

Epistemology and Ontology in Frege and Peirce: On Thoughts and Generals*

*Epistemologia e Ontologia em Frege e Peirce:
Sobre Pensamentos e Gerais*

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Abstract: The main aim of this paper is to compare the reflections by Frege and Peirce with respect to the ontology and epistemology of some abstract entities or abstract elements, namely, Fregean thoughts and Peircean generals. The reason for this comparison is that they have given distinct answers to similar epistemological and ontological problems. Therefore, the paper will concentrate basically on the importance given by them to abstract entities or abstract features, and on the ontological position they have taken in regards to them, and which were motivated by their interests in science and in the justification of scientific knowledge. The paper will also analyse the different roles that language and representation systems play in Frege's and Peirce's reflections with respect to these abstract elements or entities, favouring Peirce's position, which did not separate ontology from epistemology, and, therefore, it is not committed to the Platonism Frege was led to.

Keywords: Abstract entities. Epistemology. Frege. Fregean thoughts. Generals. Ontology. Peirce.

Resumo: *O objetivo principal deste trabalho é comparar as reflexões de Frege e Peirce em relação à ontologia e à epistemologia de algumas entidades abstratas ou elementos abstratos, a saber, os pensamentos fregeanos e os gerais peircianos. A razão para essa comparação é que eles deram respostas distintas para problemas epistemológicos e ontológicos similares. Portanto, este trabalho se concentrará, basicamente, na importância dada por eles a entidades abstratas ou características abstratas, e na posição ontológica que*

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adotaram em relação a elas, que foram motivadas por seus interesses na ciência e na justificativa do conhecimento científico. Este trabalho analisará também os diferentes papéis que a linguagem e os sistemas de representação desempenham nas reflexões de Frege e Peirce em relação a essas entidades e elementos abstratos, a favor da posição de Peirce, que não separa a ontologia da epistemologia, não estando, assim, comprometida com o Platonismo ao qual Frege foi levado.

Palavras-chave: *Entidades abstratas. Epistemologia. Frege. Gerais. Ontologia. Pensamentos fregianos. Peirce.*

Introduction

Frege (1848-1925) and Peirce (1839-1914) are two outstanding philosophers, whose respective works are worth comparing with one another. There are various coincidences between them, which reinforce the interest in exploring their ideas. Both lived in the same period, although in different continents, and both had very deep insights into subjects related to logic, philosophy of language, mathematics, and moreover, they have given rise to two powerful trends of thought: Analytic Philosophy initiated by Frege, and Pragmatism by Peirce. They had like solutions for some main topics of philosophy of language and semiotics, such as the value of the triadic analysis of signs. Likewise, in logic, they realized the need to improve Aristotelian logic, creating a more sophisticated and elaborated logic. Their logical analyses had epistemological and metaphysical consequences; in particular, it led them to strong ontological commitments in relation to the nature of abstract entities: realism of universals or generals in Peirce, or the need to recognise a third realm, a realm where thoughts are included, in Frege. In general terms, we can say that as philosophers they provided very complex and fundamental ideas about basic and traditional philosophical problems, and as scientists their attention was directed to science, and to the methods which guarantee its validity and objectivity. Their philosophical reflections were led by rigour and precision. True to his training as a mathematician, Frege always asked for thoroughness in the use of language. He also warned against confusing the sign with what the sign designates, establishing a very sharp distinction between use and mention in order to avoid mistakes, confusion, and philosophical problems. Peirce as well demanded rigour, especially in relation to the meaning of concepts, going further than Descartes' criteria of clarity and distinction of ideas. For Peirce, the practical bearings or consequences of a concept revealed its meaning, as his pragmatic maxim expressed.

In this paper I want to develop these general parallels, and study in depth one of them, namely, the role of abstract entities in their reflections as a way to justify knowledge and science.

1. Ontological commitments and the weight of abstract entities in Frege and Peirce

I. Frege

Frege introduced in semantics the very famous distinction between sense and reference, and applied it to singular terms, predicative expressions and statements, not only when they are in the ordinary speech, but also in direct and indirect speech. For Frege, sense was the basic relation for something to be a sign, because a sign could have sense but lack reference. Nevertheless, for him reference was the most important aspect of a sign, because he defended the thesis that the reference of a statement was its truth-value. In order to have a truth-value, a declarative sentence has to have a complete sense, called “thought”¹ by Frege, and also a pragmatic feature, the assertoric force, which means assuming that what is said is said seriously, and that one wants to express information and knowledge with the sentence.

a) Thoughts as facts

A very curious and, at first sight, amazing statement in Frege’s semantics is the following one: “A true thought is a fact”.² It seems to me that this way of defining facts requires some detailed consideration, if we are interested in understanding how we can obtain knowledge about the external world through language, for that knowledge simultaneously involves both abstract entities and entities belonging to the external world.

Frege distinguished three realms: the world of spatio-temporal objects, the world of mental objects or representations, and a third realm, the realm of abstract entities, to which thoughts and other types of abstract entities, such as logical and mathematical objects (numbers, truth-values, concepts, etc), belong. We will call those realms the “first realm”, the “second realm”, and the “third realm”, respectively.

Frege was led to the acknowledgment of this third realm by semantic reflections, because for him, thoughts are the references of sentences when sentences are found in indirect speech. But also, scientific considerations, such as the existence of

1 Other sentences express a sense, but it is not called “thought”. For example, a sentence in an indirect context has a sense but it is not a thought, even when it denotes a thought. A sentence without assertoric force, as when a sentence is used in the context of a story or in the theatre, also has a sense, but it is not a thought. Likewise, a plea or a request has a sense, but this sense is not a thought. The main criterion for the sense of a sentence to be called a thought is that truth enters into consideration (cfr. FREGE, G. “Thoughts”. In: id., *Collected Papers*. On Mathematics, Logic, and Philosophy, p. 353). That is the reason why Frege points out that “thoughts are senses of sentences, without wishing to assert that the sense of every sentence is a thought” (Ibid., p. 354).

2 Precisely: “A fact is a thought that is true”. In: FREGE, G. *Collected Papers*. On Mathematics, Logic, and Philosophy, p. 368. In what follows I will consider only facts about real – causal powerful – entities (those entities which form the external world, according to Frege) and I will not pay attention to facts about abstract entities or mental entities. Therefore, I don’t want to suggest that all facts involve entities from the first realm, but only that I will pay attention to those facts, which involve entities from the first realm.

physical and mathematical laws were taken into account by Frege; those laws are eternal and immutable, and conform to the behaviour of what we call nature, but they are not members of the first realm, according to Frege. The acknowledgment of an ontological status to thoughts comes from being entities other than external or mental entities. Thoughts lack some of the properties of external things, above all the property of being causally effective. For that reason, Frege never called the third realm real (as he did when he spoke of the realm of the spatio-temporal objects) in the sense of their entities having the causal powers of external things. As he put it, we are never in the position to observe a thought as we observe a hammer that we can touch, hold and see from every point of view.³ And furthermore, he claimed that there is not “the reciprocal action” or no causal relation between thoughts and those who grasp them, as it is proper of the doing of one thing over another in the first realm, doing which causes changes in both parts. In order to avoid this difficulty, Frege chose objectivity over reality, characterising the third realm as the realm of what is objective-and-non real (non real, in the sense of lacking causal effectiveness).

