Peirce's three-dimensional notion of vagueness: some preliminary remarks

A noção tridimensional de vagueza de Peirce: algumas observações preliminares

Rocco Monti*
monti.rocco9@gmail.com

Abstract: My aim in this paper is to provide some introductory coordinates aiming at orienting a unified discourse on the doctrine of vagueness in Peirce. After tracing some of the stages in Peircean scholarship that have brought the concept of vagueness into focus, I will show that vagueness, as it appears in Peircean philosophy, is a three-dimensional concept. Thus, while vagueness is a concept that appears in a logical-semiotic dimension – and more specifically as a problem related to the quantification of the subject within the propositional context – it is also articulated in an epistemological and metaphysical dimension. Here I focus primarily on the semiotic dimension and suggest how an account of vagueness might hold together the epistemological and metaphysical consequences of the notion of vagueness.

Keywords: C. S Peirce. Epistemology. Metaphysics. Semiotics. Vagueness.

Resumo: *Meu objetivo neste artigo é fornecer algumas coordenadas introdutórias para orientar um discurso unificado sobre a doutrina da vagueza em Peirce. Depois de traçar alguns dos estágios nos estudos peircianos que colocaram o conceito de vagueza em foco, mostrarei que a vagueza, como aparece na filosofia peirciana, é um conceito tridimensional. Assim, se a vagueza é um conceito que aparece em uma dimensão lógico-semiótica – e mais especificamente como um problema relacionado à quantificação do sujeito dentro do contexto proposicional – ela também se articula em uma dimensão epistemológica e metafísica. Aqui eu me concentro principalmente na dimensão semiótica e sugiro como uma descrição da vagueza pode manter juntas as consequências epistemológicas e metafísicas da noção de vagueza.*

Palavras-chave: *C. S. Peirce. Epistemologia. Metafísica. Semiótica. Vagueza.*

*   Roma Tre University; Ecole Normale Supérieure

1   Introduction

The main notion that I wish to emphasize in the following pages is the notion of vagueness as understood and developed by Charles S. Peirce.[1] Indeed, there is a growing conviction that this notion is not

---

1   This paper summarizes, and in some ways expands, the talk I gave on November 11 at the *21st Meeting on Pragmatism* in 2022, held online at the Catholic University of São Paulo and organized by the Centro de Estudos de Pragmatismo. I was interested in presenting an overall picture of my doctoral project, still in progress, which began in November 2021 at the University of e Roma Tre. In this sense, the purpose of this contribution is, first of all, to crystallize some points that I feel I have reached in this still open first phase of research, trying to dwell on some conceptual nodes relevant to a study of the notion of vagueness in Peirce's philosophy. First of all, I would like to thank Professor Ivo Ibri and the entire community of Brazilian pragmatists for accepting my paper and proposing that it be published in this journal. I would also like to thank the organizers for putting together a three-day conference so rich in reflections and insights for those who study American pragmatism. My special thanks also go to Professor André de Tienne for suggesting some important passages related to my object of study.

merely a minor ornament within the Peircean architecture. What I want to propose is that the Peircean doctrine of the vague is articulated along three different dimensions: the semiotic, the epistemological and the metaphysical. This does not mean simply delimiting the areas of application of the notion of vagueness; rather, it means first of all rediscovering the logical genesis of this notion, in order then to see, genetically, its developments and possible consequences on the epistemological and metaphysical levels. In this sense, then, while the notion of vagueness arises in the logical-semiotic dimension, in the evolutionary process of Peircean philosophy it becomes a fundamental theoretical tool also for understanding Peircean epistemology and metaphysics. Obviously, the theoretical gesture underlying this operation must be primarily analytical, since these dimensions are synthetically interwoven, without any real break between one perspective and the other. The first obstacle to be overcome is precisely that there are no real discontinuities marking the transition from one dimension to the other, although, as we shall see, there are turning points at which Peirce remodels and articulates the discourse in a new way, introducing some new conceptual tools. The problem of vagueness is certainly not a new one for scholars of American pragmatism: vagueness, understood in its various experiential nuances and articulated according to different perspectives, is a truly cornerstone of the pragmatist philosophy. Let us consider the pages devoted by William James, in the chapter "The Streams of Consciousness" of *The Principles of Psychology*, to a proper recovery of the vague in order to articulate even the most umbratile areas of the mental life; the Deweyan notion of indeterminacy as a fundamental pole that allows the articulation of a problematic situation in the context of a theory of inquiry that holds together logic and epistemology; the vague potentiality that Josiah Royce elaborates first in *The World and the Individual* (1916, p. 330-331; 337) and then, following Peirce, through the logical analysis of propositions and assertions on the threshold of possibility, between truth and falsity.[2] Like Peirce's logic of vagueness, these other pragmatist variations on the theme have emerged as some possible attempts to conceptualize a more elusive, shadowy and uncertain dimension.

