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DOSSIÊ PEIRCE E A LÓGICA / DOSSIER PEIRCE AND LOGICS

Collective signs and generality in the trichotomy of the dynamic object in Charles S. Peirce's semiotics

Signos coletivos e generalidade na tricotomia do objeto dinâmico na semiótica de Charles S. Peirce

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Abstract: According to Peirce, generality has a distributive character, that is, the character of a law that can be applied to anything that may exist in a class, without asserting whether there is anything or what that thing is, but providing a description of how the individuals of that class should be selected (EP 2:284, 1903). Rodrigues (2017) asserts that Peirce does not regard the generality expressed in universal quantifiers as having a collective character, in the sense of signifying a particular singular group, a given collection. In 1905, Peirce (EP 2:352-353) stated that “a collective term is singular, since it denotes a given group and a given collection”. In 1908, however, Peirce used the term “collective” to describe the class of signs that have a dynamic object of thirdness, which is the category of generality. But he also employs the term “distributive” to describe the class of signs that have an immediate object of thirdness. Thus, in his descriptions of the ten trichotomies, the terms “collective” and “distributive” are used when Peirce wants to describe the mode of being of thirdness, i.e., that of generality. Although Peirce denied that generality has a collective character in the case of logical quantifiers, he considered using the term “collective” to describe the generality of dynamic objects. Consequently, it is necessary to discuss the meaning of the term “collective” when applied to thirdness in the trichotomy of the dynamic object. This is precisely the purpose of this article, which begins by presenting the problem of using this terminology in semiotics and the notions of collective and distributive in semantics and philosophy. Then, it shows how the terms appear in the texts in which Peirce conceives the ten trichotomies and focuses on the use of the term “collective” in two letters, one to William James, from 1909, and the other to the English logician P. E. B. Jourdain, from 1908. Starting from those two letters, we present the relationship between the term “collective” and the notion of continuity that culminates in the distinction between finite and enumerable collections and infinite and innumerable collections, suggesting that the notion of collective in the dynamic object has the meaning of an infinite and innumerable collection, associating the notion of dynamic object with the notion of continuum.

Keywords: Collective Sign. Dynamic Object. Generality. Peirce. Semiotics. Thirdness.

Resumo: Para Peirce, a generalidade tem um caráter distributivo, isto é, o caráter de uma lei que pode ser aplicada a qualquer coisa que possa existir numa classe, sem afirmar se há alguma coisa ou qual é essa coisa, mas fornecendo uma descrição de como os individuais dessa classe devem ser selecionados (EP 2:284, 1903). Rodrigues (2017) afirma que Peirce não considera que a generalidade expressa nos quantificadores universais tenha o caráter coletivo, no sentido de significar um determinado grupo singular, uma coleção dada. Em 1905, Peirce (EP 2:352-353) afirma que “um termo coletivo é singular, pois ele denota um grupo dado e um uma coleção dada”. Em 1908, no entanto, Peirce utiliza o termo “coletivo” para descrever a classe dos signos que possuem objeto dinâmico de terceiraidade, que é a categoria da generalidade. Entretanto, ele também emprega o termo “distributivo” para descrever a classe dos signos que possuem objeto imediato de terceiraidade. Notamos, assim, que, ao propor suas dez tricotomias, Peirce emprega tanto o termo “coletivo” quanto o termo “distributivo” para descrever o modo de ser da terceiraidade, ou seja, da generalidade. Logo, embora Peirce tenha negado que a generalidade tenha o caráter coletivo no caso dos quantificadores lógicos, ele considerou



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usar o termo “coletivo” vinculado à generalidade dos objetos dinâmicos. É necessário, portanto, discutir o sentido do termo “coletivo” aplicado à terceiridade na tricotomia do objeto dinâmico. Esse é justamente o objetivo deste artigo que começa apresentando o problema do uso dessa terminologia na semiótica e as noções de coletivo e distributivo na semântica e na filosofia. Em seguida, mostra como os termos aparecem nos textos em que Peirce concebe as dez tricotomias e foca no uso do termo “coletivo” a partir de duas cartas, uma para William James, de 1909, e outra para o lógico inglês P. E. B. Jourdain, de 1908. A partir delas, apresentamos a relação entre o termo “coletivo” e a noção de continuidade que culmina na distinção das coleções finitas e enumeráveis e coleções infinitas e inumeráveis, sugerindo que a noção de coletivo no objeto dinâmico tem o sentido de uma coleção infinita e inumerável, associando a noção de objeto dinâmico à noção de contínuo.