Although there are true and false thoughts in the third realm, those which are really important to Frege were the true thoughts, called “facts” by him. The question right now is: What is the ontological status of facts? Obviously, and based on Frege’s definitions, they are thoughts, and so they belong to the third realm. But these thoughts have the property of being true,⁴ and this property obtains when some link among abstract entities – as functions – and external entities – as objects – is established. This link is a logical relation called “predication”.⁵ I would like to consider more carefully some features, that go beyond the mere and literal definition of being a true thought in order to understand what a fact really is. The features implicated in a fact are, a) that of being a connection among entities belonging to different realms, and b) that the connecting relation is a logical relation.

3 “I’m not here in the happy position of a mineralogist who shows his audience a rock-crystal. I cannot put a thought in the hands of my readers with the request that they should examine it from all sides” (FREGE, op. cit., p. 360, footnote 6).

4 Frege expressed his doubts about the correctness of speaking of the properties of thoughts meaning the same as when it is said that an object has a property. On one hand, it seems that the property of being true adds nothing to the thought, as it is reflected in the declarative sentences (i) “ $2+3=5$ ” and (ii) “ $2+3=5$ is true”, but this appearance is related to the form of the expression of the acknowledgment of the thought’s truth: in (i) the sentence force is assertive, and that means that the thought expressed by the sentence is acknowledged as true; in (ii) this acknowledgment is made explicit. By the other hand, Frege neither saw clearly that the being true of a thought could be a property similar to the property of things, because thoughts are from a different nature and truth is not a property, which corresponds with sensorial impressions. It is not, therefore, a perceptual property. In spite of these reservations, Frege pointed out that since he hadn’t found a more appropriate way of speaking, he would continue to express himself in accordance with ordinary usage, as if truth were a property. Cfr. FREGE, op. cit., p. 355.

5 Burge insists on differentiating predication, which is the application of a function, from the semantic denotative relation in which a predicative expression is put in correspondence with an entity (the function), or what he calls “the relation between a predicate and what it is predicated” (BURGE, *Truth, Thought, Reason*. Essays on Frege, p. 18, and also cfr. p. 20).

Taking into account these two mentioned features, we can sum up and put some order to what was said about the facts:

- 1) Facts are not, then, events in the external world, because in the external world there are only spatio-temporal objects.
- 2) The nature of facts is that of being *true* thoughts. Therefore, (i) facts are primarily thoughts, and (ii) being true is a property which only applies to thoughts.
- 3) Facts are objective, because they are not created by human beings, and they don't depend on any mind for their existence.
- 4) Facts, as independent of human minds, are the "firm foundation for science".⁶
- 5) A first-order logical relation has to be the case for a thought to be a fact. This relation holds between an object of the first world and a function, an entity of the third realm, called "concept" by Frege. The logical relation is that of an object falling under a concept,⁷ or, in traditional terms, predication. The establishment of this relation is necessary for a thought to have the property of being true, and, therefore, of being a fact.⁸
- 6) The logical relation of "an object falling under a concept" takes place, then, between entities belonging to the semantic domain of "references." This logical relation is reflected in the declarative sentence through its having a truth-value. In particular, a predicative or monadic relational expression that denotes a function is saturated by a singular term that denotes an object; and as result of this saturation a truth-value is given to the sentence.⁹

Some abstract entities, such as concepts and relations, are of a logical type, and they are the ones, which will define, determine or describe what objects are. To state that an object has a property is, in logical terms, the circumstance of an object falling under a concept. To say that something is a planet is equivalent to this thing falling under the concept expressed by "is a planet." Here we are at the

6 FREGE, G. "Thoughts". In: id., *Collected Papers*, p. 368.

7 Frege distinguished this relation from the relation of a (first level) concept falling *within* a (second level) concept (cfr. FREGE, G. "On Concept and Object". In: id., *Collected Papers*, p. 190), and also from the relation of a concept being subordinated to another (cfr. *ibid.*, and "Comments on Sense and Meaning". In: id., *Posthumous Writings*, p. 120). According to Frege "the fundamental logical relation is that of an object's falling under a concept" (FREGE, "Comments on Sense and Meaning", p. 118).

8 Likewise it could be possible that there were other kind of facts, namely, those in which the logical relation is of second order, in such a way that the arguments of the functions are concepts but not objects. Taking into account the aims of this paper, the last line of the previous footnote, and wanting to avoid making overly complicated explanations we will not consider the above mentioned kind of facts.

9 Russell's interpretation of Fregean thoughts was less logical and more empirical. He considered them as a kind of hybrid, where the abstract concept – that he understood intensionally – was completed by a real object, giving rise to this type of proposition later called "singular proposition". But Frege never accepted this interpretation, which introduced references in the field of thoughts. Cfr. FREGE, *Philosophical and Mathematical Correspondence*, p. 163, 169.

level of references, which are closely connected with ontology. For that reason Frege called logic the science of being, in the sense of determining what there is, and, in this vein, what there is are objects and functions.¹⁰

From a different semantic point of view, the role of the thought expressed by a sentence (or that of its compounded senses) is that of determining the entities which will be the references of expressions: the sense of a proper name determines an object, the sense of a predicative expression determines a function, and the sense of a statement determines a truth-value.

Thought is defined by Frege as the sense of a statement, and senses and references are placed at different levels. For him, judgment is the acknowledgment of a thought's truth, and this acknowledgment is expressed by a declarative sentence. All these processes of assent and judgment are relative to human beings in their discovering of true thoughts. In the case of a true thought, the step from the level of sense to the level of reference takes place. Therefore, a fact as a true thought requires both levels: (i) that of senses, because it is a thought; and, (ii) that of references, because in order for a thought to be a fact, it has to be true, and that property holds when an object falls under a concept; and both object and concept belong to the level of references. Using contemporary terminology, we could say that thoughts are truth/falsity bearers, in virtue of the logical relation of an object's falling under a concept, which is the truth/falsity maker. For this reason, there is no role left to play for language, except being a means to give shape to thoughts.¹¹

Frege's position was called "Platonism"¹² both because abstract objects such as numbers, functions, truth-values or thoughts were considered to be mind-independent

10 Frege pointed out in: "On Schoenflies: *Die logischen Paradoxien der Mengenlehre*" (1906). In: FREGE, *Posthumous Writings*, p. 176-183, that the logical relation of falling an object under a concept is not a third element supervenient upon the object and the concept (cfr. op. cit., p. 178). G. Currie, in his paper "Frege's Metaphysical Argument", presents this idea stating that "[t]he ability of the concept to connect with the object is not just a matter of *receptiveness* to objects, but of *dependence on* objects" (op. cit., p. 152). Later on in the paper he explains the connection between concept and object as follows: "I suggest that Frege explained the immediacy of connection in the following way; the connection is immediate because there is no substantial connection between concept and object at all. Concept and object, while separable in thought, are not separable in reality; they form a seamless unit" (ibid.).

