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REFRAMING FREGE'S LEGACY ABOUT PRAGMATISM, INFERENTIALISM, AND COGNITIVE SCIENCE: NOTES OF NEW OPTIONS FOR PHENOMENOLOGICAL CONSENSUS

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ABSTRACT: The main goal of this exploratory article is to analyze how Frege's theory fits into Robert Brandom's inferentialism framework, known as expressivism, and the pragmatic consequences that arise from this shift. We aim to address a pressing challenge in philosophy of mind and cognitive science: reconciling the pragmatic aspects of successful assertion and inferential coherence with a theoretical representation of mental contents. The article argues that the Fregean tradition has not been successful in preserving Frege's anti-psychological approach and suggests the need for a theory of mental content that aligns with Frege's notion of inference. The last objective of the article, addressed in the last moment, is to explore the challenges of a new phenomenological consensus.
KEYWORDS: Frege. Pragmatism. Inferentialism. Cognitive science. Phenomenology.

REENQUADRANDO O LEGADO DE FREGE EM RELAÇÃO AO PRAGMATISMO, INFERENCIALISMO E CIÊNCIA COGNITIVA: NOTAS DE NOVAS OPÇÕES PARA O CONSENSO FENOMENOLÓGICO

RESUMO: O principal objetivo deste artigo exploratório é analisar como a teoria de Frege se enquadra no quadro do inferencialismo de Robert Brandom, conhecido como expressivismo, e as consequências pragmáticas que surgem desta mudança. Nosso objetivo é enfrentar um desafio premente na filosofia da mente e na ciência cognitiva: conciliar os aspectos pragmáticos da asserção bem-sucedida e da coerência inferencial com uma representação teórica dos conteúdos mentais. O artigo argumenta que a tradição fregeana não teve sucesso em preservar a abordagem antipsicológica de Frege e sugere a necessidade de uma teoria do conteúdo mental que se alinhe com a noção de inferência de Frege. O último objetivo do artigo, abordado em um último momento, é explorar os desafios para um novo consenso fenomenológico.
PALAVRAS-CHAVES: Frege. Pragmatismo. Inferencialismo. Ciência cognitiva. Fenomenologia.

1 – FREGE'S WORK FOR THE SELF-AWARENESS OF THE FOUNDATIONS OF MATHEMATICAL THINKING: THE SEQUELS OF THE LOGICIST PROJECT

Gottlob Frege composed his work during a time of widespread polemic regarding the fundamental principles of mathematics. The existence of various geometries and the autonomy of Euclid's fifth axiom have sparked many conjectures about the essence of abstract objects, including mathematical entities. The potential for unrestricted and formal application of mathematics has only added to this discussion. In his 1884 work *Grundlagen*, Frege presents revolutionary arguments that challenge prevailing perspectives on the nature of numbers. He argues that numbers can be understood as concepts or functions: "the view that a number is a property belonging to everyday physical objects, or conglomerations or aggregates of such objects, failed to take into account the necessity of making reference to a concept in order to count" (Klement, 2012, p. 148).

By trying to reduce arithmetic to logic, Frege assumed that the second had an advantage over the first. He understood logic as a more fundamental form of science about the structural relations that are also present in our second-order concept of numbers and in our counting methods: "it was thus logically possible to define relations of identity, equipollence and ancestral which played a fundamental role in defining the concept of natural number" (De FLorio, 2006, p. 251).

Frege worked on this kind of self-awareness of the foundations of mathematics, just as Charles Peirce did in the USA, describing that "mathematics is the study of what is true of hypothetical states of things" (Peirce, CP 4. 233). The very notation given by the *Begriffsschrift* shows a way of exposing the logical form of mathematical relations by their structure. That notation tried to define the elements of a language capable of representing the recursive theory of numbers.

The elementary project consists of creating maps describing how linguistic terms can be linked as syntactical categories. Purely syntactical relations are described as a function "Fx", which describes a relation of a certain kind. Unlike a spatial or contingent relation, a structural relation retains the most fundamental points of correlation necessary for an idealized representation between the linked potential inputs and outputs. The function provides a representation of the relational constraints that provide stable solutions to problems by fixing a correlation between input and output. With this algebraically inspired form, Frege provides a fresh elucidation of the concept of "category". According to Ryle, "any two predicates which satisfy the same interrogative are of the same category, and any two which do not satisfy the

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same interrogative are of different categories" (2009, p. 179). Frege can investigate several approaches to characterizing the expansion of the idea of identity thanks to this syntactic technology.

The author's intellectual endeavor involved engaging in meta-logical thinking at a profound level of abstraction. He went beyond the initial scope of his logicist project, which makes the importance and impact of his work independent of the project's failure. Modern predicate logic owes a lot to Frege's work on quantifiers. It also helped extend our knowledge of inferential mediation and clarified aspects of identity that were concealed in grammatical structure. However, the predominant consequence of the logicist project is the opposite effect. To some extent, it has made our philosophical reflections on logic rely on knowledge about mathematicians' thinking, particularly how mathematical concepts organize the idea of identity and extensional equivalence.

The author developed a self-awareness of the ways that mathematical reasoning is engaged in our instruments for organizing propositional knowledge, especially in his philosophy of logic. Frege's philosophical logic distinguishes between two sorts of *Bedeutung* (semantic value): objects and concepts. Objects are saturated; concepts are unsaturated and require an object as an argument to complete them. He managed to establish the intuitive groundwork, notation, and underlying theory necessary for examining language sentences as relational structures or unsaturated functions. These tools have become valuable contributions to thinking about the computational dimension of human cognition.