Palavras-chave: Generalidade. Objeto dinâmico. Peirce. Semiótica. Signo coletivo. Terceiridade.

1 Introduction

Between 1904 and 1909, Peirce worked on the proposal of ten trichotomies for his system of sign classes, two of them concerning the mode of being of the dynamic and immediate objects. Following the logic of the trichotomies, he conceived three modes of being of the dynamic object and three modes of being of the immediate object. The modes of being follow the logic of the categories, relating, therefore, to firstness, secondness, and thirdness. The mode of being of firstness relates to the possibility of being, that of secondness to the singular, and that of thirdness to the general mode of being. In this text, we are especially interested in discussing the mode of being of thirdness, that is, that of generality, in the trichotomy concerning the dynamic object and in the category relative to the immediate object, as shown in table 1 below:

Table 1: Peirce's ten trichotomies of signs			
Trichotomies	Firstness	Secondness	Thirdness
(DO)	abstractive	concretive	*collective*
(IO)	descriptive	designative [denominative]	*distributive* [copulant]
(S)	qualisign	sinsign	legisign
(S-DO)	icon	index	symbol
(II)	hypothetical	categorical	relative
(DI)	sympathetic	percussive	usual
(S-DI)	suggestive	imperative	indicative
(FI)	gratifying	practic	pragmatic
(S-FI)	rema	dicent	argument
(DO-S-FI)	instinct	experience	form [habit]

Table 1: Peirce's ten trichotomies of signs

In 1908, Peirce (SS: 83-85) employed the term “collective” to describe the class of signs that have a dynamic object of thirdness, which is the category of generality. But he also employs the term “distributive” to describe the class of signs that have an immediate object of thirdness. Thus, in his descriptions of the ten trichotomies, the terms “collective” and “distributive” are used when Peirce wants to describe the mode of being of thirdness, i.e., that of generality. The division of the immediate and dynamic object in the trichotomies of signs can be found in the *Logic Notebook* from 1904. From then on Peirce started to define the sign whose dynamic object is of thirdness as being a collective, or a collection, and the sign whose immediate object is of thirdness as being distributive or general.

Since thirdness is a category of generality, the use of the term “collective” to refer to the mode of thirdness of the dynamic object establishes a relation between the idea of collection and that of generality which was denied by Peirce when he discussed the logical quantifiers, as we shall see later. The question that arises then is: what meaning could the term “collective” have when applied to thirdness in the trichotomy of the dynamic object?

2 The notions of collective and distributive

In semantics, the use of the word “distributive” generally indicates the application of a predicate to the members or subsets of a set. That is, the term “distributive” refers to those predicates that apply to individuals and in the case of a plurality, apply only to each of its members, in a distributed way. As Kriz states,

Distributive predicates are predicates that are true of a plurality in virtue of being true of all the atomic individuals that make up the plurality. With such predicates, quantification over pluralities is equivalent to quantification over atoms. (Kriz, 2017, p. 2)

According to Kerstens et al. (1996), the opposite of a distributive predicate is a collective predicate. The collective predicate is a predicate that applies to a plurality of things as a whole rather than to each of the individual members. Its interpretation implies that for the sentence to be true, all the elements that are in the restriction domain of the quantifier share a property. The statement “all the girls hold a toy” is true only if the set of girls referred to in the statement hold a toy; it is false if at least one of them does not. In the domain of logic, this discussion deals with quantifiers.

