysis of the sentence in an atomic format, that is, in a format capable of siphoning off the contribution of *facts* to the determination of its truth. In the case of atomic propositions, logical independence is guaranteed only by their form, so that they cannot be true (or false) for the same reason as their negation. Molecular sentences would be equally harmless since they could be defined as functions of their components. Difficulties would arise with second-level sentences, namely those which their condition of dependence or logical independence would not be determined only by their extension, for example, sentences about classes, about concepts, epistemic attitudes, or non-denotative concepts. Russell recommended that those sentences that depend on more than their possible extension (or lack of extension) have one or more incomplete symbols, and should be subjected to a process of critical reduction, analysis, or paraphrase. This strategy proved to be one of the first effective blows against Frege's semantics, which left room for delimiting the intensional counterpart of extensional terms. For Russell, everything we try to say by saying it without identifying a reference (or a denotation) must be regarded as the value of a propositional function, i.e., a model with free variables that unlocks different propositions in different contexts. The dimension of sense is therefore, for Russell,

84

nothing other than a dimension of veiled reference or a quasi-referential dimension – for it becomes fully referential when we decode abbreviated descriptions as they occur in existential ascriptions and definitive descriptions.

If at the end of the analysis we do not know what proposition (what truth-table or truth specification) they represent, we can at least establish the parameters by which they would become a proposition if some of their constituents were replaced by others. We can understand them by theorizing the second-order conditions under which they would be true, that is, by establishing the parameters that allow us to judge what is a support and what is an objection to them. This would give us a semantic peace of mind, i.e., a relative peace of mind with respect to the ability to understand the conditions of use of the sentence, since consistency (non-contradiction) – not definitively acquired at the most basic level – could be acquired at a higher order level. Russell brought this alternative into the philosophical community by saying that our activity of speaking may adventure to transcend the low-referential level without inconsistency and some theoretical control only when it is done in conjunction with the construction of a propositional function. Second-order concepts such as existence, equivalence, necessity, possibility would not be applied to ideal objects (*de re*), but to possible propositions and possible purely categorical interactions between propositions, which could be usefully learned by learning open functions that teaches how to eliminate incomplete symbols and replace them with variables under quantification.

This leads us to an ideological view consistent with extensionalism. Russell believed that (*Principles of mathematics*): "false propositions imply all propositions, and true propositions are implied by all propositions" (1910, p. 15).

With this dogma of extensionalism, we find a wave of philosophical consensus that could not avoid expressing itself through its own mystics. Wittgenstein's *Tractatus* expressed the new gospel like this: "There is no compulsion making one thing happen because another has happened. The only necessity that exists is logical necessity" (6.37).

In his first phase of solid philosophical production (the *Tractatus*), Wittgenstein interpreted the question of truth as a challenge to the determination of the boundaries that trace the opposition of propositions and pseudo-propositions. The author tended to think that logic sets the standards of reasoning and therefore cannot be discussed as an empirical matter. His project was, more than ideological, mystical. It involved a contempt, typical of ancient Gnosticism, for the universe of *saying*. In this work, the Austrian author developed a transcendental thesis on the nature of the limits of language and the world, which contained a cynic view of semantic problems that challenged his teacher (Russell) and Frege. The author

85

was not impressed by those problems. What can be said, Wittgenstein argued, will be said without difficulty; unless we violate these conditions by attempting to speak about the inexpressible – a typical exercise of philosophers and other ideologues, among whom the metaphysician, who tries to describe in the manner of empirical science (i.e., propositionally) the properties and structural features of reality, occupies the greatest place. Wittgenstein believed that part of the challenges, paradoxes, and antinomies described by Frege and Russell stemmed from a persistence in studying semantics as a metamathematical field of study:

> As far as logic is concerned, the *Tractatus* is in fact summed up in the thesis that there cannot be any (meta)theory of the logic of our language (cf. [27], 6.13). That impossibility is also implied by the puzzling proposition "Logic must take care of itself" (5.473) with which Wittgenstein had begun his Note-books in 1914 – a proposition which he had then called "an extraordinarily deep and important insight" ([28], p. 2). (SLUGA, 1987, p. 93).