Frege's philosophy played a significant role in the advancement of scientific formalism, which eventually evolved into what is now known as categorical grammar (Ajdukiewicz, 1935; Bar-Hillel, 1953): "a categorial reduction system is viewed as a logical calculus where parsing a syntagm is an attempt to show that it follows from a set of axioms and inference rules" (Linden & Minnen, 1990, p. 220).

Among the various consequences, one sequel stands out prominently. Frege's logicist project brought about a significant revolution against psychologists, leading philosophy to shift its attention toward language and the understanding of its structure. Frege is widely acknowledged as the founding figure of analytical philosophy and the initiator of the linguistic turn in philosophy, despite alternative interpretations that attribute this role to Kant. The very

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concept of cognition and computation becomes reliant on how we linguistically organize our knowledge. Other consequences of this perspective will be examined in the next section.

2 – STRUCTURE AND KNOWLEDGE OF THE CODIFIABLE ASPECTS OF LANGUAGE AND MIND: THE FREGEAN LEGACY TO LINGUISTS AND COGNITIVE SCIENTISTS

Frege's thought about the achievements of mathematics and how mathematical thinking created tools to think about the question of identity, even when this is not a trivial representation between signs, that is, when it represents a class of possible correlations. This reasoning led to understanding mathematical concepts that convert valid equalities into graph-based equalities. It also explored philosophical-semantic concepts about the identity among senses, which play an opaque role in logical representation. Leibniz's law of intersubstitution *salva veritate* is violated when a word or sentence's reference is its Sense. This occurs in sentences subordinate to verbs with propositional attitudes or in quotations.

> Exceptions [to Leibniz' law] are to be expected when the whole sentence or its part is direct or indirect quotation; for in such cases, as we have seen, the words do not have their customary referents. In direct quotation, a sentence designates another sentence, and in indirect quotation a thought (Frege, 1948, p. 218).

So, in addition to his unquestionable contributions to logic and mathematics, the author imparted knowledge about the semantic realm of study. This encompassed the comprehensive technical understanding of language and the production of meaning, as well as how it could illuminate the productive potential of grammar by revealing its structural composition. This approach, which involved creating grammars based on theories about the logical form of sentences, was not concealed from the philosophers who embraced the tradition established by Frege. It represented a modern interpretation of an ancient philosophical concept. The goal was to analyze the inner connections and structural components of concepts, as described by Wittgenstein in the *Tractatus*: "a proposition about a complex stands in an internal relation to the proposition about its constituent part" (1922, (3.25)).

In his article *Categories*, Ryle says: "the problem of the internality of relations arose out of antinomies resulting from the philosopher's technical concept of relation" (2009, p. 191).

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Now, we can return to Frege's categorical account of semantics. Frege further perfected our regular syntax, based on the verb "is", through his notion of unsaturated and saturated symbols. According to Ryle, "every gap-sign in its context in a determinate sentence-frame indicates the category of all its possible complements. But wherever a particular gap-sign is thus tolerant of typically dissimilar complements, that gap-sign has typical ambiguity which a better symbolism would escape" (2009, p. 190).

While Frege is not typically associated with French structuralism's semiotic principles, his work on the mathematical nature of structure greatly contributed to modern linguistics. It is, in this quite basic sense, that Frege's theory about the nature of numbers advances the contribution to a systematic study of semantics. According to Sluga, "he holds that we can divide the words of our language into those which determine the structure of a complex phrase in which they occur and those which do not. The latter are Frege's names, and the former his functional expressions" (1980, p. 140). And according to M. Dummett (*The Logical Basis of Metaphysics*), "a semantic theory requires that we should frame, for each category of expression, a concept of the kind of semantic value that an expression of that category possesses" (1993, p. 24).

The German author presents an informal justification for expanding on categorical theory based on this hypothesis. This field of mathematics, together with set theory, becomes one of the main tools for abstract experimentation on certain idealized human products, such as language. John N. Martin's perspective, as expressed in *The Semantics of Frege's Grundgesetze*, aids in summarizing this particular point:

> Frege (…) comes nowhere near to laying out in a mathematically rigorous way the properties of structures needed to insure true parallelism and its related substitutivity. These properties have been quite generally defined in modern algebra, and one of the attractions of Frege's discussion is that he seems to make use of these ideas in a rudimentary way (1983, p. 144).

It is important to recall the significance of this theory, which initially sparked a shift towards the philosophy of language, and it was later revisited by the philosophy of mind during the latter half of the 20th century. Psychological functionalism presents an alternative to logical behaviorism by explaining mental processes using computable syntactic structures and their transformations. Hence, we can uphold the valuable comprehension gained from studying the mind as a relational system, although the portrayal of this connection is no longer naive. In

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simpler terms, it does not disclose mere superficial associations between beliefs and behaviors. By describing the relationship between mental content and its behavioral correlates through a function, psychologists can gain a deeper understanding of the correlation between inputs and outputs. This approach avoids the drawbacks of logical behaviorism, which often involved translating complex processes into equally perplexing ones.

> Against this sort of question begging, Turing machine functionalism is foolproof. For even though an operation on symbols may, in the relevant sense, involve the consideration of propositions (in particular, even though it may be the kind of operation on symbols which respects the meaning of the symbols), still if the operation is formally specifiable it is Turing-reducible; and if it is Turing-reducible, then we know it to be mechanically realizable (Fodor, 1981, p. 16).

Despite the author's anti-psychologism, we can credit Frege's bill for this significant progress in psychology. The explanation for this tendency lies in the fact that functionalism relies on the mechanical implementation of mental processes. It depends on a Fregean structural understanding of the mental process.

> We infer from the-independently patent-existence of the psychological process to the possibility of its mechanical (e.g. Turing-mechanical) simulation, (...). Even so, the possibility-in-principle of Turing specification functions as a sort of Ideal of Pure Reason, determining what it would be like to know that you have explained everything that could possibly want explaining (Idem, p. 15).