Quantifiers are elements whose interpretation does not derive from a previously established lexical meaning, but – in this case – involves an operation between sets. The interpretation of quantified expressions is related to the attribution of a certain property – indicated by the sentence predicate – to the quantity of individuals they denote. These elements do not operate on individual entities, nor do they count individuals, but are responsible for establishing relations between sets. (Marcilese; Dos Santos Rodrigues, 2014. p. 110)

The authors (Marcilese; Dos Santos Rodrigues, 2014, p. 110) further explain that in establishing relations between sets, depending on the quantifier in play, it is possible to obtain distributive and/or collective readings of the quantified expressions. That is, the quantifier “all”, focusing on the totality of the elements of a set, implies the predication of a property to each member of the domain.

However, Rodrigues (2017) states that Peirce does not consider that the generality expressed in the universal quantifiers has the collective character, in the sense of meaning a certain singular group, a given collection. For Peirce, generality has a distributive character, that is, the character of a law that can be applied to anything that may exist in a class, without stating whether there is anything or what that thing is, but providing a description of how the individuals in that class are to be selected (EP 2:284, 1903).

A term denoting a collection is singular and such a term is an “abstraction” or product of the operation of hypostatic abstraction as truly as is the name of the essence. “Mankind” is quite as much an abstraction and *ens rationis* as is “humanity”. Indeed, every object of a conception is either a signate individual or some kind of indeterminate individual. Nouns in the plural are usually distributive and general; common nouns in the singular are usually indefinite. (EP 2:350-351, 1905, nota, [Issues of Pragmatism]).

In the entry “distribution/distributive”, Ferrater Mora (2000, p. 760) clarifies that in Aristotle’s view the universality of a proposition such as “every man is an animal” does not apply to the whole proposition, but only to the subject of the proposition. Although “man” is a universal term, the referred proposition is not universally conceived, since only the subject is universally understood, otherwise we would have “every man is every animal”. Peirce explains that a every/every expression, such as “every man is every animal”, for example, is not a universal proposition, because it means that the collection of men is identical to the collection of animals, and not that every man, without exception, is every animal. Thus, in “every man is an animal”, we say that the term “men” is distributed while the term “animal” is not.

Another issue is that the universal expressed by “all” is not indeterminate, but, for Peirce, thirdness is a form of indeterminacy, the indeterminacy of the general. Instead of the universal “all”, Peirce states that indeterminate universality is distributive, as expressed by the term “any”: “any human being is an animal”. This raises a problem: although Peirce denied that generality has the collective character in the case of logical quantifiers, in semiotics, he employed the term “collective” linked to the generality of dynamic objects.¹

To understand the meaning of the term “collective” in semiotics, we will first present a discussion of the use of the terms “collective” and “distributive” in the conception of the ten trichotomies, which occurs in texts from the Logic Notebook and in a letter to Lady Welby from 1908. We will, then, analyze the use of the term “collective” in two letters, one to William James, from 1909, in which Peirce discusses the nature of the objects of the sign, presents the collective sign and works with the idea that the object is the universe of the sign, and another to the English logician P. E. B. Jourdain, from 1908, in which Peirce uses the term collection instead of Cantor’s set and states that the collection is a mental concept. Finally, based on what we found in Peirce’s texts, we will discuss the relationship between the notion of collection and continuity and the implication of this relationship for understanding what the collective sign is.

3 “Collective” and “distributive” in the *Logic Notebook*

Once Peirce conceived the trichotomies concerning the immediate object and the dynamic object, he began to work on the definition and nomenclature of the sign concerning these divisions. In 1905, in the *Logic Notebook*, he wrote:

a. As to Immediate Object

<i>Vague Sign</i> Sign represents objects as Indefinite"	$\left\{ \begin{array}{l} \text{Abstract} \\ \text{Concrete} \\ \text{Collective} \end{array} \right.$
<i>Singular Sign</i> Sign represents object as Definite individuals	
<i>General sign</i> Sign represents object as Distributive general	

b. As to Dynamic Object

Icon Sign agrees with object by virtue of *Common Quality*

Index Sign agrees with object by virtue of *Being really acted on by it*

Symbol Sign agrees with object by virtue of Being so interpreted (PEIRCE, 1905 Oct 8 (cont), MS 339: 252r= Harvard (seq. 477), SWS: 156)