This thesis is known as quietism and has similarities with semantic skepticism. This phase of his argument led to the curious notion that proposing solutions to problems of message encoding, attempting to refer to semantic conditions, would elevate the order of saying and overflow the "propositional" dimension. Although more pronounced in his first work, quietism is deepened in his posthumous work (*Philosophical investigations*), when the philosopher identifies the debate on "meaning" with mere grammatical rules that basically reflect the practices inserted into human life as language games. In his second work, the author adds that philosophical propositions are merely grammatical and have only the function of making explicit what was already obvious.

Carnap was a follower of Wittgenstein's anti-metaphysical motto, but he was less "transcendental" than Wittgenstein, since he never dared to forbid the systematic study of the conditions of meaning, nor was he hostile to the metamathematical techniques that contribute to the study of logic as mere *calculus*. On the other hand, he confined himself to internal questions that kept semantics in an absolute and dogmatic state – changeable only by convention and instrumental choices, such as the introduction of new entities by new categories of substitution.

This quick overview of some of the most influential figures in early analytical philosophy enables us to extrapolate a tentative conclusion. First analytical philosophers chose to problematize the knowledge involved in our grasping of meaning the easy way: by reasoning about the syntax of the language. Frege thought that a mature scientific language would be enough to generate truth-functional knowledge of the composition of sentences. Russell and (first) Wittgenstein even thought that there would be a kind of debugging of the logical form of

86

propositions, as opposed to the metaphysical obscuration made by ordinary grammar. As different formulations of paradoxes challenged the ability to generalize syntactic forms as skeletons for the non-paradoxical use of the truth-predicate (and thus to a strict definition of semantic satisfaction), analytic philosophy had to become more tolerant of semantic perspectives. Tarski thought that the distinction between language and meta-language would explain the reasoning behind paradox-avoidance in semantics. Carnap's theoretical development is so compatible with this reflexive origin that his pragmatic and conventionalist philosophical solution sounds like a logical consequence of this phase of the analytic tradition.

The conclusion of this semantic project, which began with Frege and reached its climax with Tarski, can be described today as the culmination of a movement that had its ideological moments associated with reductionist, physicalist, atomistic and phenomenalist attempts to trace criteria for aligning truth and proof.

Semantics as a new heart of philosophical questions

In these three phases we see Frege's project drowning in ideological struggles that were not his. Russell espoused correspondence theory and aspects of English empiricism that he sought to reintroduce into post-psychological logic. Wittgenstein had transcendental ambitions to explain the limits of the world through the limits of the sayable. And Carnap was sometimes in favor of physicalism, sometimes simply opposed to metaphysics, and sometimes advocated a conception of "truth" that would satisfy a metamathematical description of "proof" and "verification" – exploring Tarski's formal and material definition beyond its purpose with a scientistic agenda.

As we have seen, there is a common and cumulative feature in the analytic project based on the linguistic turn. In the classical framework, the proposition that a sentence expresses in a context is the semantic value of that sentence in that context. Once we have a mechanical means of mapping a semantic value without a competing alternative to the sentence, we also know the propositional profile or argument-inferential contribution of that sentence. Semantics provided the conditions for the formulation of thought experiments or experimental designs by which logical questions could be treated with the same rigor as physical, chemical, questions.

These theories fell apart as a result of a series of problems that eventually forced the definition of an "absolute state of cognition of logical necessity" – the long-ago goal of knowing analyticity – to be completely abandoned. In the words of Boghossian:

87

> Quine showed that there can be no distinction between sentences that are true purely by virtue of their meaning, and those that aren't. In so doing, Quine devastated the philosophical programs that depend upon a notion of analyticity – specifically, the linguistic theory of necessary truth, and the analytic theory of a priori knowledge. (1996, p. 331).

However, after the collapse of the ideologies, surprisingly, Frege's theory itself remained in its merely technical form. Viewed in a completely neutral way, Frege's theory of truth provides the foundations for an investigation of the semantic specification conditions that characterize the grasp of norms of structural composition of a language. With Davidson and his reinterpretation of Tarski, then, the Fregean tradition experiences a new flowering. On the other hand, that technical stand is not harmless. It is a technical view about proof, validity and inference aligned with a quite peculiar folk-sociological view about multi-lateral or public parameters for distinguishing sense from pseudo-sense.