11 "Something in itself not perceptible by sense, the thought, is presented to the reader – and I must be content with that – wrapped up in a perceptible linguistic form" (FREGE, "Thoughts". In: id. *Collected Papers*, p. 360).

12 Or, more specifically, "ontological Platonism", following Burge in "Frege on Knowing the Third Realm." Burge highlights in this paper two forms of ontological Platonism. The form of "relaxed" ontological Platonism assumed by mathematicians in their usual practice of working with abstract objects such as numbers, functions and others, and assumed by Frege himself as the mathematician he was. And also Frege's particular form of ontological Platonism, which he extended to senses and thoughts, and which is much more problematic (cfr. BURGE, *Truth, Thought, Reason*, p. 28-29, 65, 302-305). Burge points out as well, that Frege's notion of sense and his semantic doctrines can not be separated from his concern about the nature of reality or of being (cfr. op. cit., p. 7).

and objective, and because of his explicit acknowledgment of a third realm, in which these abstract entities are placed, and among which thoughts and facts can be found.

b) The environment [*die Umwelt*]: the world for cognitive subjects

The context in which Frege introduces facts is that of the discussion in order to establish that not everything can be reduced to subjective representation [*Vorstellung*]. Let us see, briefly, some of the main points of his argument, which ended with the introduction of facts.

1) Representations need a bearer.

Frege claims that a bearer is different from the representations she bears. If this were not the case, then there would not be representations at all, because everything would be representation and nothing would be its bearer

Frege points out, then, that one must distinguish between “what is the content of my consciousness”, representation, and “what is the object of my thinking”. For instance, I can have a representation of myself, but I can also make statements about myself. The latter are objects of my thought and they refer to something, which is not my representation, and which I am myself. This distinction gives way to the acknowledgment of others as bearers of representations, and as object of thinking.

2) But besides, if there were only representations, it would be only an interior world, but not an environment.

The environment appears because human beings can think and take as an object of their thinking something of which they are not bearers. Here Frege introduces a new element, which is neither the interior world, nor exactly the world of external objects, the world of spatio-temporal objects alone.

The environment is, in the first place, the external world with respect to a cognitive human being. Therefore it is a gained world, or a world achieved always with the risk of error.¹³ Putting aside its relation to human beings, the first world is a world in which there is not danger of error, because in it truth is not considered; it is a world in which objects are simply there. In the third world, the world of thoughts and facts, there is not error either, because in it truth is eternal and independent of human beings. As a consequence, the environment is the world for cognitive subjects, in which we don't have the certainty inherent in the internal world. Frege's example is very illustrative to this respect: “I cannot doubt that I have a visual impression of green, but it is not so certain that I see a lime-leaf”.¹⁴

Therefore, the environment is the world in which human beings assert properties and relations of things, with the risk of being mistaken in their qualification of them. The environment is obviously not the third realm, where thoughts are timelessly true by virtue of the properties and relations that things have independently of human beings; but rather it is the world, which is conquered when the truth of thoughts is recognised. To see a lime-leaf is not the same as seeing an elm leaf. As an object of the external world, the leaf is what it is; as a concept, being a lime-leaf

13 “By the step with which I win an environment for myself I expose myself to the risk of error” (FREGE, G. “Thoughts”. In: id., *Collected Papers*, p. 367.

14 Ibid.

has a determined extension, to which this particular lime-leaf belongs. When we say that the leaf is an elm leaf we are mistaken, both, because we have not correctly grasped the concept of being a lime-leaf, or because we don't have veridical sense impressions of the object.

So then, in the first world, the world of external objects, there is not truth but only objects, which make impressions on us. In the third world, that of thoughts, truth is eternal,¹⁵ and so are facts. Then, the environment seems to be the external world presented through the acknowledgment of the truth of a thought, or what is the same, the environment seems to be the external world in which we recognise facts. For example, we acknowledge simultaneously that this leaf is a lime-leaf and that the thought that this leaf is a lime-leaf is true. From these premises Frege established a parallel between acknowledging that something has a property, and acknowledging the truth of the thought that this thing has that property. Therefore, Frege followed that "with every property of a thing there is tied up a property of a thought, namely truth".¹⁶ In the following text, Frege puts it very clear that facts are not spatio-temporal objects, hence they are not perceptible as the latter ones are:

But do we not see that the Sun has risen? And do we not then also see that this is true? That the Sun has risen is not an object emitting rays that reach my eyes; it is not a visible thing like the Sun itself. That the Sun has risen is recognized to be true on the basis of sense-impressions. But being true is not a sensible, perceptible, property.¹⁷

Objects help in the acknowledgment of facts by causing sensory impressions, but they are not facts. In this acknowledgment we can be mistaken and take a fact for something that really is not. However, Frege believed that we have to take the risk and make judgments about things of the external world, even when "doubt never altogether leaves us in our excursions into the external world", and "probability is nevertheless in many cases hard to distinguish from certainty".¹⁸ This risky solution, which is far from foolproof, is for Frege a risk that we have to take, for having only an internal world would lead us, as he says, "to fall into far greater dangers".¹⁹ Dangers, we suppose, that are related with solipsism and scepticism²⁰, which he did not favour.

c) Facts: the ground of scientific knowledge

Since not everything is representation, thought, which is independent of myself, can also be grasped by other people. It can be this same object of thought, a thought, which many others can think of as well. Frege pointed out that a particular mental capacity is needed in order to be able to grasp a thought, and that this capacity is

15 We could say that this world is as a copy, or as an abstract reflection, of the first world, that is, it is as the abstract modality of the first world. Then, it is easy to understand that the third world is the world of the non-real but objective, whereas the first one is the world of the real and objective.

16 FREGE, op. cit., p. 354.

17 Ibid.

18 Ibid., p. 367.

19 Ibid.

20 Cfr. FREGE, *The Basic Laws of Arithmetic*, p. 17.

the power of thinking. He also emphasized two features of thoughts: (i) that of being entities directly related with truth²¹, and (ii) that of being independent of the particular thoughts of individuals²²; these are, then, the main basis to justify that thoughts become the guarantee of scientific knowledge.

Besides, Frege introduced facts in relation with grounds and guarantees of scientific knowledge; facts are needed by the scientist “if he wants to bring home the necessity of a firm foundation for science”,²³ he said. In this exact moment Frege states that facts are true thoughts.

From the above remarks we can conclude that, for Frege, facts are the secure foundations for science. They are a secure foundation because the truth of a thought is timeless. Science does not create true thoughts, it discovers them; according to Frege, the truth of a thought cannot depend on its being discovered, as this can not be the origin of its truth.