As for the immediate object, the vague sign refers to the object that is represented by the sign as being indefinite, corresponding to the first division of the immediate object. The singular sign refers to the object that is represented by the sign as being a definite individual; it corresponds to the second

1 Something that Bellucci (2021), for example, did not consider, when he proposed that symbols should be defined as signs whose object is general, without resorting to or mentioning the notion of collective sign that refers precisely to the dynamic object of thirdness, therefore, general. More about the collective signs can be found in Savan (1980), Jappy (2017), and Bellucci (2018).

division of the immediate object. Finally, the general sign refers to the object that is represented by the sign as being an object of coming-to-be, of the future, as it will be. Three other terms appear in a curly bracket: “abstract”, “concrete” and “collective”, respectively. However, in a later version of this division in the *Logic Notebook*, these terms appear crossed out, being discarded.² We know that later this nomenclature will be adopted in the division of the dynamic object and not in the division of the immediate object, as appears in this excerpt.

Clearly, what Peirce presents as the division of the dynamic object in the above passage is not yet the division concerning the nature of the dynamic object, but the division of the dynamic object considered in its relation to the sign. The relation of the sign to the object was the first division of the sign proposed by Peirce in 1868 (*On a new list*). On the very next page of MS 339, he reformulates the trichotomies, now presenting the division concerning the nature (or matter) of the dynamic object.

a. According to the Immediate Object (how represented)

Indefinite Sign	{	Abstract
Singular Sign		Concrete
Distributively General Sign		Collective

b. According to the Dynamic Object

α. Matter of the dynamic Object

Abstract

Concrete

Collective

β. Mode of representing object

Icon

Índex

Simbol

(PEIRCE, 1905 Oct 8 (cont), MS 339: 253r=; Harvard (seq. 479), SWS: 157)

From then on, Peirce defines the sign whose dynamic object is of thirdness as being a collective, or a collection, and the sign whose immediate object is of thirdness as being distributive or general.

Regarding the trichotomy concerning the immediate object, the terms “distributive” and “general” are interchanged and taken as synonyms to refer to the signs whose immediate object is of thirdness. In the trichotomy regarding the dynamic object, however, the term used to refer to the sign whose dynamic object is of thirdness is always “collective”.³

4 “Collective” and “distributive” in the letter to Lady Welby of December 23, 1908

In a 1908 letter to L. Welby, Peirce (EP 2:480) distinguished the immediate object as the object internal to the sign and the mediated (dynamic) object as the object external to the sign. He explained that the sign indicates the dynamic object, external to the sign, by a hint, and that this hint is the immediate object itself which is internal to the sign.

The dynamic object can have three modalities. It can be a possible, an occurrence or a necessitant. The sign whose dynamic object is possible is called abstractive, and the example he gave was the word beauty or “the beautiful”, whose reference is a possible. Next, he presented the concrete sign, whose

² Cf. Peirce, 1905 Oct 8 (cont), MS 339: 253r=; Harvard (seq. 479), SWS: 157.

³ Cf. Peirce, 1905 Oct 13 (cont), MS 339: 262r=; Harvard (seq. 497), SWS: 163; Peirce, 1906 March 31, MS 339: 275r, Harvard (seq. 521), SWS: 166.

object is an occurrence, a present, past, or future existent. Finally, Peirce designated the sign whose object is a necessitant as a collective sign, because he did not have a better designation at that moment, although he thought “collective” was not as bad a term as it may seem until one studies the subject (EP 2:480, 1908). Here he makes an explicit recommendation for us to study the meanings of the term “collective” in order to understand its use in such context.

With respect to immediate objects, when the immediate object is possible, the sign is called descriptive, because it always indicates the dynamic object more or less vaguely by means of qualities. That is, the immediate object that hints at the dynamic object is a possible, because qualities present in the sign can resemble qualities of a dynamic object. When the immediate object is an occurrence, the sign is called a designative. Although Peirce does not explain it, by designative he seems to mean a sign that indicates precisely, since it designates its dynamic object. This seems to be the case because the immediate object can be an occurrence related to the dynamic object and, therefore, capable of designating it. Finally, when the immediate object is a necessitant, the sign is called copulant (and, in other texts, distributive). This means that the object must be identified by the interpreter of the sign through the recognition that the sign represents a law, that is, a necessity.

