



Indeterminacy and final causation in the process of sign determination

Indeterminação e causalção final no processo de determinação sígnica

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Abstract: In semiotics, final causation can be related to the process of determination (PAPE, 1993). From Peirce's point of view, determination is not a causal determinism, but a delimitation of a range of possibilities. One starts from objects towards interpretants, in a process mediated by the sign, in which the dynamic object works as a force that constrains interpretants to correspond to their objects. The correspondence between object and interpretant is important because it is through a generated interpretant that the object of a sign can be known. Even though this process of determination coincides with the idea of final causation, there is a certain indeterminacy in it. For Peirce (EP 2:353, 1905), vagueness and generality are two types of indeterminacy. In the terms of the phenomenological categories, vagueness is an indeterminacy of the order of firstness, generality an indeterminacy of the order of thirdness, and both, to some extent, are opposed to that which is defined, which belongs to secondness. Each aspect of the sign may vary according to the three phenomenological categories. Consequently, degrees of imprecision are added to the semiotic process, which is a determination process. Peirce asserts that the perfect precision of thought is theoretically unattainable (SS 11, 1903). Every sign is vague or general at least to some degree. In this paper, we seek to perceive degrees of indeterminacy and causality from an analysis of the kinds of objects and interpretants proposed by Peirce in the system of 28 sign classes.

Keywords: C. S. Peirce. Determination. Final causation. Indetermination. Semiotics.

Resumo: Em semiótica, causalção final pode estar relacionada aos processos de determinação (PAPE, 1993). Do ponto de vista de Peirce, a determinação não é um determinismo causal, mas uma delimitação de uma gama de possibilidades. Aquela que começa dos objetos para os interpretantes, em um processo mediado pelo signo, no qual o objeto dinâmico funciona como uma força que limita os interpretantes para corresponder aos seus objetos. A correspondência entre o objeto e o interpretante é importante pois é através de um interpretante gerado que o objeto de um signo pode ser conhecido. Mesmo que esse processo de determinação coincida com a ideia de causalção final, há uma certa indeterminação nela. Para Peirce (EP 2:353, 1905), vagueza e generalidade são dois tipos de indeterminação. Nos termos das categorias fenomenológicas, vagueza é uma indeterminação da ordem de primeiridade, generalidade uma indeterminação da ordem da terceiridade e, ambas, em alguma medida, são opostas a aquilo que é definido, que pertence à segundidade. Cada aspecto do signo pode variar segundo as três categorias fenomenológicas. Consequentemente, graus de imprecisão são adicionados ao processo semiótico, que é um processo de determinação. Peirce afirma que a precisão perfeita do pensamento é teoricamente inatingível (SS 11, 1903). Todo signo é vago ou geral pelo menos em algum grau. Neste artigo, buscamos entender os graus de indeterminação e causalidade a partir de uma análise dos tipos de objetos e de interpretantes propostos por Peirce no sistema de 28 classes de signos.



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Palavras-chave: Causalção final. C. S. Peirce. Determinação. Indeterminação. Semiótica.

1 Introduction

Between 1905 and 1906, Peirce published in *The Monist* a series of three articles that sought to clarify and explain his Pragmatism: “What Pragmatism Is” (PEIRCE, 1905a; EP 2:331-345), “Issues of Pragmaticism” (PEIRCE, 1905b; EP 2:346-359), and “Prolegomena to an Apology of Pragmaticism” (PEIRCE, 1906). Peirce was concerned with the different interpretations of pragmatism and was especially opposed to James’ pragmatism, already elaborated, and published in the book “The will to believe” (JAMES, 1896).

