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Use Theory: considerations about the threat posed by mathematics

Abstract: *In this article I deal with the philosophy of language, that is, with the proper basis for telling whether or not something has meaning. More precisely, I will defend the thesis that the meaning of words and things is given in the context of social relations. I will try to answer the objection that mathematics preserves its meaning even if there are no social relations, for it would be as an implicit substance in nature. I will argue, by analogy, that mathematics does not have a different ontological status than other languages and that, therefore, its existence does not constitute a threat to the theory of use.*

Keywords: *Theory of use, Math, Social relationships.*

Resumen: *En este artículo trato sobre la filosofía del lenguaje, es decir, de la base adecuada para saber si algo tiene sentido o no. Más precisamente, defenderé la tesis de que el significado de las palabras y de las cosas se da en el contexto de las relaciones sociales. Intentaré responder a la objeción de que las matemáticas conservan su significado incluso si no hay relaciones sociales, ya que sería una sustancia implícita en la naturaleza. Argumentaré, por analogía, que las matemáticas no tienen un estado ontológico distinto en otros idiomas y, por lo tanto, su existencia no constituye una amenaza para la teoría del uso.*

Palabras clave: *Teoría de uso, Matemáticas, Relaciones sociales.*

1. Introduction

In recent years, it has become common in Brazil, in the context of political discussions, fostered mainly by partisan groups, to speak of fascism. It happens as follows: One group disagrees with the ideas of another group on general or specific topics, for example abortion; when this occurs both groups –most notably those on the left– accuse the rival group of fascism.

Discussions of this kind can be considered in a number of ways; I would like to draw attention to one specific claim. Sometimes it happens that those who are called fascists ask the offender: “Do you know what fascism is?” What is behind this question is the belief that the word ‘fascism’ is not being used properly, because it is dated geographically (Italy) and temporally (1919), so it is inappropriate to speak of fascism other than in this specific period of the history.

These considerations lead us to think of some questions, for example: when does a word mean something? What are the contexts in which words are used properly or not? There is a long tradition in philosophy that has, in one way or another, tried to answer these problems.

In this text I will briefly present some of the main theories of meaning and the arguments for and against such theories. I will argue for use-based theory of meaning, the theory of which seems to be developed by the Austrian philosopher Ludwig Wittgenstein. I will pay particular attention to an argument that could be used against the theory of use, namely the



argument that defends mathematics as a universal language.

2. Theories of Meaning: a very brief presentation

The central argument of a referentialist theory can be expressed as follows: A word *Z* has meaning insofar as it refers to objects in the world. Thus, we could say that external objects fill the sounds we articulate with the mouth with meanings. For illustration purposes only, for example: the word ‘guitar’ has meaning because it refers to an object in the world, namely a speaker consisting mostly of six strings, an arm, tuners, and so long.

Arguments that seek to counter referentialist theory realize that not all the words we use refer to external things, that is, there is a group of expressions that refer to things we cannot touch. Such things are abstract entities like: love, friendship, joy. Although the word ‘fascism’, for example, does not correspond to an object in the world, it does not seem to be meaningless at all. In addition, there are typical language-specific expressions that have no specific reference: very (US); Bah (BR).

An alternative to traditional referentialist theory is the theory of definite descriptions developed by Bertrand Russell. Russell argues with this theory that words do not refer to objects but to a series of definite descriptions of them. Thus, an expression such as “the present king of France is bald” could be divided into a series of descriptions defined as “there is a king of France”, “the king of France and bald” and so on. The strongest criticism of this theory is that it fails to realize that the descriptions are contextual, that is, the meaning of expressions is subject to the norms established through social relations. P.F. Strawson seems to be the main critic of Russell’s position. Strawson states that the phrase “the present king of France is bald” is not false, it is only misused.

One position held by logical positivists, such as Carnap, is that the meaning of words and expressions is necessarily connected to their

truth value. True-value expressions are those that can be true or false. A weakness of this theory is that only statements would have meaning, interrogative or exclamatory expressions would be out.