5 Objects and universes in the letter to William James from 1909

Although Peirce uses the term “collective” to indicate the sign whose dynamic object is general, in a 1909 letter to William James, Peirce states that “the Object of every sign is an Individual, usually a Collection of Individual Individuals” (EP 2:494, 1909). In this passage, he seems, in fact, to be working with the idea of “collective” as being a singular term, relating to a given collection, rather than a general one. But if this is his understanding, it would not be appropriate to say that this object is a general dynamic object, of thirdness. When Peirce refers to a collection of individuals as being the object, he is referring to an object that has the nature of secondness, that is, to a singular.

Also, in this letter to William James, Peirce defines the object as the universe of the sign, that is, the universe to which the sign belongs. The object of Napoleon would be the universe of existence, Napoleon being a member of this universe. Just as the universe of Shakespeare’s creation is the object of the phrase “Hamlet was insane” and the universe of things desired by a captain, the object of the command “ground arms” (EP 2:493, 1909).

Although the relationship between the universes of experience and the objects of the sign appears explicitly in this 1909 letter, Peirce had already presented in earlier texts the idea of the universe of experience. We highlight this in two texts: at the beginning of the letter to Lady Welby of December 23, 1908 (EP 2:478-9), and in the *The neglected argument for the reality of God* (EP 2:433-450, 1908). In this text, before presenting the three universes of experience, Peirce explains what he conceives of as experience. Experience is a brutally produced conscious effect that contributes to habit and cannot be destroyed by any positive action of internal effort (EP 2:435, 1908). The three universes of experience, therefore, are universes that, although different, contribute to habit formation.

The first of these universes encompasses all ideas, in the sense of denoting “anything whose Being consists in its mere capacity for getting fully represented, regardless of any person’s faculty or impotence to represent it.” (EP 2:434, 1908). This universe is therefore composed of ideas capable of making themselves represented, without being presently represented. In the letter to Welby, Peirce adds “a member of this universe need not be subject to any law, not even to the principle of contradiction” (EP 2:479, 1908) and defines the objects of this universe as being ideas or possibles, pointing out that the use of the term “possible”, unlike the definition of the term “idea” presented in the *Neglected argument*, does not imply the capacity of actualization. Since anything that is not subject to the principle of non-contradiction is essentially vague, Peirce, instead of regarding the idea as something that has the

capacity to be fully represented, states that “an Idea is incapable of perfect actualization on account of its essential vagueness if for no other reason.” (EP 2:479, 1908). There is, therefore, an adjustment in the sense of what the idea is capable of representing, being vague, we cannot read ‘being fully represented’ as referring to a perfect representation.

The second universe is that of objects whose beings consist in their brute reactions and of facts concerning these objects. By objects he means existents and by facts he means facts concerning existents (EP 2:479, 1908). This second universe is thus composed of the brute actuality of things and facts (EP 2:435, 1908). The members of this universe are either subjects of a singular object, as in the principles of non-contradiction and the excluded middle, or are expressible by a proposition which has this kind of singular subject (EP 2:479, 1908).

The third universe “consists of the co-being of whatever is in its Nature *necessitant*, that is, is a Habit, a law, or something expressible in a universal proposition. Especially, *continua* are of this nature.” (EP 2:479, 1908). Importantly, the third universe is defined by the “co-being” proper to the continuum, thus that which cannot be enumerated, singularized. In the *Neglected argument*, Peirce explains this universe as the universe of things whose beings consist in the active power of establishing connections between different objects, especially between different universes (EP 2:435, 1908). This universe includes everything that can be known through logically valid reasoning (EP 2:479, 1908).

In another letter to James, of March 14, 1909, while trying to explain false signs, Peirce (EP 2:497, 1909) stated that signs belong to one of those three universes, and that even if the sign is false, it has been determined by what it falsely represents. If this were not so, the sign would have no relation to the object, nor would it represent it, even falsely. He then differentiates between what the sign determines and what determines the sign. What the sign determines corresponds to the denotation of a concept. What determines the sign is “the collection which consists of the aggregate of whatever Objects it permits its Interpreter to refer it to, is its *Umfang*, its *Extension*” (EP 2:497, 1909).