Frege argued against the thesis that a secure source of knowledge is sensory perception; this seems to be the case for many people, but for him it never gained that right, because sensory perception belongs to the internal world. We are, again, in front of the well known polemic between empiricism and rationalism; and in front of what Davidson called “the third dogma of empiricism”, namely, to find the secure foundation of knowledge in experience, which is tantamount to putting it in subjective and particular data.²⁴ It is clear then, that for Frege the secure foundation for science are not sensory impressions, as, for example, Russell had maintained. Besides, these sense data or sense impressions are not sharable: two people do not have the same sense impressions, even if they are similar. In conclusion, because the secure foundation of any science is grounded in truth, which has to be timeless and eternal, only entities that belong to that imperturbable realm – and of which only truth can be said – can be a sure source for knowledge.²⁵

21 “For what I have called thoughts stand in the closest connection with truth” (FREGE, G. “Thoughts”. In: id., *Collected Papers*, p. 368.

22 “That someone thinks it has nothing to do with the truth of a thought” (ibid.).

23 Ibid.

24 Cfr. DAVIDSON, D. “On the Very Idea of a Conceptual Scheme”. In: id., *Inquiries into Truth and Interpretation*, p. 189.

25 Burge in his book *Truth, Thought, Reason* maintains that, even when Frege was an ontological Platonist for defending the existence of entities in the third realm, he was still not an epistemological Platonist. For he doesn't hold that we have a special faculty for grasping abstract objects, but, on the contrary, the access to those entities is produced by means of what Burge calls a “pragmatic” epistemology, which is primarily expressed by the contextual principle (cfr. op. cit., p. 70), and which links knowledge to the theoretical activity and not to an indubitable vision. As a result of this, Burge claims that Frege's point of view is a “combination of a rationalist notion of understanding with a pragmatic epistemology” (ibid., p. 266). This pragmatic epistemology allows that through the practice of theorising one can have a better comprehension of concepts: “only through the development of scientific theory, whether in physics, chemistry or logic, does one achieve a through grasp of one's concepts” (ibid., p. 263). The model of a pragmatic epistemology that Burge attributes to Frege is, then, that of the theory, not that of the vision (cfr. ibid., p. 262). He also points out that “[t]his rather pragmatic emphasis on the interdependence of theory and understanding is an integral part of Frege's rationalist conception” (ibid., p. 297).

The resource of abstract entities, and of the Platonism implied by the third world, is also what guarantees knowledge of the external world and the conquering of an environment. Otherwise, it would not be possible to go out of the framework imposed by the subjectivity and the internal world.

But the following ideas — that link him with rationalism and are expressed by him in “Thoughts” — are even more important to Frege:

(i) “Sense-impressions alone do not reveal the external world to us.”²⁶

(ii) “To have visual impressions is not to see things”. “Having visual impressions is certainly necessary for seeing things, but not sufficient. *What must still be added is not anything sensible. And yet this is just what opens up the external world for us; for without this non-sensible something everyone would remain shut up in his inner world.*”²⁷

One of the ideas I wanted to make clear in this short presentation is the way in which Frege, being faithful to the classical tradition of knowledge exemplified by Kant,²⁸ emphasizes that knowledge is not possible without abstract entities, nor without spatio-temporal ones, when knowledge is referred to the empirical world. Therefore, and in relation to the justification of knowledge, Frege appeals to both types of entities by appealing to a peculiar logical link between them; this link is completely independent of a particular mind.²⁹ But at the same time he forces an ontological Platonism, which is very difficult to swallow. Nevertheless the relation between both realms is supported by linguistic structure, and it is masterly coordinated through the two semantic relations he has distinguished, namely, sense and reference.

II. Peirce

Peirce distinguishes three categories: Firstness, Secondness and Thirdness. These are related to the analysis of the “phaneron”³⁰ and to mathematics, the most general discipline that studies possibilities.

From the point of view of mathematics, these categories represent a relation of order, in which the first does not depend on anything in order to be, the second

26 FREGE, G. “Thoughts”. In: id., *Collected Papers*, p. 369.

27 Ibid., our italics.

28 This is Kant’s conception, summed up in his well-known text: “Without the sensuous faculty no object would be given to us, and without the understanding no object would be thought. Thoughts without content are void; intuitions without conceptions, blind” (KANT, *The Critique of Pure Reason. The Critique of Practical Reason and Other Ethical Treatises. The Critique of Judgement*, p. 34). Kant’s influence is very strong in Peirce’s writings. Cfr. APEL, K.-O. *Charles Sanders Peirce: From Pragmatism to Pragmaticism*.

29 “The ultimate justificatory ground (the ground or the justification) is independent of minds. [...] But that ground or content is justification for *belief*, or holding-true, or recognition of truth. The relevant notion of mind here though is abstract and ideal. There is no reference to individual minds or to the psychology of recognition, belief, or judgment” (BURGE, *Truth, Thought, Reason*, p. 349).

30 “Phaneron” is the name Peirce used to refer to the phenomenon, and phaneroscopy is the discipline that studies the phaneron.

needs a first in order to be, and the third is a category of mediation between a first and a second, which, therefore, requires of a first and a second. From the point of view of phaneroscopy, a first is a possibility or a quality, a second is a fact or an existent, and a third is a general representation, a law, a continuum, or a thought.

Peirce also spoke of three realms, but his way of understanding them is somewhat different from that of Frege. These realms follow closely the division of the categories; they are the realm of qualities, the realm of facts, and the realm of law (CP 1.429). Similarly to Frege, thoughts and facts form part of the specific terminology introduced by Peirce; but although their place and role in Peirce's doctrine is not the same as in Frege's, the aim both thinkers pursue when they introduce these notions is quite similar.

a) Facts and thoughts

A fact is the metaphysical content, obtained from the analysis of the phenomenon, with which Peirce fulfills secondness.³¹ Nevertheless, it is important to remember that for him a fact is not the whole phenomenon, but only one of its elements; the reason is that a fact is characterized by its existence, by presenting opposition and resistance, and by being brute. A fact without thirdness is not intelligible, it only offers resistance (CP 1.429) and reacts, for thirdness is the other element to be found in the phenomenon in order to give meaning to it.³² This third element is the one that makes of a fact not only an existent, but also a real thing. But this element of meaning or reason, called by Peirce thought as well, is equally present in the phenomena through semiosis, that is, the process by which something functions as a sign. For, according to Peirce, "thought always takes place by means of signs" (CP 1.444).

Therefore, another fundamental element that is found in the phenomenon is thought. For Peirce, thoughts are neither qualities nor facts. They are not qualities, because, even when they are possibilities, they are possibilities linked to secondness, that is, to facts. Then, they are not completely independent of them. But they are not facts, because they don't exhaust their here and now property. On the contrary, thought projects itself into the future, in an infinite continuum. These features make thoughts general. They are general, because they refer to everything that is possible and not only to everything that exists. No collection of facts can constitute a law, because law goes beyond any realized fact, and law determines how facts *can* be and how they can be characterized.

In Peirce, the realm of secondness could be considered, slightly forcing the

31 In "The Logic of Mathematics, an attempt to develop my categories from within" (1896), Peirce develops widely this second category of the elements of phenomena that are facts, describing thoroughly their features (CP 1.417-1.471).