This concept tends to accentuate an idealized depiction of cognitive processes, bolstering the argument that analytical philosophy had to acquaint itself with that Frege's approaches were not too distant from Husserl's and both grappled with the same problems through parallel and slightly divergent perspectives (Dummett, 2001).

3 – FREGE'S INFERENTIALISM AND THE PRAGMATIST LEGACY

The technical availability of Frege's abstract resources yields incalculable benefits. A revolution in semantics, computer theory, and cognitive science can be attributed to the author. Thanks to Frege's significant contributions, along with others, we have gained valuable theoretical insights into the behavior of entities within the domain of essences and ideas, including kinds, categories, species, and numbers. The logician's community is aware of the most famous meta-logical theorems concerning the limits of first-order logic in picking out

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models and distinguishing between models. It is noteworthy for empirical science that model theory, an abstract tool, helps us understand the similarities and differences between different representations of the world. It examines the conditions of sameness and structural diversity in various explanations of reality: "a theory is categorial when it admits only structurally identical models… that is, given any two models (…), they are isomorphic. There therefore exists a mapping (isomorphism function) such that it preserves the structure" (De Florio, 2006, p. 254).[1]

But philosophically, it is not that easy to probe the meaning and relevance of these results for supporting a broad philosophical attitude:

> By themselves, categoricity results are just pieces of pure mathematics. If they are to be deployed in philosophical discussion, we first need some bridging principle which connect informal structure-talk with the technical notions supplied by model theory. But even the modelist's bridging principle—to explicate structure via isomorphism types is compatible with many attitudes concerning the philosophical significance of the categoricity result (Button, T. & Walsh, S., 2018, p. 442).

Indeed, the philosophical problems about reference and meaning that inspired this development remain controversial to this day. The closest of Frege's texts to a realist-Platonistic characterization was written towards the end of his career, in his 1918 article *The Thought*. But the main features of his anti-psychologist thought were already present in *Grundgesetze*:

> If we want to emerge from the subjective at all, we must conceive of knowledge as an activity that does not create what is known but grasps what is already there. The picture of grasping is very well suited to elucidate the matter (…) that which we grasp with the mind also exists independently of this activity independently of the ideas and their alterations that are a part of this grasping or accompany it; and it is neither identical with the totality of these events nor created by it as a part of our own mental life (1967, p. 23).

Our work aims to provide support for the idea that pragmatism, not Platonism, is the real field of activity of Fregean reflections about the objectiveness of thought. We confine our contribution to this approval vote and emphasize certain merits of this interpretation, as our reasons are not ultimately decisive. The narrative that presents Frege's contributions as the origin of the concept of logical analysis is widely recognized. This concept describes the dependence of the meaning of a statement on the logical form understood as the output of

[1] This combination of logicism and structuralism was seen more clearly in Dedekind's work. Here the idea of categoricity coincides with the concept used in the 19th century to construct systematic correlations between numbers. Not by chance, the construction of this categoricity was made by Dedekind which, independently from Frege, attempted to reduce arithmetic and the natural numbers to logic.

syntactic computational processing. We consider this thesis to be outdated. Frege's theory of meaning encompasses a more comprehensive perspective. It incorporates an inferential aspect that guides the process of interpretation and computation towards an internal and cognitive dimension that cannot be adequately captured by linguistic analysis.

Moreover, our perspective has a tinge of post-Platonist interpretation. In that, it recasts the Platonic presumptions as the normative functions of thinking. Our perspective is that a description of the mathematical reality of the association between stimuli and meaning through the representation of a computable function is a *norm*, not an ontological (or syntactical) independent entity. Instead, the mathematical (or linguistic) reality of the structure is merely the representation of a cognition, or a rule to judge (to advance from sense to denotation). Obviously, the judgment cannot be tested using sensitive stimuli or example-confirmation, and it is in this sense that its role in our mental life is represented as normative. The most obvious example of this representation is our representation of language learning norms. As Callaway puts it:

> Surely language must have such formal structure, and there is little reason to think of such formal structure as observationally detectable in the manner of stimulus meanings. But if formal structures are not observational, then they must be a matter of theoretical hypotheses (Callaway, 2008, p. 114).

The pragmatist is concerned with understanding what insights can be gained from the assertive value of those hypotheses. Specifically, he is concerned with the application of those hypothetical structures to learn a language, enhancing our understanding of the recursive nature of language. The structures can only be internalized as learning parameters for language acquisition without external stimuli by practically internalizing the rule/norm for asserting. The norm instructs one to assert the content within the hypothetical conditions outlined by the function. So, the representation of hypothetical relations as ontological structures is explained only if there is an effective parameter of judgment for that content.

Now, the question changes face: we are no longer so interested in the ontological status of norms (their mathematical representation as functions) but in the effectiveness of their mediation strategy to make the "travel" from the hypothetical world to the assertive world. The study of these mediations is classically studied as the study of inferences. Learning the non-

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empirical aspect of language, like understanding logical connectives, can be done while acquiring knowledge about our position in argumentative conflicts.

> One must learn to apply rules of inference consistently and to bring the needed axioms into play. But there is simply no way to check on whether someone is doing all this except by looking at an entire system of sentences though, of course, we can only do this a step at a time. Knowing our place in an argument or dialogue helps to keep the steps identified in terms of their place in a system. This provides a kind of evidence for interpretation evidence drawn from inferences made quite distinct from the evidence involved in interpretation at the level of stimulus meanings. We are able to acquire linguistic competence involving semantic structures which are non-observational by interpreting individual sentences in relation to each other (Callaway, 2008, p. 116).