In addition, there seems to be an error of formation in the verificationist theory itself, so to show it clearly, I will present, as an example, the self-contradiction implicit in the argument of absolute relativism and then compare it with the verificationist argument.

The absolute relativist states “everything is relative.” What exactly does he mean by that? He means that the truth of all things is variable, that is, it can be true or false depending on who utters it and the context in which it is uttered. In this case, the expression ‘everything is relative’ may be true in some cases and false in others. In this sense, it seems that there is no good reason to believe that everything is relative. But what does this have to do with the verificationist argument?

Similarly, the statement of linguistic verificationism is “only verifiable expressions have meaning.” The embarrassing point for the linguistic verificationist here is that the normative expression of linguistic verificationism itself cannot be verified. I do not intend to list here the whole series of arguments that involve the meaning of words and expressions, perhaps it is important to mention that some have even argued that it is not possible to learn a language:

Learning a language (including, of course, a first language) involves learning what the predicates of the language mean. Learning what the predicates of a language mean involves learning a determination of the extension of these predicates. Learning a determination of the extension of the predicates involving learning that they fall under certain rules (i.e. truth rules). But one cannot learn that *P* falls under *R* unless one has a language in which *P* and *R* can be represented. So one cannot learn a language unless one has a language. (Fodor, 1976, 63-64)

This kind of argument, however, seems to find little acceptance in empirical experience, since we are not born having the ability to use any kind of language, and yet through social

conviction we learn to speak a language and, in some cases, even more than one.

To summarize, it is possible to state that there are propositional theories of meaning on the one hand and theories of use on the other. Propositional theories focus their attention on the study of sentences and their structure. Theories of use, on the other hand, focus on the social and practical aspects of language.

The foregoing explanations of theories of meaning, therefore, only serve to support the main discussion I intend to promote here, namely, mathematics is a universal language in the sense that it lies in the very nature of things as Galileo suggested with phrases that some attributed to him as “The book of the world is written in mathematical language.”; “Mathematics is the alphabet with which God wrote the universe.” I will try to show that such statements do not follow.

3. Use Theory and Some Analogies

Wittgenstein had already considered some of the possible objections to the theory of use, and I do not intend to develop Wittgenstein’s argument in detail; therefore, in this article, I do not intend to engage in controversy of interpretations. However, it is worth saying something about Wittgenstein’s private language argument. Wittgenstein presents the following example:

Now, what about the language which describes my inner experiences and which only I myself can understand? How do I use words to signify my sensations? – As we ordinarily do? Then are my words for sensations tied up with my natural expressions of sensation? In that case my language is not a “private” one. Someone else might understand it as well as I. – But suppose I didn’t have any natural expression of sensation, but only had sensations? And now I simply associate names with sensations, and use these names in descriptions. (Wittgenstein, 2009, 256)

Put in other words, the word ‘pain’ has no meaning because it refers to a given sensation,

but because it is learned by those who use it in a social context. I will suggest that the meaning of words and expressions is strictly connected to the rules of use in interpersonal relations. Next, I will consider the critique that mathematics has no meaning linked to social relations.

For the sake of argument, I would like to present an example; It will serve as an analogy to a second example, and in a third moment I will connect it to the case I am dealing with.

It is very common in biology, specifically evolutionary biology, to speak of a distinction between natural selection and artificial selection. Things are differentiated somewhat like this: organisms mutate randomly and such mutations are favored or not by the context or external pressures, if such an organism is favored, it can be said that it has adapted well; if he was disadvantaged it can be said that he did not have a good adaptation (which will probably culminate in his extinction). On the other hand, if we have a kind of artificial selection we have the same process; however, such a process has a direct intervention of a human being; so because of human intervention we give this sort of selection a new name.

I consider that there is arbitrariness in such a distinction, above all, because what underlies it is the humanist idea that the human being is something different, in the sense that it cannot be understood as one of the things of the natural world. What is the reason for separating human beings from the rest of nature? Some might claim that the rational capacity of man distinguishes him from the rest of nature.