6 The term “collection” in a letter to P. E. B. Jourdain

In a letter to the English logician P. E. B. Jourdain, of 1908 Dec 5 (NEM III-2:879-882), Peirce discussed the term “collection”, because he considered it a more appropriate and familiar term than “aggregate” to refer to the logical term, which seems to be Cantor’s “set”. Just as Peirce opts for the term “collection” rather than “aggregate” or Cantor’s “set”, he says he prefers “multitude” to *Mächtigkeit* (which is the cardinality or potency of a set). Instead of saying that one set has a greater cardinality than another, Peirce says that one collection is more numerous than another. Still about collections, Peirce explains that the collection is a mental concept, a creation of thought, even though, in some cases, it may seem that the collection takes place in perception, as is the case of star clusters that we can see with the naked eye.

The concept of a collection as such is that of an *ens rationis*, or creation of thought. An *ens rationis* may be Real, if we understand by the Real that which possesses such attributes as it does possess, independently of any person or definite existent group of persons thinking that it possesses them. (NEM III-2:881, 1908 Dec 5).

The definition of a collection as a mental concept is therefore compatible with thirdness, with the idea that generals are real, and, consequently, with the adoption of the term “collective” to designate the sign whose dynamic object is a general (thirdness). By conceiving a general dynamic object, Peirce conceives that the sign can represent more than a singular individual object. In *What Pragmatism is*, Peirce states that an experiment can show more than an individual object, because a connected series of experiments constitutes a singular collective experiment (EP 2:339, 1905). The idea of collection, then,

seems to range between two senses, that of a singular collection composed of singular members and the idea of a general collection.

The notion of object, thought of as a set compared to the idea of sign, also thought of as a set, even though both are general, leads us to affirm that the set of the object is larger than the set of the sign. In this sense, we will explore further the concept of collection associated with Cantor's notion of sets and infinities to which Peirce refereed to at the beginning of his letter to Jourdain, and, consequently, to the idea of continuity in Peirce.

7 Collective and continuity

The idea of continuity in *The law of mind* (EP 1:314, 1892) appears linked to the notion of infinitesimal numbers. When speaking of consciousness in an interval of time, Peirce states that this time cannot be finite. A time interval is infinite because the present is connected to the past by a series of infinitesimal real steps. That is, the immediate is not a discontinuous time, but an instant in a continuous time. "We are, therefore, forced to say that we are immediately conscious through an infinitesimal interval of time" (EP 1:315, 1892). This means that, immediate consciousness is in an infinitesimal interval. The immediate is not a present outside the continuum and therefore discontinuous of the past. In line with Cantor's texts and disagreeing with an opinion, according to him, predominant at the time, Peirce states that the idea of an infinitesimal does not involve contradiction, and that, it is possible to reason about it.

Next, Peirce states that in *On the Logic of Number* (1881) he had already shown that finite collections are distinguished from infinite collections "only by one circumstance and its consequences" (EP 1:316, 1892). That circumstance is the applicability of the transposed quantity syllogism, which is only true when applied to finite collections. An example would be the following argument:

If an insurance company pays to its insured on an average more than they have ever paid it, including interest, it must lose money. But every modern actuary would see a fallacy in that, since the business is continually on the increase. But should war, or other cataclysm, cause the class of insured to be a finite one, the conclusion would turn out painfully correct, after all. (EP 1:316-7, 1892).

In the case of infinite collections, the transposed quantity syllogism is false. That is, since the quantity of insureds is infinite, the insurance company does not lose money even if it pays the insureds more than it collected from them.