Pragmatism emerges as a method to determine the meaning of words, notably philosophical and scientific terms. Throughout the years, Peirce has led his reflections apparently driven by the need to clarify concepts and ideas. We can see this in his text “How to make our ideas clear” (EP 1:124-141, 1878), in his discussions on the ethics of terminology (EP 2:263-266, 1903), and in his hard work on writing numerous entries for the twelve volumes of the Century Dictionary and also for Baldwin’s Dictionary. Specifically, in “What Pragmatism Is” (EP 2:332, 1905), Peirce introduces pragmaticism and explicitly emphasizes that Pragmaticism does not provide solutions to philosophical problems, being merely a methodological assumption, whose central interest is to clarify our thoughts and to criticize meanings. A fundamental issue for Peirce’s Pragmatism is the process of determination, which relates to the precision and imprecision of concepts and ideas. Vagueness is not only a problem for logic. It is a philosophical problem since a given terminology admits borderline cases. It is possible to verify in Peirce’s work the acceptance of imprecision and of the vagueness of language. For Peirce, there will always be a certain degree of indeterminacy, whereas no cognition and no sign are absolutely accurate.

Peirce entered into a debate with the necessitarians in the first half of the 1890s when he questioned their rigid determinism.¹ He pointed out the increasing complexity of nature, which, according to him, could not be explained solely by the rule of “mechanical necessity”. Peirce did not deny that there were laws in nature. However, as an experimental scientist, he was aware that scientific measurements of natural phenomena detect only regularities, which do not necessarily imply exact conformity to theoretical predictions (W 4:544-554, 1883-84). Santaella (2002) presents Peirce’s thought in detail going from his criticism of a deterministic conception of law to his understanding of the evolutionary character of all laws. This character derives from its tendency to grow, to change, to generalize and to form associations, which is also the tendency to acquire habits.

2 Indeterminacy: the vague and the general

For Peirce (EP 2:350-351, 1905), vagueness and generality are two types of indeterminacy. Peirce’s entry “vague” in the Baldwin Dictionary (1902) relates vagueness to borderline cases. Peirce asserts that a proposition is vague when there are possible states of things concerning which it is intrinsically uncertain.

Peirce also explains logically the difference between the vague and the general: “It is indispensable in these matters to avoid all confusion between what is *general* and what is *vague*. It might seem almost impossible to confuse the two concepts, which are truly as wide apart as the poles. Yet we all do so continually” (NEM III/2:913 [L299], 1904). What is not subject to the principle of noncontradiction is necessarily vague (EP 2:168, 1908). The principle of noncontradiction states that contradictory propositions cannot both be true in the same sense at the same time. That is, it would be impossible for something to have a certain feature and not have it at the same time. Regarding generality, Peirce states that the Principle of the Excluded Middle does not apply for it. Indeterminacy arises during the process of grouping objects according to some property of “P” (expressed by a vague predicate) of objects.

1 See Peirce (1892;1893) and Carus (1892;1893) papers on *The Monist*.

In 1909, he situates his triadic logic in the context of the debate between determination and indeterminacy:

Triadic logic is that logic which, though not rejecting entirely the Principle of Excluded Middle, nevertheless recognizes that every proposition, S is P, is either true, or false, or else S has a lower mode of being such that it can neither be determinately P, nor determinately not-P, but is at the limit between P and not P. (MS 339:344, February 23, 1909).

According to Peirce, indeterminacy is a matter of representation and not a peculiarity of the object of representation. Indeterminacy may happen in two ways: inaccuracy as to what the object of the sign is and inaccuracy as to what its interpretants are. The relationship between sign and object is a source of uncertainty in breadth, while the relationship between sign and interpretant is the source of uncertainty in depth (cf. CP 4.543, 1906). In terms of phenomenological categories, vagueness relates to firstness, and generality relates to thirdness. In contrast, the defined, individual, and singular is the way of being of secondness. If we apply this logic to the classes of signs, the degrees of vagueness and generality multiply and mix in the classes of signs. If the sign determination process starts from the object towards the interpretants passing through the sign, we can start by analyzing the modes of the objects in the sign classes to understand their indeterminacy and how they affect the semiotic process.

3 The process of sign determination: from the object towards the interpretants

Determination from Peirce's point of view is not a causal determinism. It is a delimitation of the range of possibilities. In semiotic terms, we could exemplify his idea of determination by stating that a concept is a sign. Being a sign, the meaning of a concept includes all possible interpretations related to the object of the sign. The determination from objects toward interpretants is a sign mediated process in which the dynamic object functions as a force that constrains the interpretants to correspond to the object. The correspondence between the object and the interpretant is essential because it is *through* the generated interpretant that the object of the sign can be known. Its logical-pragmatic meaning would then be limited to the interpretants that determine how this might affect our experience with the object. Determination, in this context, can be understood as the action of the sign by logical causality: the object determines the sign for the interpretant. "It follows that Peirce's general definition of a sign or representamen is the most general description of the internal structure of final causality" (PAPE, 1993, p. 593).