It is expedient to try to see how modern semantics has succeeded in reorganizing our concept of reasoning and argumentation and in setting the stage for a variety of new philosophical positions on reason and scientific standards, some of which border on ideological conceptions and anti-metaphysical positions. According to the semantic conception, an argument is valid if there is no way of evaluating the primitive components of its propositions that would, based on their composition, make the premises true and the conclusion false. Semantics made it possible to ask questions for which there was no common empirical basis and to test meta-logical truths. A semantic experiment could be performed to determine, *ceteris paribus*, how much would have to change to reverse a true statement into a false statement or to render a conclusion inconclusive.

Since the generation of semantic content through mathematical techniques for mapping coordinates is also the key to identifying ancient philosophical concepts such as proposition, meaning, consensus, presupposition, necessity, etc., semantics seemed to be at the center of the scientific interrogation of ancient philosophical puzzles. Issues such as contradiction, paradoxes (determination of truth-apt sentences), the problem of the other minds, the unity of minimum presuppositions for effective communication, and the mystery of meaning understood as idealized content that can be recovered in intentional acts, were migrated into a study compatible with the modern scientific approach.

The scientistic and the sociologistic heritage of Frege's semantics

Two philosophical lines of interpretation of Frege's semantics have, in our view, dominated the philosophical landscape with respect to the limits of what is meaningful. In one of them, "meaning" – as opposed to non-meaningful – was linked to our ability to find empirical and mathematical methods of proof, so that semantics tended toward a curious integration with the methodological programs of the natural sciences and functioned as a new basis for a theory of knowledge. Carnap incorporated Frege's theses on reference and meaning into a comprehensive program for determining rules of formation and transformation of logical syntax that distinguished positive science from metaphysics:

> If someone decides to accept the thing language, there is no objection against saying that he has accepted the world of things. But this must not be interpreted as if it meant his acceptance of a belief in the reality of the thing world; there is no such belief or assertion or assumption, because it is not a theoretical question. (CARNAP, 1950, §2)

In the second line of inheritance, semantics begins to function as the basis of a theory of interpretation, maintaining a sociological vision in which the idea of meaning is consistent with the stability of discursive institutions and the rational values of a community. In the words of Davidson in 1975 (*Thought and talk*): "the methodology of interpretation is nothing but epistemology seen in the mirror of meaning" (2001, p. 269).

Much later, in the 1990s, Robert Brandom, with contributions arising from a renewed engagement with the philosophy of Kant and Hegel, added a pragmatic interpretation with a broad sociological focus that captured a particular line of Fregean philosophical semantics. The sociological part of this heritage was less emphasized at the beginning of analytic philosophy, but its premises were legitimized in the second half of the twentieth century with the return of a comparative evaluation of the philosophy of Frege and pragmatism:

> The later Wittgenstein, Quine and Sellars (as well as Dummett and Davidson) are linguistic pragmatists, whose strategy at coming to the meaning of expressions by considering their use provides a counter-balance to the Frege-Russell, Carnap, Tarski, platonistic model-theoretical approach to meaning. (BRANDOM, 2000, p. 7).

On the one hand, Davidson believes that: "The basic methodological precept is, therefore, that a good theory of interpretation maximizes agreement" (DAVIDSON, 2001, p. 269).

For Brandom, there are discursive norms that determine which conclusions are right and wrong for participants in a discursive exchange and which they ascribe to each other, and these

89

are the norms that are given semantic status in a culture. This view assigns the following role to Frege's philosophy:

> What might be thought of as Frege's fundamental pragmatist principle is that in asserting a claim, one is committing oneself with its truth [...]. [...] The linguistic pragmatism reverses the platonistic order of explanation. Starting with an account of what one is doing in making a claim, it seeks to elaborate from it an account of what is said, the content or proposition... (BRANDOM, 2000, p. 12).