There is a level of semantic comprehension that we must master to be able to recognize the inferential role that our phrases play in their use, rather than in their referential role. In our reading, Frege's contribution to the current discussion about logical form and the structural coding of non-trivial – intensional – identity relations is being developed in inferentialist fields of reflection. The Fregean angle of reflection allows for the exploration of how conceptual mediation grounds the cognition of non-truth-functional assertions or judgments, serving as "cognitive justifications" for asserting/judging. We thus join the ranks of the pragmatic and expressivist interpretations of his legacy. The ranks of pragmatic interpretations of Frege's legacy are filling up throughout history, and we can quote one of its contemporary adherents to make this clear:

> Frege's logic is nothing more (and nothing less) than his semantics for logical terms together with an appropriate method for representing inferential transitions. The deductive system that converts a language into a calculus is the representation of the commitments and entitlements that individuate concepts and propositional contents (Frápolli, 2023, p. 79).

Frege's logic is thus developed in his account of the concept of "thought" and "sense" as the author conceives them in his philosophical texts. As we shall argue, this can only be fully developed under a pragmatist account of inferential commitments.

4 – FROM QUIETISM TO EXPRESSIVISM

Wittgenstein, in *Tractatus*, asserts that there is only one accurate method to analyze complexes:

> There is one and only one complete analysis of the proposition.
>
> If we change a constituent part of a proposition into a variable, there is a class of propositions which are all the values of the resulting variable proposition. This class, in general, still depends on what, by arbitrary agreement, we mean by parts of that proposition. But if we change all those signs, whose meaning was arbitrarily determined, into variables, there always remains such a class. But this is now no longer dependent on any agreement; it depends only on the nature of the proposition. It corresponds to a logical form, to a logical prototype (1922, (3.25) (3.315)).

He had a singular objective in mind for analysis, however. The Austrian author planted a seed of anti-Platonism in his first work, which was not noticed by Bertrand Russell. According to this development, logical analysis is not a means for detecting clear abstract objects that offer unique solutions to propositional meaning identification. It serves only to unravel implicit complexities in the constitution of meaning and its inferential relations.

The sole purpose of analysis is to reveal the obvious. It is in this sense that philosophy and analysis may coexist: philosophy would be a kind of proto-consciousness of therapeutic processes of clarification of the obvious that would reach maturity through analysis, making analytical philosophy the last expression of a true philosophy (Wittgenstein improved this thesis in *Philosophical Investigations*). It is no coincidence that the main lesson of Wittgenstein's *Tractatus* was a call for silence. The lengthy tradition of interpreting the *Tractatus* has appropriately highlighted the author's partially mystical interests. He filled his work with a transcendental, post-Kantian account of the boundaries of *Sense*, using this concept of sense as a basis for a dichotomy between the sayable and the unsayable (or, at most, showable, TLP 2.172, 2.174).

Wittgenstein's potential interpretive pathways resulted in both quietism and Robert Brandom's expressivism, which presents an ironic situation. This irony is illusory. Wittgenstein believed that certain aspects, which he considered protected and beyond propositional expression, played a crucial role in maintaining the harmony between the ability to enunciate propositional content and the ability to prove it. These aspects include the connectives and formal structure, which in his words, are just "showable".

Expressivism is not incompatible with Wittgensteinian quietism, it merely reveals another angle consistent with the Wittgensteinian conception. Wittgenstein stated this more or less curious condition in the following way: "in the proposition, therefore, its sense is not yet contained, but the possibility of expressing it. ('The content of the proposition' means the

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content of the significant proposition.) In the proposition the form of its sense is contained, but not its content" (Wittgenstein, 1922, (3.13)).

According to Brandom, "the expressive task of making material inferential commitments explicit plays an essential role in the reflectively rational Socratic practice of harmonizing our commitments" (2000, p. 140).

The preference of the advocates of the meaning-constitutive thesis for logical connectives as the definition of the cumulative formation of logical knowledge asks for justification because it is not obvious. In principle, there is nothing wrong with choosing any element of linguistic articulation as a syntactic category, since any expression, e.g., water, determines a limited number of relations and these can be described by an abstract object – a structure. Using physical things as signs presents no principled objection and, in this sense, we must discover the principles of their articulation through a relational system that stems from their spatial position. Wittgenstein says in the *Tractatus* that:

> The essential nature of the propositional sign becomes very clear when we imagine it made up of spatial objects (such as tables, chairs, books) instead of written signs.
>
> The mutual spatial position of these things then expresses the sense of the proposition. (1922, (3.1432)).

We do not need to go as far as Wittgenstein to name the dimension of symbolic possibilities of signs in complex (e.g., spatio-temporal) binding contexts, for our own non-formalized language contains sufficient complexity. The author, working with optimistic assumptions about the symbolic and propositional world, initially does not find this to be a difficulty: "the proposition expresses what it expresses in a definite and clearly specifiable way: the proposition is articulate" (Idem, (3.251)).

For him, the structural organization of sign things has a potentially unobjectionable potential to be learned as symbols:

> Every part of a proposition which characterizes its sense I call an expression (a symbol).
>
> (The proposition itself is an expression.)
>
> Expressions are everything—essential for the sense of the proposition—that propositions can have in common with one another (Idem, (3.31)).

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This teaches us that logical connectives have the highest expressive potential of all language constructions because they hide nothing and do not lead to enthymemes or other opaque types of inference. As such, they are perfect for maintaining the inferential articulation of a language's contents. Everything we require to understand the inferences expressible in a language is known once we understand the connectives usage rule.