Peirce's view on causation, and especially on final causes must be better explained in order to avoid confusion with other views on causation in philosophical context. Hulswit (2002, 2004) explains that the concept of causation has emerged in Pre-Socratic philosophy, and it was probably Plato who first stated the principle of causality (*Timaeus* 28a). However, Aristotle was the first philosopher to give an extensive account of causes (HULSWIT, 2002, 2004).² The Aristotelian theory of causation is based on four types of causes: material, formal, efficient, and final. Hulswit (2002, p. 3) notes that these causes are less like prerequisite conditions rather than causes in the sense of beings that bring something about as active initiators or produce some change. The coming-to-be of something can only be completely explained with the involvement of the four causes.

If an Aristotelian cause can be taken in the sense of something A which is the initiator of a change in B, on the other hand, the scientific conception of causation is that a cause is something which is

² According to Hulswit (2002, 2004) the most important passages where Aristotle discussed his theory of 'causation' are to be found in his *Posterior Analytics*, his *Physics*, and his *Metaphysics*.

implicated in the occurrence of a phenomena. That is, the occurrence of B necessarily involves the occurrence of A (HULSWIT, 2002, p. xv).

It is a matter of dispute whether Aristotle also defended the modern idea that efficient causes necessitate their effects; there is evidence that he associated explanation by efficient cause not simply with what happens always and necessarily, but with what happens for the most part. Indeed, given a certain man, he must have a father, but given a man, there is nothing that determines him to be a father. In other words, Aristotle defended the view that, given a certain effect, there must be some factors that brought about that effect. But he nowhere inferred from this that given certain conditions, some effect necessarily follows. (HULSWIT, 2002, p. 5).

The so-called scientific conception marks a change in the meaning of cause, since it introduces the idea that the causal relation is an instance of a deterministic law. Although, Aristotle's theory carries a teleological character, for the efficient cause acts toward an end, guided by a final cause, this teleological character is not deterministic, since the final cause does not determine a particular occurrence.

Efficient causation involves the transmission of a *form*. And precisely this form functions as a boundary condition determining that the behavior of a particular substance cannot exceed certain boundaries. For instance, though the form of man does not determine what a particular man will do, it does determine that he cannot, for example, fly as a bird. (HULSWIT, 2002, p. 5).

In general, the idea of final causation has been very much criticized and rejected. Contemporary philosophy and science tend to explain a process based only on efficient causation, and there is no clear explanation to teleological processes, which were not discarded (HULSWIT, 2002, p. 75-76).

Much of the aversion of contemporary philosophy of science regarding teleology is based on the erroneous view that teleological explanations imply final causes that are concrete future events. Such backward causation is rightly rejected because it is thought to be incompatible with the current views of efficient causation. Indeed, how could future events cause present events at all, if they do not yet exist? Thus, the idea of final causation as backward causation is preposterous. Peirce's critique of this erroneous view of teleology was in this respect in total agreement with Aristotle's view. (HULSWIT, 2002, p. 76).

In his article, "On Science and Natural Classes" Peirce (EP 2:115-132, 1902) argues that each act of causality involves an efficient component, a final component, and a component of chance (tychism). Chance belongs to the category of firstness, efficient causation to the category of secondness, and final causation to the category of thirdness. Final causation, is then, a general tendency, not an event in the future. Being of thirdness, final causation involves both secondness and thirdness, that is, efficient causation and chance. Differently from Aristotle, Peirce's conception of final causation presupposes chance. "Final causation does not determine in what particular way it is to be brought about, but only that the result shall have a certain general character" (EP 2:120, 1902). Peirce was interested in the nature of thought's efficacy or in its power to work itself out in the world and, consequently, worked on Aristotle's distinction between final and efficient causation.³