32 In a text from 1903, Peirce gives one of the more simple ways of understanding the categories present in the phenomena: "The first is a positive qualitative possibility, in itself nothing more. The second is an existent thing without any mode of being less than existence, but determined by that first. A *third* has a mode of being which consists in the Secondnesses that it determines, the mode of being of a law, or concept" (CP 1.536). With respect to thirdness he continues: "The third is thought in its role as governing Secondness. It brings the information into the mind, or determines the idea and gives it body. It is informing thought, or *cognition*" (CP 1.537).

analogy, as the realm of spatio-temporal objects in Frege, which for him was the realm of what is objective and has causal powers. Frege and Peirce understood that the mere sensory access to the objects did not result in the genuine knowledge. Consequently, the former is not sufficient to achieve and justify the latter. Something more than simply being before the objects is needed in order to have knowledge. That “something” needed are abstract entities or some kind of abstract element, which has to be linked with the external objects.

Both Frege and Peirce worked out explanations in which abstract entities occupied a privileged place. For Frege these entities were logical ones, and they were closely related to our way of reasoning and thinking. These entities were placed by him in the third realm, and they could be logical ones, such as functions, courses of values of functions, extensions of concepts, and truth-values; but they were also entities sharing the objectivity of entities of the first realm, and the not perceptibility of what is mental, like senses and thoughts.

According to Frege, senses of proper names contained the way in which objects are given, that is, their ways of presentation, which included the proper and unique features of objects. Moreover, for Frege, being a property of objects was a kind of logical relation, that of an object falling under a concept, as we have already seen. Hence, traditional properties were transformed into logical relations by Frege, as we have repeatedly pointed out. These logical relations needed that an entity of the third realm –a concept– would work over an entity of the first one, an object. For Frege, facts were objective elements, not of the first realm but of the third one, because they were true thoughts. On the one hand, these thoughts didn't have an arbitrary connection with the physical objects, because senses of proper names contained their modes of presentation, and for that reason they could determine the precise objects to which proper names refer. On the other hand, the logical relation that linked the object to a concept has to take place in order for the thought to be a fact.

The same kind of connection, namely, that of linking a physical object with another one which is not, plays a main role in Peirce's epistemological reflections. From my point of view, this connection is more intuitively described by Peirce than by Frege; although in Frege's case, only some logic is needed while in Peirce's case a big amount of metaphysics is required to fully understand his doctrine of the categories. Thirdness, thought or reason gives sense and intelligibility to secondness, that is, to objects in Peirce's doctrine. In Frege, intelligibility comes as well from reason and thought, by means of concepts and logical relations. But, Frege and Peirce part ways in their very different understanding of language and representational systems in general.

For both Frege and Peirce, the realm of reason, generality, or law is the realm of thought. But what Frege understands by thought does not coincide with Peirce's thought, even when it is possible to find some common ground, although articulated differently. First of all, for Frege thought is a technical notion. It is the sense of a statement, and it is also an element of the third realm, which is objective and independent of being thought. The idea that thoughts are independent of the individual minds that think them is shared by Frege and Peirce, as part of their attempt to link thought to reason and logic, while distinguishing it from the concrete production of particular minds. This is where Frege and Peirce have more in common. Secondly,

according to Peirce, thought, law, or reason are thirds, which need the existence of a second for being, because without a second there is not a third. In the same way, in line with Frege, for a thought to have the property of being true, and therefore of being a fact, an object needs to fall under a concept. That is to say, the external world (for Frege) or whatever exists (for Peirce) is a decisive and indispensable element in the establishment of knowledge, but by itself it is not sufficient. Something more is needed for knowledge to take place, and what is required comes from reason or thought in general. These are the abstract elements without which what there is means nothing. Otherwise what there is will only be seen as resistance or reaction (Peirce), or as the cause of sensory impressions (Frege).

What is really interesting in Frege's and Peirce's explanations is how they integrated these abstract elements in their philosophical reflections on knowledge and reality. For Frege, what we acknowledge are facts which form the realm of the objective and the not causally effective. Causal effectiveness is built mostly by spatio-temporal objects that cause sensory impressions but are not facts: we can see the sun, but we do not see the thought that the sun emits rays which give us light and warmth. Facts are situated in a third realm beyond the mental states of human beings³³. Nevertheless they are objective because they can be thought and judged by many individuals. Thoughts can act upon human beings, in so far as they are considered by them, but individuals can not act on them: they can neither influence nor modify them.

Peirce, on the other hand, distinguished concisely between existence and reality; the former was reserved for secondness, that is, for facts and objects that are here and now; the latter for that which is the object of a true proposition. Reality is not *merely* secondness, but secondness pervaded or imbued with thought or representation. What is real, then, is what is represented in a true proposition, in the same way as Frege considers facts to be true thoughts.

Frege and Peirce share the idea that mere sensory experience of objects, which is individual and subjective, is not sufficient for obtaining knowledge. Besides sensory experience, they realized that another kind of element is needed, but this one can not be located in the individual mind, which is voluble, arbitrary and subjective. The other element required has to be clearly linked to reason and thought in general. The problem arises when we ask about how to separate reason from the particular mind. As it has already been said, reason can not be linked to the individual mind; this is a solution which does not guarantee the objectivity, independence or timelessness required for knowing. Both Frege and Peirce knew that this required element has to be independent of the concrete and particular individual, but it can not be independent of reason, mind or thought in general. From here on is where Peirce and Frege part ways.

Frege's solution consisted in placing in the third realm all these immutable,

33 "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 it is already there. [...] 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" (FREGE, *The Basic Laws of Arithmetic*, p. 23-24).

eternal and, above all, mind-independent elements. That was the world of these abstract entities or thoughts; but thoughts are only grasped and comprehended, and at least, active upon human beings by means of language. For Peirce, these abstract elements are some generals or laws, which belong to the world of reason, and are inherent to the notion of reality. According to Peirce, reality is the object expressed by a true proposition. Therefore, there is no way of getting away from representation to know what there is outside.

b) Realism of generals

Peirce himself referred to his position on the realism of generals as the doctrine of scholastic realism. He was committed to the idea that “there are real generals” (CP 5.503) and that “general principles are really operative in nature” (CP 5.101). In principle, Peirce’s scholastic realism was about that kind of generals which were connected with secondness, because its being did not depend on the arbitrariness of one or another individual mind: “If, therefore, it is asked whether the universal is in things, the answer is, that the nature which in the mind is universal, and is not in itself singular, exists in things. It is the very same nature which in the mind is universal and *in re* is singular” (CP 8.18).³⁴

Peirce’s statement that there are real generals, as hardness or whiteness, is another way of expressing the idea that law as well plays its role in knowledge. Properties and behaviour of things are not surprising, but they respond to habits, regularities and laws. For Peirce, this commitment to the reality of universals or generals was such an important feature that he included it in his pragmatism, as one of his distinctive points of opposition to James’s pragmatism.