This would exclude pathological connectives whose knowledge would admit triviality and other unmediated connections, i.e., it will avoid asserting propositions that are not organically mediated by the rules of the introduction of that concept. These conditions allow the verification criterion for p not to conflict with the set of norms about what we can infer from "p": "unless the introduction and elimination rules are inferentially conservative, the introduction of new vocabulary licenses new material inferences, and so alter the contents associated with the old vocabulary" (Brandom, 2000, p. 68).

Starting with Wittgensteinian quietism, we eventually reach the prerequisites of language stability by considering expressivist factors. The legacy of Frege's philosophy is carrying us closer and closer to a purely pragmatic description of the role of inferences.

Furthermore, the transcendental part that logic plays in Wittgenstein's quietist conception can be taken up from a conceptualist perspective. Reference to some degree of neo-Kantianism will be unavoidable, moreover, because the limits of meaning or the determination of the inferential potential of the sentences of a language always refer to a notion of conceptual competence that underlies the ability to apply rules (in Kant: judgment). According to Nenad Miscevic:

> The conceptualist approach concentrates upon our grasp of relevant concepts (e.g. in the case of logic, those of CONJUNCTION or IMPLICATION) and upon their alleged *a priori* connections (e.g. those embodied in their intro- and elimination rules), and attempts to account for a priori knowledge in terms of the grasp (Miscevic, 2010, p. 89).

The ideal of harmony, as we have seen, is not an arbitrary standard for the conservative extension of language. Because we would always approach an argumentative dispute with the greatest amount of caution, supposing perfect rationality, this will maximize the propositional representation of our thesis about the truth of "p" in that game scenario.

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This means that the content of "p" is not its mere extension, but the representation of the conditional assumptions that the assertion of "p" validates supposing perfect rationality and transparent game rules. In Brandom's words: "the conditional is the paradigm of a locution that permits one to make inferential commitments explicit as the contents of judgments" (2000, p. 60). It is important to realize that our capacity to maximize our inferential commitment through a more cautious and prudent selection of assumptions that condition our judgments involves a ratio distinct from the mere ratio that represents relationships between extensions. For Frege: "the precisely defined hypothetical relation between contents of possible judgments has a similar significance for the foundation of my concept-script to that which identity of extensions have for Boolean logic" (1978, p. 453).

5 – EXPRESSIVISM AND THE OBJECTIVE PRESSURE OF MEANING IN OUR PRACTICES

The property of the sentence to be asserted in a position that depends only on not being transformed into false – if it is true – is a property inspired by Frege's work. In the words of Robert Brandom: "what might be thought of as Frege's fundamental semantic principle is that a good inference never leads from a true claim(able) to one that is not true" (2000, p. 2). Sentences not complying with this condition would deviate far from the normal semantic conditions, because any sentence that is true under the same conditions under which it is false – i.e., it admits both interpretations without changing of parameters – would suffer from a complete cheapening of its patterns; it would be so poorly selective that it would have no power to specify any meaning nor restrict any consequence.

Undoubtedly, by introducing an innovative non-classical logical system, we can shield ourselves from the destructive repercussions of an interpretation standard that assigns both truth and falsehood to "p". However, the primary concern lies in ascertaining the level of cognitive proficiency encompassed within this non-classical system. Pragmatism stands as one of the initial philosophical systems to incorporate non-bipolar principles for propositions, yet it does so without subscribing to ideal entities such as "round circles". Acquiring knowledge of extra-classical reasoning principles incurs cognitive costs, which must be accounted for in terms of the cash value attributed to the assertion of "p".

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In purely exploratory or investigative scenarios, it is not detrimental to adopt a contra-inductive stance towards 'p', meaning to bet on its validity despite contradictory evidence or even in the presence of evidence supporting not-p. However, in contexts that necessitate the establishment of peaceful communication guidelines for evidence verification, such as the legal domain, these bets prove to be disadvantageous. This suggests that a significant portion of non-classical logical solutions presented in a "Platonist" manner, rather than adopting a pragmatist approach, fails to meet the requirements of real-life situations.

The reflection in the last paragraph lends plausibility to the inferentialist thesis. As per this, the position of cognitive justification for asserting p is characterized by its inferential place or the incompatibility relationship of that proposition with non-p. This position of incompatibility can be relaxed in contexts of exploration and investigation, when the justification is not conclusive, but the problematic content of 'p' will have to have some relation to a rule that describes its meaning as opposed to not-p in the long run. One needs to have a representation of a tolerable theoretical cost for asserting p in the course of a hypothetical representation, otherwise, the parameter for the hypothetical strategy is defeatist from the outset.

Therefore, there always remains a sense in which believing in p (the belief that p) is more rational than believing in not-p under specific strategic conditions, i.e., under some intentional stance that could be predicted by those in a position to attribute that belief (and not the opposite) to the believer. Dennett believes we could use this prediction strategy even for non-human animals. We can use this content attribution "to design better traps to catch those mammals, by reasoning about what the creature knows or believes about various things, what it prefers, what it wants to avoid" (Dennett, 2002, p. 560).

However, if we are unable to engage in the same activities as other animals, how can we establish a common measure of understanding to draw parallels between our minds and theirs? What is clear from this position is that the attribution of mental content depends on how we evaluate our position in a game scenario. This assessment involves strategically positioning ourselves within a dispute by employing logical oppositions, similar to the strategic movements of chess pieces (Brandom's scorekeeping model).

Thus, any mystery about the connection of our thought with the empirical world is passed over, and truth is a problem purified of its pre-linguistic expressions. The philosophical

awareness of this message led to anti-factualist strategies, which were taken up by inferentialism and pragmatism of expressivist character:

> The most widespread non-factualist strategy is expressivism or non-cognitivism, according to which some kinds of statements are not fact-stating, but are expressions of our attitudes, although the expressivist – unlike the irrealist and the fictionalist – does not say that these statements are literally false and avails himself truth-talk (Tiercelin, 2011, p. 660).