Final causes are closely related to classes and classifications in Peirce's theory. A class is a general idea that corresponds to a set, in which the members of the set belong to it because they have the same

3 Cf. Pape (1993) and Hulswit (1997; 2002; 2004).

final cause. A class is, then, defined by its final cause. Furthermore, a classification is a way of arranging things according to its final cause, that is, according to a tendency to behave in a certain way (EP 2:115-132, 1902). Knowing that besides working on sciences and its classification, Peirce made a great effort to develop his systems of sign classes, it is almost evident that the problem of causation is, also, a semiotic problem. Hulswit (2002) had already presented a good discussion on semiotic causation and the roles of final causation, efficient causation, and chance in semiosis. We, also, have previously pointed out how final causation may relate to the process of determination in semiotics (FRANCO; BORGES, 2017, 2019; BORGES; FRANCO, 2019). Now, we will advance to the relations between vagueness, determination, and generalization in the semiotic process, and, to show this, we will consider Peirce's system of 28 sign classes.

4 Indeterminacy and determination in the system of 28 sign classes

The process of sign determination starts from the object towards the interpretants mediated by the sign. Therefore, it is important to observe the modes of objects in the sign classes to understand how they determine the interpretants. Peirce (SS 27, 1904) states that "indeterminacy belongs only to ideas; the existent is determinate in every respect, and this is just what the law of causation consists in." Determination, in this context, can be understood as a sign action by logical causality: the object determines the sign for the interpretant.

[...] a sign endeavours to represent, in part at least, an Object, which is therefore in a sense the cause, or determinant, of the sign even if the sign represents its object falsely. But to say that it represents its Object implies that it affects a mind, and so affects it as, in some respect, to determine in that mind something that is mediately due to the Object. That determination of which the immediate cause, or determinant, is the Sign, and of which the mediate cause is the Object may be termed the *Interpretant*. (CP 6.347, c. 1909, Author's emphasis).

Peirce, in several passages, affirms that the object (Dynamic) determines the sign. Specifically, below, he explains this order of determination present in the sign concept itself:

I will say that a sign is anything, of whatsoever mode of being, which mediates between an object and an interpretant; since it is both determined by the object *relatively to the interpretant*, and determines the interpretant *in reference to the object*, in such wise as to cause the interpretant to be determined by the object through the mediation of this "sign." (EP 2:410, 1907).

In a letter to Lady Welby from December 23, 1908, Peirce (EP 2:481) spells out the order of determination for the six trichotomies that generate the system of 28 classes of signs in the following order: dynamic object, immediate object, sign itself, immediate interpretant, dynamic interpretant, final interpretant.⁴ Furthermore, in 1908 (EP 2:480-489), he proposes that the signs be called abstractive (DO^{1ness}), concrete (DO^{2ness}) or collective (DO^{3ness}), depending on the mode of being of their dynamic

4 The terms used to define the interpretants in the 28-class system (EP 2:481, 23 Dec 1908) are /////////////// the next day when Peirce wrote the ten trichotomies that would lead to the 66-class system (EP 2:489-490, 1908). The intended interpretant corresponds to the immediate interpretant that refers to the sign's interpretive potential. The effective interpretant corresponds to the dynamic interpretant, which is the one effectively produced in a mind. The explicit interpretant corresponds to the purpose of the eventual (dynamic) interpretant. The purpose of the eventual interpretant was also called normal interpretant or final interpretant, always referring to the effect that would be produced in the mind by the sign after sufficient development of thought (EP 2:482, 1908). As the terms destined, effective and explicit are not recurrent in Peirce's work, we adopt in this text the most known terminology that refers to the interpretants as immediate, dynamic and final. Cf. BORGES, 2015, 2014, 2010; FARIAS; QUEIROZ, 2003; MÜLLER, 1994; SANDERS, 1970; WEISS; BURKS, 1945.

object (Table 1). We will follow this description of the sign process to observe the processes of sign determination and indeterminacy.