Conclusion

It is customary to speak of Frege as the driving force behind analytic philosophy, setting up its first puzzles and creating the conditions for interest in language as a new arena of questions hitherto divided between the branches of epistemology, ontology, metaphysics, psychology, and so on. But his work was not indifferent to some ideological aims. In the early days of analytic philosophy, although the idea of "judgment" was admittedly neglected, the term "truth" had still played a central ideological role. It was used to define the conditions under which human discourse could be classified as scientific or unscientific, as if those regions of consistency produced by coherent use of the predicate "truth" would also produce a less false understanding of the world for us. If this suspicion is justified, then Frege's project did not emerge in an ideological vacuum. Semantics, as it developed from these first principles, is connected with philosophical programs that attempted to reconcile the definition of meaning and proposition – as opposed to meaninglessness and pseudo-proposition – with both the empirical view of proof by direct testimony and the folk sociological view of the conditions for mutual understanding and communication.

This easily leads to the predominance of a comprehensive philosophical reflection on the way logic should be – an ideological view of logic based on certain dogmas about proof and validity of inference, that align perfectly to uniforming parameters to maximize collective efficiency in social exchange. These conditions are meant to parallel the standards for evidence and inference available in natural science and the criteria for sociological standardization of common assumptions for communication and interpretation. If not openly discussed, those conditions influence a rather ideologically biased selection of models of rationality and cognition that are considered paradigmatic and dominant.

Brief appendix: non-classical parameters and the prospects for an alternative view of our concept of meaning

The features of the first phase of analytic philosophy that still bound it to this horizon of obsession with unitary parameters of meaning were gradually softened as the principles of classical logic and semantics were relaxed. In addition, the boundary demarcation between meaningful and non-meaningfulness softened. The non-classical but intuitively appealing theories of implication and negation became mature enough to produce their own metaphysical backlash against the classical paradigms the more the lines of demarcation were relaxed to include adaptations and extensions of the classical notion of consistency; as well as theoretical conceptions of inconsistency that do not fail at meaningful adequacy (i.e., avoid triviality). Intuitionism is among the most compelling foundations of a reaction against the ideological landscape that dominated the first phase of analytic philosophy. Michael Dummett reflects on intuitionistic principles to provide an impressive diagnosis of the realist or anti-realist metaphysical assumptions associated with the adoption of classical or non-classical principles:

> According to the first possible realist reply, acceptance of classical logical laws constitutes a grasp of a notion of truth for our statements which is subject to the strong principle of bivalence. According to this second reply, it does not constitute a grasp of such a notion of truth but, rather, warrants the ascription to a speaker of a grasp of that notion, without the need for further explanation or justification. (1993, p. 343).

But we need not focus, as Dummett does, on technical details about the meaning of connectives in order to discuss the philosophical premises and doctrines of the first phase of analytic philosophy. We cannot fail to mention that authors who resisted the lure of non-classical logical choice also resisted the dogmas of the first phase of analytic philosophy. Quine believed that differences in interpretation can be explained by divergences in our individuation apparatus, and that we need nothing more than the instruments of first-order logic to do so:

> Our individuating of terms of divided reference, in English, is bound up with a cluster of interrelated grammatical particles and constructions: plural endings, pronouns, numerals, the 'is' of identity, and its adaptations 'same' and 'other'. It is the cluster of interrelated devices in which quantification becomes central when the regimentation of symbolic logic is imposed. (QUINE, 1968, p. 189).

In *Two dogmas of empiricism* (1951), Quine offered a revisionist and holistic framework in which the choice of mappings and parameters can change for purposes of integration and simplification (*Truth by convention*): "It is valuable to show the reducibility of any principle to another through definition of erstwhile primitives, for every such achievement, reduce the

91

number of our presuppositions and simplifies and integrates the structure of our theories" (QUINE, 1994, p. 106).

Various projects of reduction from one theory to another can be carried out without a unified and dogmatic reference paradigm (based on sense data), leading to different theoretical predictions about what is meaningful and what is not, or between what is analytic (truth by virtue of meaning) and what is true for a contingent basis: "Total science, mathematical and natural and human, is [...] underdetermined by experience. The edge of the system must be kept squared with experience. The rest, with all its elaborated myths and fictions, has as its objective the simplicity of the laws" (QUINE, 1980, p. 44).

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