One of the most interesting consequences of Peirce’s doctrine on generals is that he did not need to postulate a realm of abstract and Platonic entities in Frege’s way in order to make room for them. On the contrary, when Peirce claimed that there are *real* generals, he wanted to point out that even if they do not exist as brute facts do, nevertheless they are real, because: a) they act when they are taken into account, projecting and foreseeing future events, b) they represent habits of action and factual behaviours, c) they are represented in signs. Taking these elements into consideration, it would sound strange for a Peircean to qualify Thirdness as an abstract object, or an abstract entity. It is true that the word “object” or “entity” does not make sense applied to Thirdness, which is a category and therefore not an object. An abstract object is non-physical and non-mental, and this is not the correct way of understanding what Peirce had in mind when he considered Thirdness. I think that what is in need of explanation here is the term “non-mental”. Peirce and Frege share the view that “thoughts” or “generals” are non-mental in the sense that they are not the product of the individual mind, because Frege and Peirce are not subjective

³⁴ Later, Peirce’s scholastic realism incorporated a modal realism, which accepted the reality of different kinds of generality, among them, law and types (CP 8.191). Around 1906 Peirce defined himself as a extreme scholastic realist (CP 5.470), precisely by going beyond scholastic realism for accepting the reality of possibility. Duns Scotus position was that of exclusively linking universals to what is existent, preventing him from recognising that possibility was real. Time later, this kind of realism seemed to Peirce too nominalistic.

idealists. Nevertheless, “generals” for Peirce are related to Mind, or that which is the same for him, to Reason or to Thought, in capitals.

In a text from 1909, entitled “Conceptualism” Peirce indicates that “the question between nominalists and realists is related to *thoughts*, that is, to the objects that thought allows us to know”. In a footnote in the same text he explained that what it was for him to be a realist by speaking about hardness: “If he thinks that, whether the word ‘hard’ itself be real or not, the property, the character, the predicate, *hardness*, is not invented by men, as the word is, but is really and truly in the hard things and is one in them all, as a description of habit, disposition, or behaviour, *then* he is a realist”³⁵ (CP 1.27).

Peirce’s realistic commitment to generals is related with the idea (coming from secondness) that things act following habits and dispositions. But it is also related to the idea (coming from thirdness) that abstract entities or abstract features (such as laws or generals) make some kind of action or influence when they are taken into account. Generals allow us to foresee our future actions and expect that objects behave as generals and laws have indicated. That is so, because for Peirce a general is nothing more than a rule in the form of a conditional: “if something has these and those properties, it would behave in such and such way”. Contrary to Frege, abstract entities are not entities of a realm which seem to stand there until they are discovered.

In “Berkeley’s Works Review”, Peirce defended the scholastic realism of Duns Scotus, claiming, as we have already seen, that there is not a problem in recognising that what is particular in the things is general in the mind. Later on, Peirce linked his conception about generals to the category of thirdness, and, therefore, to law, continuum and representation.³⁶ This is precisely the point where Peirce goes in a direction that is very different from Frege’s: he establishes a link between generals and thirdness, a link focused on their both being a general representation, a conception, or a projection into the future. Furthermore, in Peirce we can find on one hand a metaphysical view about the reality of generals, one that has to do with his interest in logic, and on the other, we can find an objective idealism³⁷ that is related to his conception of the metaphysics of reality and evolutionary cosmology.

35 Curiously enough, part of that text could apply to Frege as well, making Frege to be a realist about thoughts. Fregean thoughts are composed of senses, and senses of proper names contain the way of presentation of external objects. Therefore, for Frege, properties expressed by words are “truly” in the things.

36 CP 5.105: “Thirdness, as I use the term, is only a synonym for Representation [...]. Now it is proper to say that a general principle that is operative in the real world is of the essential nature of a Representation and of a Symbol because its modus operandi is the same as that by which words produce physical effects”. CP 5.107: “A law is in itself nothing but a general formula or symbol. An existing thing is simply a blind reacting thing, to which not merely all generality, but even all representation, is utterly foreign”. CP 5.160: “[...] there is a Thirdness in experience, an element of Reasonableness to which we can train our own reason to conform more and more [...] there is a reason operative in experience to which our own can approximate. We should at once hope that it is so, since in that hope lies the only possibility of any knowledge”.

37 In this paper I have only gone into the first feature while I have left aside the latter. Ibri has commented on the feature of the objective idealism as a way in which the *eidōs* is an essential element in the world, in the sense that if matter has habits of conduct under the form of natural laws, this is also a form of the mind (see IBRI, *Kósmos Noetós*, chapter 4,

2. The role of language and representational systems in their relation to abstract entities

Where Frege and Peirce are least in agreement is when they consider the role that language, or representational systems in general, plays in knowledge. For Frege language is the means that materializes, gives body and makes thoughts accessible. Frege's metaphors clearly indicate this role of language as an instrument, whose only function is to give clear form³⁸ to thoughts and facts, and even sometimes disguises them and prevents them from being grasped.

For Frege, thoughts or facts are, then, immutable and independent entities, accessible only through language, but language gives nothing to them. It is only a means of knowing what would otherwise be unaffordable. All these remarks indicate that language plays a mere instrumental role in Frege's doctrine, yet an indispensable one, because our access to sense and thoughts can only take place through language. To think, to judge, or to understand are all activities proper of human beings in their relations to thoughts; but in all of them language has the decisive role of making it possible to grasp thoughts. A thought that is not embodied in language has no capacity of acting, and, from a cognitive point of view and according to Frege, it is as if it does not exist.³⁹

Frege's explanation of a sign relation implies three elements: sign, sense and reference. Sense is the mediated element that determines reference, for reference is always designated through sense. In order for a sign to be such, it needs to express a sense, but it is not required for it to have a reference as well. Although Frege warned on countless occasions that this sign relation has to include all of the three mentioned elements in the language of demonstrative sciences, he recognized that in natural languages this relation is not always fully given, because some signs can lack references.

Peirce's triadic model articulates also three elements in a "genuine way", which can not be reduced to dyadic relations (CP 2.274). Semiosis or representation takes place when a representamen, a first, is in such a relation with an object, a second, that it is capable of determining an interpretant, a third, in such a way that the interpretant has to have the same triadic relation with its object as that which it is having with the

and "O significado de Primeridade em Schelling, Schopenhauer e Peirce", p. 230). Hookway also sees these two main trends in Peirce's reflections, the realist one, around 1870, where Peirce equated the real with the knowable, and the objective idealism, defended after 1890, where "Peirce claims that physical phenomena are fundamentally mental" (see, HOOKWAY, *Peirce*, p. 143, 275, and 282-288). This objective idealism of Peirce is completely contrary to Frege's views.

38 "[...] logic would simply be crippled; for the task of logic can hardly be performed without trying to recognize the thought in its manifold guises" (FREGE, "On Concept and Object", *Collected Papers*, p. 185, footnote 7).