However, despite the pragmatist emphasis on the concept, there is a tendency to attribute the original elaboration of the concept of vagueness to certain authors of analytic philosophy. Indeed, it was Russell, with his famous article of 1923,[3] who inaugurated a very specific field of study related to vagueness, which has been articulated from then on to the present day. Along with Russell, Frege is often cited[4] as one of the philosophers who first analyzed this notion, showing that if a concept manifests vague boundaries, it cannot be considered a concept at all. So, it is the analytic philosophy itself, at its core, that is beginning to be troubled by this problem. Even before this contemporary attention to the Sorites paradox, a certain philosophy noticed these fringes of thought, of discourse, of reality, and began to use the term "vagueness" to try to understand the borders of words and things. In this paper, the analytical account is completely neglected in its specificity and details. As already noted, the focus of this paper will be entirely on Peirce, seeing in his pragmatism an attempt to articulate a unified discourse on the vague by looking at the multiple possibilities of a multi-layered concept that explodes into a plurality of ways. I will therefore begin by outlining the ways in which the concept of vagueness has been analyzed within Peircean scholarship, in order to situate the theoretical space in which I move in these pages.

Since the first investigations into Peircean philosophy, there has been a conflicting view as to what the notion of vagueness is and what place it occupies within Peircean thought. There are those, such as Cohen, who have claimed that the pages containing the Peircean theory of vagueness have been lost, and there are those, such as Brock and Tiercelin, who have argued that the notion is transversal

---

2   Royce (1911).

3   Russell (1923).

4   See for example Williamson (1994, p. 41): "Frege denied the existence of a partial functions which leave some objects unmapped to anything. Thus there are no partial concepts. In more familiar terms, all concepts have sharp boundaries. There are no vague concepts. If concepts are likened to areas on a plane, a vague concept would be an area without sharp boundary lines, gradually shading off into the background, and that, according to Frege, would be no area at all".

and oblique and can therefore be found, albeit in fragments, throughout the Peircean pages. To date, Brock (1969; 1981a; 1981b) has provided the most comprehensive picture we have of it in relation to the branch of logic that Peirce called Speculative Grammar: starting with his doctoral thesis, Brock attempted to investigate the conditions of determinacy and indeterminacy of symbols, inaugurating a line of research within Peircean logic of vagueness. Following Brock's pioneering work, several studies have been undertaken in this direction. Fisch and Turquette (1966) and Turquette (1969) – especially the latter – explored the modal aspect of vagueness in relation to Peirce's never fully developed intuition of a triadic logic. Lane (1997; 1999) entered a dialogue both with Brock, to whom he devoted a chapter in his doctoral dissertation, and with Fisch and Turquette, recontextualizing the way in which Peirce discusses vagueness and generality as that to which the principle of contradiction and the principle of the excluded third respectively do not apply. The essential difference between Fisch and Turquette's perspective and Lane's lies in the fact that for the former, Peirce's motives for developing triadic logic are primarily modal (in both the logical and metaphysical sense), whereas for Lane, Peirce's research on triadic logic is not directly connected to the study of modality. In addition to this, Lane (2018) not only provides a detailed analysis of Peircean realism as it relates to vagueness and generality, but also argues in favor of a type of indeterminacy, called "deficit indeterminacy", that is neither related to vagueness nor generality, and that is maintained in Peirce as an aporetic point. Bergman (2004; 2009) focused more closely on the pragmatic-contextual role that the two figures of indeterminacy (vagueness and generality) play in the communicative context. Agler (2010; 2013) placed the Peircean perspective in dialogue with contemporary theories of vagueness that focus on the analysis of predicates and the problematic Sorites paradox that vague predicates seem to generate. As already mentioned, Tiercelin (1986; 1989; 1992) examined the problem of vagueness from both a semiotic and an ontological point of view, arguing that a comprehensive treatment of vagueness must also address the epistemological implications within Peircean architecture. Chauviré (1995; 2008) has attempted to reconstruct not only the impact of the doctrine of vagueness on signification within Peircean semiotics, but also the uses of vagueness within Peircean mathematics. Fabbrichesi (2001; 2003) has studied, in a theoretical rather than historical sense, its commonality with authors such as Wittgenstein, Leibniz and Goethe, analyzing in particular the status of the a-critical and vague beliefs characteristic of the critical common sense that Peirce developed around 1905. Viola (2019) linked the logic of vagueness to that of the growth of symbols, and thus to the dynamic, processual and evolutionary aspect of vagueness. Maddalena and Zalamea (2012), on the basis of a philosophy of gesture, have highlighted how thinking cannot be sharply divided into analytical and synthetic, but must also be able to encompass a space of vagueness (horotic reasoning, from horos, i.e., boundary), which is blind to identity, but which allows the transition between analytical and synthetic reasoning. As is often the case, there are interpretations that focus more on the analysis of Peircean texts and manuscripts, and others that emphasize, through Peirce, the conditional and possible effects of the notion of vagueness.[5]