Sign types depending on the mode of its dynamic object	1. Abstractive
	2. Concretive
	3. Collective

Table 1

Abstractive signs are those whose dynamic objects are of the modality of firstness. The dynamic object of firstness is an object of the modality of the possible. About this modality, Peirce affirms that: “a state of things has the modality of the possible,—only in case the contradictory state of things is likewise possible, which proves the possibility to be the vague” (EP 2:355, 1905). The dynamic object of firstness appears only in one sign class of all sign systems (Table 2). This happens because the dynamic object of the first mode of being is vague, and, by being vague, it determines nothing but vagueness.

Class	Dynamical Object (DO)	Immediate Object (IO)	Sign (S)	Immediate Interpretant (II)	Dynamical Interpretant (DI)	Final Interpretant (FI)
1	abstractive	descriptive	qualisign	hypothetic	sympathetic	gratifying

Table 2

This single abstractive sign (DO^{1ness}) class is an absolutely vague class, for both its object, the sign and its interpretants are of the mode of possibility. It is not possible to state whether the interpretant is true or false, as it can even be contradictory. As an example, Peirce states that the word “beauty” as well as “the beautiful” are abstractive signs (EP 2:480, 1908). Neither the word “beauty” nor “the beautiful” define the qualities of what may be called beautiful; therefore, they can refer to anything. As the dynamic object is of the mode of possibility, the object does not restrict the possibilities of signs and interpretants arising from it.

The concretive signs (DO^{2ness}), in their turn, are those whose dynamic objects are of the mode of actuality, or secondness. The mode of actuality is the only determined mode. The dynamic object of a concretive sign is an occurrence, an existing thing, or a current fact of the past or the future (EP 2:480, 1908). It is, therefore, a sign with a high degree of determination. A narrative about an event or any barometer are concrete signs (DO^{2ness}) whose dynamic objects are occurrences, that is, an event or the current atmospheric pressure. In a process of semiosis, even if the sign is concretive (DO^{2ness}), it is not possible to discover all the properties of the object, since the object determines the sign to represent it in some aspect or capacity and not in all aspects and capacities.

Finally, when the dynamic object has the mode of thirdness, the signs are called collectives. Collective signs (DO^{3ness}) are general signs. They determine a state or condition that should apply to the universe as a whole or to any particular (PEIRCE, 1902a). For Peirce, the mode of thirdness is the mode of necessity, and it has an indeterminacy among alternatives:

[...] that which is known by direct recollection is in the Mode of Actuality, the determinate mode. But when knowledge is indeterminate among alternatives, either there is one state of things which alone accords with them all, when this is in the Mode of Necessity, or there is more than one state of things that no knowledge excludes, when each of these is in the Mode of Possibility. (EP 2:355, 1905).

As the dynamic object is the aspect that represents reality in semiotic theory (FRANCO; BORGES, 2015), the three modes of the dynamic objects, possibility, actuality, and generality are present in reality.

Peirce conceives, like realists, that general objects are real, but furthermore, he conceives that vague and possible objects are also real.

Another doctrine which is involved in Pragmaticism as an essential consequence of it, but which the writer defended (*Journal of Speculative Philosophy* 1868, and *North American Review* 1871) before he had formulated, even in his own mind, the principle of pragmaticism, is the scholastic doctrine of realism. This is usually defined as the opinion that there are real objects that are general, among the number being the modes of determination of existent singulars, if, indeed, these be not the only such objects. But the belief in this can hardly escape being accompanied by the acknowledgment that there are, besides, real vagues, and especially, real possibilities. For possibility being the denial of a necessity, which is a kind of generality, is vague like any other contradiction of a general. Indeed, it is the reality of some possibilities that pragmaticism is most concerned to insist upon. (EP 2:354, 1905).

Class	DO	IO	S	II	DI	FI
2	2	1	1	1	1	1
3	2	2	1	1	1	1
4	2	2	2	1	1	1
5	2	2	2	2	1	1
6	2	2	2	2	2	1
7	2	2	2	2	2	2

vague

determined

Table 3

Actuality (2ness) is the mode of being of determination, while in possibility (1ness) and necessity (3ness) there is indeterminacy. Consequently, the sign classes composed of sign aspects of the mode of secondness are the classes with the greatest determination (Table 3).