We can say, then, that this mystery tells the story of the acquisition of parameters that give objective reality to our rules of inference, that is, our learning the practice of making the meaning of concepts explicit:

> What is implicit in that sort of practical doing becomes explicit in the application of the concept red when that responsive capacity or skill is put into a larger context that includes treating the responses as inferentially significant: as providing reasons for making other moves in the language game, and as themselves potentially standing in need of reasons that could be provided by making still other moves (Brandom, 2000, p. 17).

This shows a connection between meaning and publicity or expressive power. What we can call the expressive power of a language is its potential to present the explicit nature of its conclusions. According to Brandom:

> to count as logical in the expressivist sense, one must say what feature of reasoning, to begin with, with nonlogical concepts, it expresses. Instead of asking what the right conditional is, we ask what dimension of normative assessment of implications various conditionals make explicit (Brandom, 2018, p. 70).

Understanding the prerequisites for abstraction in higher-order terms, the meaning of connectives, and logical consequence knowledge takes us into a realm of comprehension beyond our control, where external pressure comes into play. This pressure is the essence of objectivity and reality in effective practices of meaning and communication: "investigation of the use of locutions that make explicit various aspects of the social perspectival character of conceptual contents will reveal what they express as the source of objective representational content" (Brandom, 1994, p. 140).

6 – MIND CONTENTS AND SOCIAL PRACTICES

Numerous interpretive results resulted from Frege's thesis on the "Sinn" portion of meaning, which the author describes as objective knowledge of the ways of determining reference. In his work, *Über Sinn und Bedeutung* (1892), the author tackles the issue of identity and indirect contexts. Exploring the philosophical aspect, he sheds light on the challenges faced by quantifiable relationships and references in opaque contexts like "believes that". His theory provided a straightforward but, for many, insufficient answer. According to the author, when the substitution of co-referents fails to maintain the truth (Leibniz' *salva veritate* law), this is because the statement's reference is to its *Sense* rather than its customary reference. The Leibniz's law exception is explained by the answer. It falls short, however, in providing a sufficient explanation of the structural costs for a language that allows for two heterogeneous dimensions of reference. A good characterization of the problem of the opacity of intensional contexts was given by Fodor:

> By saying that propositional attitude contexts are opaque (intensional), I mean to make the familiar point that such principles of inference as existential generalization and substitutivity of identicals apparently do not apply to formulae embedded to verbs of propositional attitude in the same ways that they apply to morphosyntactically comparable formulae occurring unembedded (1981, p. 18).

Subsequent authors rightly noted that the reference to *Sinn* involves a more granular dimension of meaning and a stronger equivalence relation:

> If it should turn out that statements involving 'know that' and 'believes that' permit formal analysis, then such an analysis would have to be embedded in a language with a stronger equivalence relation than strict equivalence. Carnap's intensional isomorphism, Lewis' analytical comparability, and perhaps Anderson and Belnap's mutual entailment are attempts in that direction (Marcus, 1961, p. 313).

This entire problem is substantially reduced when we adopt a pragmatic and inferentialist perspective, as now we can simply say, with Brandom, that there is a certain implicit content in opaque expressions and that, under ideal conditions – favorable – this hypothetical content can be asserted according to parameters of success, that is, parameters that explicitly show that this assertion is justified.

Nevertheless, a new dilemma emerges. Can the favorability conditions for these assertions be portrayed as a cognitive disposition to assert or a social phenomenon? Brandom's theory, influenced by Hegel, cannot avoid the consequence that these two questions will

converge: what we term intentionality is the subjective and unilateral representation of a social state that favors certain contents as rational. It is in this social context that the rationality of content can be predicted or made a relevant game piece in determining multi-laterally valid assumptions. However, we yearn for deeper understanding. We strive to ascertain the nature of knowledge and the domains of phenomenology or psychology that can analyze these opaque constructs and elucidate the mechanisms involved in translating them into a distinct and intuitive awareness of their impact on practical behaviors.

7 – WHAT WE KNOW WHEN WE KNOW TO BEHAVE LIKE AN IDEALIZED AND COMPETENT PARTICIPANT IN INFERENTIAL PRACTICES?

We saw that we need not abandon the role of theory and surrender to quietism. The role of theory in semantic study is tied to the limitations imposed by semantic knowledge on practical effectiveness. It is impossible to speak of the practical effectiveness of communication without the limitations of theoretical consciousness. This means that *a-theoretical* behavior (whether purely instinctive or intuitive), or the absence of a theory – or the inability to understand the basis of a conclusion – decays into an inability to distinguish sense from nonsense. It degenerates into the failure to make our inferential commitments explicit and to give full expression to the conditions of dependence that have to be met for our assertions to exclude incompatible models.

The coding of this parameter through relational, ideographic, or syntactic structures comes later. When we formalize this understanding in a language, artificial or not, we merely institutionalize a set of possible constraints and counter-constraints. Those are meant to guide practice into non-self-defeating assertions and strategic inferences.

To better frame the question we are pursuing, we can try to examine what it means *failure* and *success* to grasp these theoretical conditions. We have seen that any inflation of the number of conditions required for knowing what a proposition depends on implies the inability of language to present a transparent and multilateral parameter of the knowledge of that sentence. The more conditions needed to determine the truth of a proposition, the less capable language becomes in presenting a transparent and inclusive measure of inferential knowledge. Knowledge of harmonic rules of introduction and elimination is just one way of expressing

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what is grasped theoretically by those who know how to judge content. The success of our communication and interpretation practices is attributed to our ability to adapt and follow standards. This is in line with a recommended economy-friendly, conservative, and non-wasteful behavior.