With respect to infinite collections, they can also be numerable or innumerable. Numerable infinite collections are those whose collection items correspond one-to-one to numbers, and thus they can be counted, even if it is not possible to reach the end of the count. Infinite innumerable collections, on the other hand, are not composed of items that can be counted. An example given by Peirce is that of the collection of irrational numbers, called by him incommensurable, which are not expressible by any finite series of decimals (EP 1:319, 1892). Cantor demonstrated that the collection of incommensurable numbers is innumerable and further showed that there were infinities greater than others by showing that collections of infinite sets of incommensurable numbers, each of which is infinite, is even greater than a simple innumerable collection. About such a so-called infinitely infinite collection, Peirce states: "The singular individuals of such a collection could not, however, be designated, even approximately, so that this is indeed a magnitude concerning which it would be possible to reason only in the most general way, if at all" (EP 1:319, 1892). About the infinite and innumerable collection, therefore, we could only think in a general way.

8 Considerations about the collective sign

Returning to the problem of the term “collective” related to the general dynamic object, we can think of the term “collective” referring to an infinite and innumerable collection and not to a singular and enumerable group. The collective sign, then, would be the one whose dynamic object is infinitely infinite and can only be thought of in a general way. But that is not all. It is also from the series of incommensurable numbers, those that are between 0 and 1 and that have an infinite number of decimal places, that Peirce draws his definition of continuity, after criticizing Cantor’s and Kant’s definition of continuum (EP 1:320-2, 1892):

Every number whose expression in decimals requires but a finite number of places of decimals is commensurable. Therefore, incommensurable numbers suppose an infinitieth place of decimals. The word infinitesimal is simply the Latin form of infinitieth; that is, it is an ordinal formed from *infinitum*, as centesimal from *centum*. Thus, continuity supposes infinitesimal quantities. There is nothing contradictory about the idea of such quantities. In adding and multiplying them the continuity must not be broken up, and consequently they are precisely like any other quantities, except that neither the syllogism of transposed quantity nor the Fermatian inference applies to them. (EP 1:322, 1892).

Continuity is important, first of all, because it provides an explanation for the generality of concepts: “True generality is, in fact, nothing but a rudimentary form of true continuity. Continuity is nothing but the perfect generality of a law of relationship” (CP 6.172, 1902 [“Synechism”, *Baldwin’s Dictionary*]).

When thinking about the objects of signs, we need to consider that they can be a single set composed of singular objects or a single continuum of objects. If the sign is a general description, the interpreter of the sign may infer that the object must belong to a limited collection of objects, but this is not to be confused with the general object, for the general is partially indeterminate (NEM III/3, p. 913), it cannot be exhausted by any collection of occurrences, or of existing entities.

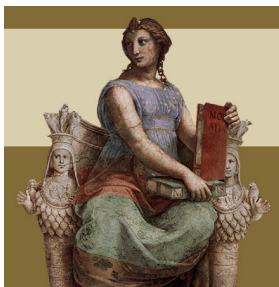
Peirce explains that anything is general insofar as the principle of the excluded middle does not apply to it and is vague insofar as the principle of contradiction does not apply to it (EP 2:351, 1905 [*Issues of Pragmaticism*]). In terms of phenomenological categories, vagueness would be of the order of firstness and generality, an indeterminacy of the order of thirdness. And that which is defined, individual, singular, that is, of the mode of being of secondness (Borges; Franco, 2022).

Therefore, the infinite and innumerable collection in the dynamic object, must refer to a perfect continuous series. From an analytical point of view, the very notion of dynamic object, considered in the infinite series of signs, is just the arbitrary end of a recursive series of infinite return to the previous sign. From the ontological point of view, the dynamic object is the beginning of the process, which is not a point, nor a singular collection, but an infinite and innumerable collection, a perfect continuum, under which we can only think generally.

In this way, the collective sign does not refer to a singular collection, nor to a collection of singulars. The set that forms the general dynamic object is infinite and innumerable. Therefore, the dynamic object of thirdness, as a set, is greater than the set of immediate objects of thirdness, which seems to refer to a discrete series of objects represented in the sign. That is, the immediate object is an instance, a part, of the dynamic object. And this part can be equally general, as is the case of the distributive sign, whose immediate object is of thirdness. The term ‘distributive’, therefore, is used to designate the sign whose immediate object is of thirdness, because referring to the object as represented by the sign, the immediate object, in fact, is already thought of as a discrete object, that is, the discrete members of a certain class. The dynamic object, on the contrary, is thought of as the continuum itself.

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