Whereas the sign classes that present aspects of firstness and thirdness are classes with a certain degree of indeterminacy. The indeterminacy of firstness must not be confused with the indeterminacy of thirdness, since one is vague and approaches chance, while the other is general and approaches law. The presence of collective signs shows that, for Peirce, reality is dominated by laws that restrict the modes of interpretation. Therefore, reality itself follows a general law that makes it tend to generalization and the formation of habits or laws, called the law of final causation.

We can identify in collective signs (DO^{3ness}) the idea that reality tends to generalization and that it is, therefore, not fully determined. Reality tends to form laws. This can be observed in the large number of collective signs in the class systems. But how does this tendency towards generalization take effect in the production of interpretants?

5 Interpretants of the First mode of being

Regarding the interpretants, what we observe is that abstractive signs (DO^{1ness}) continue to be vague, since its interpretants are of the mode of possibility (Table 2). In other words, abstractive signs (DO^{1ness}) are also hypothetical signs (II^{1ness}), that is, signs capable of producing conclusions that are not constituted by reason, but emotion (see Table 2). They are also sympathetic (DI^{1ness}), their effect being a certain sense of affinity, and gratifying (FI^{1ness}), for they are signs intended to produce a certain kind of satisfaction in the mind (see Table 4).

1	The sign is called hypothetic when its IMMEDIATE INTERPRETANT is in the mode of possibility (firstness).
	The sign is called sympathetic when its DYNAMICAL INTERPRETANT is in the mode of possibility (firstness).
	The sign is called gratifying when its FINAL INTERPRETANT is in the mode of possibility (firstness).

Table 4

Nonetheless, abstractive signs (DO^{1ness}) are not the only signs that generate this vague sequence of interpretants. Concretive (DO^{2ness}) and collective (DO^{3ness}) signs can also lose determination and become vague.

What differentiates the concretive (DO^{2ness}) and the collective (DO^{3ness}) from the abstractive (DO^{1ness}) is that, besides being vague, they can be determined. In the case of collectives (DO^{3ness}), besides being vague and determined, their interpretants may reach another type of indeterminacy, that of generals (Table 5).

Class	DO	IO	S	II	DI	FI
8	3	1	1	1	1	1
9	3	2	1	1	1	1
10	3	2	2	1	1	1
11	3	2	2	2	1	1
12	3	2	2	2	2	1
13	3	2	2	2	2	2
14	3	3	1	1	1	1
15	3	3	2	1	1	1
16	3	3	2	2	1	1
17	3	3	2	2	2	1
18	3	3	2	2	2	2
19	3	3	3	1	1	1
20	3	3	3	2	1	1
21	3	3	3	2	2	1
22	3	3	3	2	2	2
23	3	3	3	3	1	1
24	3	3	3	3	2	1
25	3	3	3	3	2	2
26	3	3	3	3	3	1
27	3	3	3	3	3	2
28	3	3	3	3	3	3

vague
 determined
 general

Table 5

6 Interpretants of the second mode of being

Determination can be observed in the interpretants of the second mode of being (Table 6). A sign is called categorical (II^{2ness}) when its immediate interpretant is of the second mode of being. That is, such a sign is capable of producing clear and definite interpretants, unlike the hypothetical sign (II^{1ness}). With respect to the dynamic interpretant, when it is of secondness, the sign is called percussive (DI^{2ness}). The effect of a percussive sign is that of a shock that strikes the mind. Finally, the determination in the final interpretant corresponds to a determination in the purpose of the sign. Signs with definite purposes are called practical signs (FI^{2ness}), whose purpose is to produce an action, even if a mental one.

2	The sign is called categorical when its IMMEDIATE INTERPRETANT is in the mode of possibility (secondness).
	The sign is called percussive when its DYNAMICAL INTERPRETANT is in the mode of possibility (secondness).
	The sign is called practical when its FINAL INTERPRETANT is in the mode of possibility (secondness).