39 Frege expressed it in the following way in his paper "Thoughts": "And yet what value could there be for us in the eternally unchangeable, which could neither be acted upon nor act on us? Something entirely and in every respect inactive would be quite unactual, and so far as we are concerned it would not be there. Even the timeless, if it is to be anything for us, must somehow be implicated with the temporal" (FREGE, "Thoughts", *Collected Papers*, p. 370).

former one (CP 2.274)⁴⁰. For that reason semiosis is a dynamic relation, in the sense that the interpretant is at the same time another representamen, which generates another semiosis about the same object, and so on, in principle, to infinity (CP 2.203).

For Peirce, representation, reason, law, and continuity are all examples of thirdness related to the corresponding firsts and seconds in a genuine way. That means that in the representation a sign or representamen does not work merely as a conduit of interpretants or already existing thoughts in their reference to objects, as in Frege's case. On the contrary, in the moment in which something refers to another thing, a sense, an interpretation, a definition is generated; and its function is to give intelligibility to what was a mere existence disconnected from reason, that which Peirce called a brute fact.

In Peirce's opinion, the reference to an object by a sign is not possible without producing an interpretant. Changing terminology, Frege could say the same with respect to proper names. However, for Peirce, there is no way for a sign to produce an interpretant but by being the interpretant of some object. For Frege, on the contrary, a sign could have sense even if there was no referent. Therefore, for Peirce the relation established among the three elements is a genuine triadic relation, in which none of its elements are dispensable.

Out of all that has been said, the most important and enlightening concept is that of the genuine triadic model, capable of producing endless semiosis. Even when Frege and Peirce have worked out triadic sign models, that of Peirce is more dynamic and open, because of that unlimited semiosis.

Thirdness is the category of reason, thought, and Mind, which pervades everything. Peirce did not need to appeal to a Platonic world of abstract entities in order to justify our knowledge and to understand what is around. Any fact, action, object or idea make plenty of sense from the moment in which we are capable of interpreting them, understand them as signs, and producing semiosis. For us, human beings, Reason, Mind, or Thought enters all there is. We can feel objects as mere secondness and existents, as that which is in front of us offering resistance; but at the same time, this feature does not take us away from their sense and meaning, because we are always in the semiotic net, of which neither we nor the known physical world can escape.⁴¹ For that reason, for Peirce, reality is neither independent of the external

40 That means that it is not possible to be in a semiotic genuine relation if the representamen is related to the object without generating an interpretant, or if the representamen is related to the interpretant without establishing any relation to the object.

41 In an early text of 1868, "Some consequences of four incapacities", Peirce expressed this idea claiming: "Accordingly, just as we say that a body is in motion, and not that motion is in a body we ought to say that we are in thought and not that thoughts are in us" (CP 5.289, footnote 1, p. 173).

world⁴² nor independent of reason (or thought).⁴³

For Peirce what is real is also independent of particular minds, so long as it is linked with something external to thought; but, in his last definitions, what is real is not at all independent of thought, representation or reason. Reason, as a basic element present in the phaneron, is not separable from secondness, bringing sense and meaning to it, and determining it; for that reason the realistic conception seems like common sense to Peirce in its understanding of “reality as the normal product of mental action, and not as the incognizable cause of it” (CP 8.16).

3. Final remarks

A common idea between Peirce and Frege is that in their reflections, as well as logical, epistemological or ontological, there is a very strong opposition to psychologism. Both Frege and Peirce disconnect logic from psychology.⁴⁴ They agree that the definition of reality must allow for it to be independent of the individual and particular mind; yet, their explanations are different. For Peirce, secondness is that element of reality, which imposes constraints and borders on what we can think about; this element is present in every thirdness, and it is what exists –mere brute facts– that “some external permanency”, “nothing human”, “something upon which our thinking has no effect” (CP 5.384). Peirce clarified what is this “some external permanency” claiming that it would not be external “if it was restricted in its influence to one individual. It must be something which affects, or might affect, every man” (CP 5.384).

Frege needed to posit a realm of eternal, timeless and immutable facts which can not be located in the individual minds of everyone, in order to establish a secure ground for knowledge. Peirce considers, similarly to Frege, that what is real can not depend on the arbitrariness of individual minds, but on the “predestinate opinion” or the “fated” opinion (CP 5.407), that is, the “ultimate opinion” (CP 5.431). This element of destiny, which carries out the thought not where we wish, but to a foreordained goal, as Peirce says (CP 5.407), is what Peirce linked to truth. This point makes Peirce close to Frege, because this element of destiny is something foreign

42 “To satisfy our doubts, therefore, it is necessary that a method should be found by which our beliefs may be determined by nothing human, but by some external permanency – by something upon which our thinking has no effect [...] Our external permanency would not be external, in our sense, if it was restricted in its influence to one individual. It must be something which affects, or might affect, every man” (“The Fixation of Belief” [1877], CP 5. 384). And also: “Facts are hard things which do not consist in my thinking so and so, but stand unmoved by whatever you or I or any man or generations of men may opine about them. It is those facts that I want to know, so that I may avoid disappointments and disasters. Since they are bound to press upon me at last, let me know them as soon as possible, and prepare for them” (“Why Study Logic?”, CP 2.174).

43 “[R]eality is independent, not necessarily of thought in general, but only of what you or I or any finite number of men may think about it; and that, on the other hand, though the object of the final opinion depends on what that opinion is, yet what that opinion is does not depend on what you or I or any man thinks” (CP 5.408).

44 “For my principles absolutely debar me from making the least use of psychology in logic” (“Three Types of Reasoning”, CP 5.157).

to what a person or even many persons could think: “Different minds may set out with the most antagonistic views, but the progress of investigation carries them by a force outside of themselves to one and the same conclusion” (CP 5.407). The common element between Frege and Peirce is that “external force”, which guides minds to come to their final destination. For Peirce the external force is secondness, brute facts; for Frege the external force are facts, that is, the true thoughts of the third realm. Nonetheless, Peirce claimed that truth is the destined opinion to be reached in the long run. Therefore, for Peirce, truth is dependent on external objects and dependent on reason in a two-fold way. On the one hand, truth is the *common opinion* to be reached by all who have applied the scientific methods of experimentation and the logical methods of reasoning, all who have looked for answers to questions, and all who have followed long term research. On the other hand, truth is related to that *final opinion*, which demands the agreement among researchers, as Peirce pointed out: “though the object of the final opinion depends on what that opinion is, yet what that opinion is does not depend on what you or I or any man thinks” (CP 5.408).

For Frege, the truth that we acknowledge is already present in the thought, which is a fact; and it is not dependent upon human beings, which only grasp those thoughts and acknowledge what is already in them, that is, their truth. For Peirce, as well as for Frege, truth is related also with an external element that has nothing to do with human beings. But the great difference between Frege and Peirce is that for Peirce truth is not independent of the common opinion reached by scientific researchers after taking into account observations, reflections, experiments, arguments, agreements, etc. Truth is a constructive and communitarian task to come to a predestined goal, but it is an *opinion*, a representation that we are led to reach sooner or later, and which is expressed in a representational system.