The coherence of behavior in the face of an empirical challenge must follow from a rule, and that rule must be conceptually represented – so that the rationality of behavior can be expressed as a belief or a self-conscious wager. The conceptual basis of the belief is made clear and explicit by language and the codification of the terms that represent the basic ways of producing differential knowledge, like the negation and the conditional. If the language structure does not compensate for the costs of hypothesis p, it cannot make proof of p demonstrable. There is an analogy here with the way a legal institution may decide that certain evidence will poison the investigation and, therefore, may be regarded as unacceptable as proof for a decision or condemnation. It is in that sense that we need the mediation of language to make our logical knowledge self-conscious, creating room for thinking of it from the perspective of meaning stability.

This kind of knowledge has been defined since Kant established the requirements for recognizing the unity of our representations in a judgment. We can determine the circumstances in which a proposition represented as a mediated conclusion and its intuitive representation (as an exemplification or inductive scheme) coincide. We can determine that coincidence by understanding how intuition fits into a conceptual system of primitive categories. The stability of a logical process presupposes a reflexive parameter codified in the meaning of connectives and categories. If this parameter is not included in the language, it must be encoded in our cognitive apparatus (*mentalese*) to ensure our rational behavior remains consistent.

This consistency does not justify the shift from believing in "p" to believe in "non – (not p)" based on mechanical and causal factors. Machines can be programmed to arrive at these two beliefs using different and incompatible computation patterns. Although machines are more vulnerable to being taught in this manner, and nothing is stopping us from being taught the same way. An evil genius could use a theory T to teach us "p" and an anti-theory ~T to teach us "no-(not p)". To protect ourselves from this disastrous possibility, we need to establish harmonious goals that align the paths to "p" and "not – (not p)".

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A conceptual framework will create the internal conceptual counterpart necessary for a prudent transition from "p" to "non – (non-p)", and will represent it as the most rational way of believing in "p'. Now the question "What is the most rational way of believing something?" can have no simple answer. Most of the time, it will be the way of believing in "p" most economic and aligned with the normal public and linguistic standards. Other times, it will be defined by the set of categories that best describe the conceptual basis of a scientific paradigm. The concept of rationality in predicting public behavior allows for a potential convergence between psychological and linguistic idealizations of assertion conditions, specifically in terms of phenomenological analysis.

This suggests that the polemic about the role of theory in the question of meaning leads us to delicate considerations about the role of consciousness of our limits of thought and the borders of our categories of thinking. It makes us consider the stability of our communication parameters, the filters we use to distinguish meaning from nonsense, and the historical constraints on meaning paradigms.

8 – SUGGESTING A PLACE FOR THEORETICAL KNOWLEDGE ABOUT MENTAL CONTENT: NEW REASONS TO BELIEVE IN A PHENOMENOLOGICAL APPROACH TO COGNITIVE SCIENCE

As we have seen, Frege's notion of thought has been taken by pragmatism as a catapult for an inferentialist view, according to which the level of abstraction present in our identification of "senses" and "propositions" involves the construction of multilateral perspectives. According to this, skeptical threats are not that threatening. We develop theories of meaning not to explain an "object" (a category, a type, a structure) or the psychological behavior of individuals following *non-self-defeating rules* guiding them to mathematical objects. Instead, our goal is to aid in the gradual alignment of parameters that define the conservative use of language and its expressive power.

However, skepticism reappears to worry us differently. This problem results from the lack of a theoretical framework that would explain rational behavior while also conforming to the tenets of natural science. In the field of contemporary philosophy of mind, scholars have engaged in a debate by revisiting the Cartesian problem of the inexplicable nature of causality between mental and physical events. The problem remains unresolved. The conventional

approach assumes that an evolutionary winning parameter can explain the connection between cognition and behavior.

This suggests that certain behaviors may be predicted or expected based on certain thoughts if there is an evolutionary advantage. Any prediction that falls outside of this range is just conjecture or a pseudo-question. Searching for an abstraction level that enables the recognition of the relational identity between behavior and mental content is a particular way of applying this psychological idea. This level of abstraction, which enables us to idealize the logic or meaning of the systems under study, is what Dennett called "intentional strategy".

We're going to tackle this from a different angle. Let's return to what we achieved with a pragmatic and expressivist vision. We have encountered a general problem in linguistics and logic that can be solved in a single step if we can make the basis of a conclusion explicit. The practical efficiency of our assertive strategies, i.e., the ability to determine Iterable and communicable semantic content, will depend on this *explication*. Suppose a language structure fails to state its conclusions explicitly and hides obscures presuppositions. In that case, it becomes difficult for two individuals to draw the same conclusions from the given premises using that language. In such cases, the burden becomes too heavy for any practical application or learning of that language.

However, finding this means of *explicitation* is not the same as finding a theoretical prediction. It is one thing to predict the behavior of inanimate things or psychological-behavioral states; it is another to predict the behavior of things as language usage. Language expressions have the unique quality of only acquiring objective reality when employed within an inferential framework that makes sense within its own *Sinn* parameters. In the second case, prediction is contaminated by the nature of the parameters. This leads the explanatory theory to predict only what is already regular and standardized enough to be previously considered objective and meaningful, in opposition to nonsense. Objectiveness is then a fabrication of the theory itself since it has its own parameters of meaningfulness.

As we step into this complex domain, we are walking on thin ice, hinting to long-standing, ostensibly addressed problems. In particular, Frege's passionate recognition of the difference between logic and the natural sciences comes to mind: "if man, like all other living creatures, has undergone a continuous process of evolution, have the laws of his thinking always been valid and will they always retain their validity?" (1979, p. 4).