Table 6

7 Interpretants of the third mode of being

The indeterminacy given by generality appears in the immediate interpretants through the relative signs (II^{3ness}), which have immediate interpretants of the third mode of being. Such signs have the capacity to produce interpretants that correspond to the laws governing this collection. Regarding the effect produced by the sign, the sign whose dynamic interpretant is of the third mode of being is called usual sign (DI^{3ness}), since its effects tend to be mental habits. Concerning the purpose of the sign, the sign whose final interpretant is of the third mode of being is called the pragmatic sign (FI^{3ness}), for its purpose is to produce self-control, that is, a self-controlled mental action (Table 7). The practical sign (FI^{2ness}) differs from the pragmatic sign (FI^{3ness}) precisely because the mental action is self-controlled and not automatic and unreflective.

3	The sign is called relative when its IMMEDIATE INTERPRETANT is in the mode of possibility (thirdness).
	The sign is called usual when its DYNAMICAL INTERPRETANT is in the mode of possibility (thirdness).
	The sign is called pragmatic when its FINAL INTERPRETANT is in the mode of possibility (thirdness).

Table 7

In the system of 28 classes of signs, we observe that the class of pragmatic sign (FI^{3ness}) is the only one in which all trichotomies are of the third mode of being. (Table 8). Such a class may be the expression of pure final causality, and it corresponds to the pragmatic ideal that leads to the production of new general concepts through self-controlled thinking. Final causation, however, is powerless without efficient causation, whereas efficient causation without ultimate causation is pure chaos (EP 2:124, 1902). Looking at the set collective sign (DO^{3ness}) classes that express the generality of reality, we realize that these classes have a great mix of interpretants of all modes of being.

Class	Dynamical Object (DO)	Immediate Object (IO)	Sign (S)	Immediate Interpretant (II)	Dynamical Interpretant (DI)	Final Interpretant (FI)
1	abstractive	descriptive	qualisign	hypothetic	sympathetic	gratifying
2	concretive	descriptive	qualisign	hypothetic	sympathetic	gratifying
3	concretive	designative	qualisign	hypothetic	sympathetic	gratifying
4	concretive	designative	sinsign	hypothetic	sympathetic	gratifying
5	concretive	designative	sinsign	categorical	sympathetic	gratifying
6	concretive	designative	sinsign	categorical	percussive	gratifying
7	concretive	designative	sinsign	categorical	percussive	practical
8	collective	descriptive	qualisign	hypothetic	sympathetic	gratifying
9	collective	designative	qualisign	hypothetic	sympathetic	gratifying
10	collective	designative	sinsign	hypothetic	sympathetic	gratifying
11	collective	designative	sinsign	categorical	sympathetic	gratifying
12	collective	designative	sinsign	categorical	percussive	gratifying
13	collective	designative	sinsign	categorical	percussive	practical
14	collective	distributive	qualisign	hypothetic	sympathetic	gratifying
15	collective	distributive	sinsign	hypothetic	sympathetic	gratifying
16	collective	distributive	sinsign	categorical	sympathetic	gratifying
17	collective	distributive	sinsign	categorical	percussive	gratifying
18	collective	distributive	sinsign	categorical	percussive	practical
19	collective	distributive	legisign	hypothetic	sympathetic	gratifying
20	collective	distributive	legisign	categorical	sympathetic	gratifying
21	collective	distributive	legisign	categorical	percussive	gratifying
22	collective	distributive	legisign	categorical	percussive	practical
23	collective	distributive	legisign	relative	sympathetic	gratifying
24	collective	distributive	legisign	relative	percussive	gratifying
25	collective	distributive	legisign	relative	percussive	practical
26	collective	distributive	legisign	relative	usual	gratifying
27	collective	distributive	legisign	relative	usual	practical
28	collective	distributive	legisign	relative	usual	pragmatic

Table 8

8 Determination and indetermination in inferential progression through 28 classes of signs

In all the steps from the dynamic object to the final interpretant, the previous aspect in the sign process determines and constrains the subsequent aspect. The indeterminacy of the general type comes from a collective sign (DO^{3ness}) that determines the production of general interpretants capable of being general signs with the same capacity as the object to exert causation in other sign processes. That would be the indeterminacy of the general kind.