This human element of pursuit and research together with the aim to reach truth appears in Frege’s and Peirce’s views, but the weight of this element is very different in each author. For Frege, the pursuit consists of acknowledging the truth of a thought, which was true independently of that acknowledgment. For Peirce, the pursuit of truth is a task that involves a whole community of researchers, precisely all who employ the best and more powerful methods of investigation and who give expression to their results in true propositions. For Peirce, true propositions are beliefs with the maximum of possible guarantees, that means, beliefs that are supported by all investigations and reasoning, being confirmed time and again, and such that no fact has put them in question or refuted them. Nevertheless, they are fallible, because truth is like a limit, which implies the whole and total display of knowledge and possibilities completely realized. For Peirce, truth is not the acknowledgment of a previously given truth; it will coincide with the final opinion that is independent of individual minds and that is purified of any kind of human mistake or error, but it is not independent of generally considered thought (CP 8.12).

Frege does not have to face Peirce’s problem, that of when that final opinion is reached or even if it is possible to attain it,⁴⁵ but Frege’s appeal to the third realm

45 Cfr. FARBER, “Peirce on Reality, Truth and the Convergence of Inquiry”, p. 541-566. Farber presents in this paper the two directions of Peirce’s conception of reality, called “obtrusive realism” and “projective realism”, which are linked to secondness and thirdness respec-

seems to be the easy solution to a dead end. Although senses, thoughts and facts are above all objective entities, accessible then by means of language and thoughts procedures, their exact ontological status remains imprecise, vague and in shadows. And what is more important, true thoughts, as entities having the function of warranting knowledge, are completely separated from human beings who grasp them, “because the truth of a thought is timeless” (FREGE, 1984, p. 368). According to Frege, ontology and epistemology are utterly separate. First it is to be, in Frege’s third realm that applies to thoughts and facts; and second, it is to know them, that is, to grasp them and to acknowledge them. Following Peirce, ontology and epistemology cannot be separated. Peirce is going a step beyond Kant, in the sense that reality is what we know and there is no place at all to the *noumeno*, to the *Ding-an-sich*.

Peirce’s solution to the accessibility to abstract entities seems to be more convincing than Frege’s. Frege solved the problem of accessibility to abstract entities –in his view, the accessibility to thoughts– through language, which is only a means to grasp them, but which adds nothing to them. On the other hand, Peirce did not really have such a problem, because to reach the truth – even if it were an ideal limit – is not independent of opinion (of reason, of thought) and it is not independent of secondness. Truth is also forced by the obstinacy and resistance of facts.

The articulation of secondness and thirdness is present in Peirce’s views. Secondness is the external force that forces thought to be in agreement with it. And the opinion – with all the possible adjectives for warranting the independence of individual minds, such as common, agreed, or non biased – expressed in a true statement is tantamount to a thought in its forced consideration of secondness, and this opinion is an example of thirdness. In Peirce’s doctrine, then, truth is related both to reason and to objects, such as the representational system of signs shows, through the genuine relation of the three categories.

In Frege’s views, the genuine and authentic world, apart from error and doubt, is that of facts, a world that human beings can only discover by acknowledging the truth of the thoughts expressed in the statements. This is a Platonic world in the sense that facts are what they are with independence of human beings, who do not have the least possibility of acting upon them. The existence of entities in that world does not depend at all on the action of their being grasped, or on the action of acknowledging their truth. In Peirce’s texts, truth seems to be an ideal which human beings tend towards and therefore is entirely integrated in the reason that works upon things. Truth as final and predestined opinion implies necessarily (i) objects, which as secondness force us to say what has to be said, and (ii) reason, understood as the form of the final opinion we are predestined to reach.

Peirce’s model is, then, a model that integrates simultaneously both: (i) what is external to human beings, that is, objects as secondness; and (ii) what is proper and specific of human beings, that is, thought and reason, but in their general way of acting, which is independent of a particular and concrete mind, thought, or reason. Frege’s model takes for granted a world of already given facts, in which human beings do not take part in order to determine them. Nevertheless, to be in touch with these

tively, but which are not answering satisfactorily to the kind of questions prompted by the conception of truth as final opinion. Farber’s proposal to solve it is empirical realism.

facts human beings have to perform two actions: (i) to grasp the thoughts, and (ii) to acknowledge them as true. With this solution the genuine status of facts is always in shadows. In Peirce's model the notion of reality integrates proper facts with reason. The truth that is discovered is not only a truth forced by how things really are, but also a truth forced by how reason allows us to know how things really are.

In this sense, Frege's third realm could be named by Peirce as a Platonist nominalism (CP 5.503), because it accepts that facts exist in the same way as objects exist, which means that they exist utterly independent of being thought. In other words, even when Frege differentiated between the real-objectivity of external objects and the non real-objectivity of thoughts and facts⁴⁶ and other abstract entities, if Peirce's distinction of modes of being such as existence vs. reality were applied to Fregean thoughts and facts as well as to spatio-temporal objects, both would be existents in Peircean terminology. This is so because they share the feature of existing wholly independently of any particular mind which thinks them. Yet, it would be more problematic to determine if, for Frege, facts and thoughts are independent or not of mind, reason or thought *in general*. Even so, apart from the terminological question, it must be noted that Frege's Platonism is focused not so much in the existence/reality question, but in the objectivity/subjectivity one.

On the other hand, what Peirce called "reality" seems to me to have more in common with what Frege called "environment". Both reality and environment are the external world in their relations with cognitive human beings, but independent of their individual minds. From Frege's point of view, the warrant and the ground of knowledge are facts, but they are neither created nor produced by human beings, even though they need the particular and specific mental acts of being grasped in order to be accessible to cognitive human beings. From Peirce's point of view, the warrant and the ground of knowledge are at the same time both brute facts, such as the element of secondness, which are external and independent of human beings, and the final opinion, represented in a proposition, also independent of the particular and concrete minds, but neither of thought in general nor of the rational activity.

Peirce understood that there is not a secure warrant of knowledge, because the most we get are beliefs that have always worked well, and until now, have never been questioned. Constraints to knowledge come basically from secondness. Peirce did not have the Fregean problem of the accessibility to the abstract entities that guarantee knowledge, because for him abstract entities, like some generals, are real, in so much as they act upon human beings, when they consider them and take them into account to predict future events. This tendency to the future – proper of thirdness – has its confirmation – its being tested – in each particular case, in which the expected behaviour stated by the general, is established.

For Frege truth is already given and human beings only acknowledge it, whereas for Peirce, truth is a final goal that never is definitively finished; it is a hope that

⁴⁶ The German text says: "ich erkenne ein Gebiet des Objectiven, Nichtwirklichen an" (FREGE, *Grundgesetze der Arithmetik*, p. XVIII). Real has to be understood as causal effectiveness as it was already pointed out in this paper, or, following Frege's words as something "capable of acting directly or indirectly on the senses" (FREGE, *The Basic Laws of Arithmetic*, p.16).

we long to find through the steps we take, using all our methods and instruments at hand: experiments, community work, reasoning (deduction, induction, abduction), or scientific research done by the whole scientific community. With all these resources we go forward and sometimes backward, but always aiming towards consensus and agreement, led by reason and experimentation.

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