The preceding answer I raise some objections: (i) it is not clear that only humans possess rational ability; (ii) what reason can be given to say with conviction which is the most relevant feature?; (iii) being human species just one of the animals belonging to nature and rationality only a characteristic of human being, there is no reason to say that rationality is not natural.

Understanding that I have shown, even briefly, that the distinction between natural selection and artificial selection is based on a misinterpretation of human ontology, I now present a similar case that occurs in the field of language.

Many logic manuals start with an explanation of language types. Thus, most textbooks

distinguish between natural and artificial language. The natural language is born of our common relations; derives from it what we know as languages: Portuguese; English; Italian. Artificial languages, on the other hand, would be born, not as a product of human relations, but as instruments to accomplish certain ends, such as logic and mathematics.

However, such a distinction seems very strange, since there is also no purpose in natural language, namely that of communication. On the other hand, if mathematics, for example, is an established language with specific purposes, why has it changed over time?

Suppose, for example, that a particular human community has adopted a different convention in which the number 4 quantifies what in our culture we call 3. It would be appropriate to say under these conditions that in this community the expression ' $4 + 4 = 6$ ' is a well-formed expression. Obviously, as we have already established the rules of formation, it is absurd to state from our context such an expression.

What I want to draw attention to with the examples presented is that mathematics, like any other kind of language, is absolutely subject to the dynamics of use relations. Another example can be given to illustrate what I am trying to defend, suppose all human civilizations for a terrible catastrophe have disappeared from the face of the planet. Consider, in addition, and just to prevent possible criticism, that the same catastrophe that was able to decimate all human beings also affected all animals with some degree of rationality. Would it be appropriate to state under such conditions that mathematics would still exist?

This would only be possible if it were not derived from human relations, but if it varies, as has already been explained, it does not seem to be the case that it is a natural element, at least not in the material sense of the term.

4. Final Considerations

One might defend, to object to my proposal, some Platonic argument, claiming that material nature is an imperfect copy of the ideal and

immaterial world and that it obeys mathematical laws. Frege perhaps learns a more sophisticated version of such an argument he points out that:

In arithmetic we are not concerned with objects which we come to know as something alien from without through the medium of the senses, but with objects given directly to our reason and, as its nearest kin, utterly transparent to it. (Frege, 1994, § 105)

Whatever the case may be, and I do not intend to dwell here, the arguments of Platonic origin already have a ready antidote, because in 2500 years of philosophy no one has intelligibly been able to say what such a world of ideas consists of, be it internal or external. On the other hand, we can also say that even if the world of ideas existed, it would make no difference to our relations, since our commitment to language does not need or require justification.

It should be noted that language norms are nothing more than an identification of the regularity of the use of such languages. Thus, grammar does not determine what is correct or not, it merely spells out what a particular social context means by correct.

Mathematics is also subjected, therefore, to the same conditions as all other forms of language. What perhaps contributes to keeping alive the illusion that it would be something else is precisely its effectiveness in predicting events when used in physical or chemical formulas. However, mathematics itself has limitations in such predictions.

In summary, considering all that has been presented, I find it safe to say that mathematics is a language and therefore natural. It is natural not in the sense that it intrinsically participates in things as Galileo, Carl Sagan, and so many others thought; but in the sense that they are a production that comes from human relations.

In return, the central argument advanced in this paper can be summarized as follows: (p₁) If the theory of use is not affected by the critique that mathematics is a universal language, then the theory of use seems to offer a good description of how words and expressions mean something; (p₂) the theory of use is not affected by

the mathematical argument; (c) the theory of use adequately describes the way in which we attribute meaning to words and expressions.

I would like to point out, by the end, that the propositional character from which I wrote this article does not imply that it is not open to criticism, on the contrary. The best thing I could dream of achieving from this essay is that it will find others who consider it worthy of any objection. Because in the end, thought and its products are socially developed.

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