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The debate has progressed beyond the expectations of Frege, giving rise to philosophical and anthropological disputes regarding the contrasting approaches employed in the natural sciences and hermeneutics. To address this issue without yielding to the previously thought resolved challenges, we need to explore alternative solutions. This involves analyzing the level of abstraction necessary to discuss "meanings", "proofs" or "inferential entities". The degree of abstraction we employ when articulating the content of our statements can be seen as the types of knowledge we can gain from our stance in a discussion; such as normative knowledge of how to respond to our conceptual commitments and adjust to conceptual disagreements.

This is a space of reflection on the properties of language, where we can define truth and logical consequence by describing the conditions for distinguishing sense from absurdity. From the pragmatist view, the only relevant thing about the concept of "truth" as we use it in science and everyday life is that it can express the aspects of our non-defeatist strategies of assertions. Those are the ones capable of becoming public or to express a *multilateral intentional content*, being subjected to scrutiny, according to non-particular or non-partial parameters: explicit inferential parameters. Training to become an efficient speaker, choosing winning strategies for asserting, is thus not distinguished from training in some theoretical consciousness of the language conservative constrains its harmonic-inferential conditions.

Here, we can provide arguments in favor of encouraging research into these meaningful objects as they emerge in relevant inferential relationships and manifest in the theoretical conduct of idealized discourse practices. Essentially, the meaning study involves comprehending a parameter that is responsive to public input. However, we are not solely confined to the parameters that render conclusions explicit. We are constructing something that will be comprehensible to us and other participants in future discussions and communication scenarios. As Dennett astutely articulated, we can even make predictions about computers based on these parameters:

> if they have a good idea of what the computer is designed to do (a description of its operation at anyone of the many possible levels of abstraction), they can predict its behavior with great accuracy and reliability, subject to disconfirmation only in cases of physical malfunction (Dennett, 2002, p. 558).

This "something" is theoretical in a sense of "theoretical" that is uncontroversial enough to admit a universal projection in our understanding. Which theory should approach this? What

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discipline possesses the same level of rigor as natural science and can provide theoretical justifications and forecasts for proficient logical conduct within these theoretical circumstances? Thoughts are not objects, and can only be grasped in a second-dimension or higher-order dimension of theory. As we have seen, this might favor not only anti-psychologism but also any anti-naturalistic conception of meaning. But to go down these roads only contributes to a negative and obscure determination. What can we learn positively?

From our standpoint, it is essential to acknowledge the indispensability of psychology. Psychology emerges as the solitary alternative that our theoretical endeavors will inevitably converge upon whenever we strive to offer a theoretical explanation of the relational structures (functions) that establish a connection between rational behavior and particular propositional responses. But psychology alone, without an auxiliary phenomenological line, will almost always tend towards a reductionist (naturalist or behaviorist) representation of the processes of cognition and its intelligent self-adaptations to the parameters of rationality required for its social and natural success. That is why the inclination to reduce this phenomenon to a naturalistic perspective that overlooks intelligent processes was firmly rejected by Husserl in the past, giving rise to his famous methodology of cleansing mental phenomena of their shell of natural effectiveness: "we single out only the phenomenon of 'parenthesizing' or 'excluding' (…) a certain refraining from judgment which is compatible with the unshaken conviction of truth, even with the unshakable conviction of evident truth" (Husserl, 1982, pp. 58-60).

Furthermore, the absence of this phenomenological supplementary line results in the elimination of any potential for *logical doubt* regarding the boundaries of cognition. Without the ability to question cognition's internal ideal structure through epoché, we are limited to only thinking about its outwardly observed boundaries as a psychological *datum.*

These factors ought to dissuade a whole return to psychologization, lest the study of cognition suffer more than benefit from this arrangement. When we grant psychology excessive authority, there is a risk of perceiving cognitive experiences as mere *datum* of internal or introspective realities, without acknowledging their phenomenological-eidetic role in shaping the conceptual and inferential behavior of participants in a rational way of life or practice.

Consequently, if we can maintain focus on this alignment between cognitive psychology and phenomenology, we will be equipped with the essential constituents to reinvigorate the investigation of inferential processes without reducing them to successful models for assertive

and judgmental strategies. With this, we can also reinvigorate the study of the interrelationship between the contents of propositional attitudes and the rationality of behavior that arises from these contents of beliefs and desires. We do not plan to delve more into this investigation in our paper.

Our only conclusion is that, in comparison to Frege, phenomenology-oriented authors were more conscious about those aspects of a theory of meaning. As the functional processes present in language become more and more limited in offering an account of the representation of intentional contents, it becomes clearer that psychology (aligned to a phenomenological supplement) has never been overcome or defeated by a linguistic turn. This is especially evident when the issue of referential opacity and content in propositional attitudes is increasingly addressed from the standpoint of philosophy of mind rather than as a purely "analytical" (and linguistic) one.

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I – INFORMAÇÕES SOBRE O AUTOR

Recebi meu doutorado em filosofia em 2016 pela Universidade Federal de Santa Catarina-(Brasil), com trabalho sobre Kant (Kant e Empirismo Conjectural) orientado pelo Professor Dr. Werner Euler e com período no exterior (*Universidade Brown*). Meu orientador durante o mestrado e a graduação foi Darlei Dallagnol. Minhas publicações aparecem em *Husserl Studies*, *Studia Kantiana*, *Aurora*, *Cognitio* (PUC-SP), *Kant-e-prints*, *Instante*, *Kalagatos*, entre outras. Os ângulos de reflexão dos meus artigos misturam o estudo dos filósofos continentais e analíticos. Supervisores: Prof.Dr. Werner Euler, Prof. Darlei Dagnoll e Prof. Paul Guyer. E-mail: luvollet@gmail.com

II – INFORMAÇÕES SOBRE O ARTIGO

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