The indeterminacy given by vagueness appears not only in the abstractive sign (DO^{1ness}), which is the one whose object is vague, but it may appear throughout the process in the concreate (DO^{2ness}) or collective classes (DO^{3ness}). Peirce (EP2: 115-133, 1902) argues that each act of causation involves an efficient component, a final component, and a chance component. This corresponds to what occurs in the logic of the categories in which thirdness involves secondness and firstness, just as secondness involves firstness. Concreate signs (DO^{2ness}) are subjected to chance and therefore to indeterminacy, as are collective signs (DO^{3ness}), which are not only subjected to chance, but also need to instantiate themselves to be effective. Once instantiated in particulars, they lose their generality, since generality is in the set of particulars.

Sometimes the constraining power given by the collective sign (DO^{3ness}) is lost at the very beginning of the process of sign determination, leading a general object to be represented as a possible sign (DO^{1ness}), and also to be interpreted as pure possibility (Table 9).

Class	Dynamical Object (DO)	Immediate Object (IO)	Sign (S)	Immediate Interpretant (II)	Dynamical Interpretant (DI)	Final Interpretant (FI)
8	collective	descriptive	qualisign	hypothetic	sympathetic	gratifying
11	collective	designative	sinsign	categorical	sympathetic	gratifying
12	collective	designative	sinsign	categorical	percussive	gratifying

Table 9

Other classes of signs show processes in which the constraining power of the collective sign (DO^{3ness}) turns into determination. That is, the general object is represented by a sinsign (S^{2ness}) as being a particular, and generating categorical interpretants (II^{2ness}) rather than showing a range of alternatives from the general object.

There are also cases of sign classes that mix interpretants of the first, second, and third mode of being, since they depart from general objects (collective signs, DO^{3ness}), produce particular signs (sinsigns, S^{2ness}), and generate vague interpretants for the purpose of producing some satisfaction (FI^{1ness}) in the interpreting mind (Table 10).

Class	Dynamical Object (DO)	Immediate Object (IO)	Sign (S)	Immediate Interpretant (II)	Dynamical Interpretant (DI)	Final Interpretant (FI)
10	collective	designative	sinsign	hypothetic	sympathetic	gratifying
11	collective	designative	sinsign	categorical	sympathetic	gratifying
12	collective	designative	sinsign	categorical	percussive	gratifying
15	collective	distributive	sinsign	hypothetic	sympathetic	gratifying
16	collective	distributive	sinsign	categorical	sympathetic	gratifying
17	collective	distributive	sinsign	categorical	percussive	gratifying
19	collective	distributive	legisign	hypothetic	sympathetic	gratifying
20	collective	distributive	legisign	categorical	sympathetic	gratifying
21	collective	distributive	legisign	categorical	percussive	gratifying
23	collective	distributive	legisign	relative	sympathetic	gratifying
24	collective	distributive	legisign	relative	percussive	gratifying
26	collective	distributive	legisign	relative	usual	gratifying

Table 10

These sophisticated mixes of determination, vagueness, and generality in the classes of signs indicate processes of sign determination through which final causation takes place. Relations of the second mode of being in the interpretants of collective signs (DO^{3ness}) indicate not only determined particular processes, but also the way in which final causation effectively acts by regulating particulars. The relations of firstness in the interpretants of collective signs (DO^{3ness}) bring the element of chance and potentiality to the final causation that must evolve along with reality, otherwise reality would be totally determined and without possibility of evolution.

List of Abbreviations***

The works of Charles S. Peirce are cited as follows:

Collected Papers of Charles Sanders Peirce: volume (v) and paragraph (p) (CP v:p).

The essential Peirce: volume (v), page (p) (EP v:p).

The new elements of mathematics: volume (v), page (p) (NEM v:p).

The Charles S. Peirce Papers, Microfilm Edition: followed by manuscript number (MS #).

Semiotic and significs: page (p) (SS p).

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*** Editor's Note: This list of abbreviations follows the rules described at: https://en.wikipedia.org/wiki/Charles_Sanders_Peirce_bibliography. Accessed on: 10 Nov 2022.

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