Currently, vagueness is discussed almost exclusively within analytic philosophy in relation to the status of borderline predicates, of which it is difficult to say with certainty whether they apply to a subject or not. Despite the diversity of perspectives, which I will explain in a moment, we could say that there is a common agreement about when a predicate is vague. There are three criteria that a predicate must fulfil in order to be vague (EGRÉ, 2018): 1) it must manifest borderline cases; 2) have fluid borders of application (penumbral regions); 3) be susceptible to the Sorites paradox. Thus, the theories of vagueness give different degrees of importance to these three characteristics, but the point that unites all perspectives is the attempt to resolve the paradoxicality that vague predicates give rise to. Thus, vagueness is first and foremost a logical problem concerning the status of predicates,

---

5   I am aware that in this brief history of the effects of the notion of vagueness, I am not restoring the fullness and importance that these works have had not only in understanding Peircean philosophy, but also in bringing to light an extremely complex and relevant body of problems. The purpose of this brief sketch is contextual in that it seeks to locate "where" my discourse takes off from.

and the various attempts of theories of vagueness are directed towards resolving this problem. The semantic perspective holds that it is our representations that are vague. Epistemicism claims that it is our knowledge that is vague, but things in themselves are not vague. The ontic perspective suggests that it is neither our representations nor our knowledge that is vague, but reality itself. In addition to these three main branches, there are contextualist, nihilist, and super/sub-valuationist perspectives. Historically, all vagueness theorists agree that it was Eubulides of Miletus, a 4th century B.C. contemporary of Aristotle, who introduced the problem of borderline predicates and their paradoxical consequences. Now, the first problem that arises for those who intend to explore the problem of vagueness in Peirce's philosophy is that, at first glance, Peirce's investigations seem to have almost nothing to do with contemporary ones.

The incompatibility of the two approaches is supported by almost all Peircean commentators, perhaps with the sole exception of Agler (2010; 2013) and Tiercelin (in particular, 2019). However, this is not to argue that a comparison between Peircean vagueness and vagueness understood in the contemporary sense is not possible, but that it should first be recontextualized. Thus, if the contemporary debate is primarily concerned with the quantification of predicates, Peirce's vagueness originates as a problem concerning the quantification of the propositional subject. This point is first highlighted and emphasized by Brock (1969, p. 10-11), although he fails to see some of its implications. Later, from about 1886[6] to 1905, Peirce also raises the problem of the quantification of predicates and the status of borderline predicates, broadening the perspective on the effects of vagueness. Having made these particular introductory remarks, I would like to insist this paper has an introductory and programmatic intent, aiming to delimit three areas, or rather dimensions, in which the concept of vagueness appears and manifests its consequences within the Peircean philosophical architecture.

2   Semiotic of Vagueness

Brock (1969, p. 193) was the first to demonstrate that Peirce has two different senses of vagueness: the first is informative vagueness[7] and the second is borderline vagueness. In this paper the second type of vagueness will not be discussed for two reasons. The first is that this type of vagueness becomes comprehensible by looking at the epistemological and metaphysical consequences of this notion; the second is that to fully present the Peircean position it is also necessary to articulate in detail the contemporary perspective that deals exclusively with the borderline sense of vagueness.

By "semiotics of vagueness" I mean the logical-semiotic dimension that concerns Peirce's reflections on the conditions of determinacy and indeterminacy of the propositional subject, the use of quantifiers (existential and universal) to logically articulate indeterminate subjects, and the pragmatic definition of vagueness and generality that Peirce elaborates, extending the boundaries of logic into a pragmatic-communicative context. Thus, if early Peircean analyses focus more on propositional structure, later, around 1902, when Peirce elaborates the distinction between proposition and assertion, the discussion of vagueness and generality is further articulated on the dialogical level, translating the process of quantification in terms of latitude of interpretation, which, in terms of game-theoretic semantics, involves the role of speakers (utterers and interpreters).

---

6   As far as I know, it is from this year that Peirce begins to wonder how, in addition to the propositional subject, predicates can also be quantified: "The quantification of the predicate, an idea originating with the botanist George Bentham, was for some years in vogue in this country and in England. It was developed with a singular defect of clear thought by Sir Wm. Hamilton, and more ably by Stanley Jevons. The idea consisted of in regarding the copula as a sign of identity, – so that in place of writing, 'Every S is a P' meaning that all the S's are included among the P's, the advocates of the quantification of the predicate wrote 'All the S's are (that is, are identical with) some P's'. Thus, the distinction of *all* and *some* was extended to the predicate. Aristotle notices this conception merely to discard it; for, he says, it is never true that 'Every S is every P', if there are more S's than one. If the theory of syllogism had been extended to relative terms, the quantification of the predicate might have been useful; but in the hands of Sir William Hamilton it only led to a complicated syllogistic, full of blunders; in the hands of Jevons, it stood in the way of a better development of a meritorious system of formal logic" (W5: 352-353).

7   I still have reservations about the correctness of this expression. So far, I do not think I have a more appropriate expression to describe this sense of vagueness about the quantification of the propositional subject.

In *On Logical Comprehension and Extension* Peirce, following the classical distinction between denotation and connotation, opts for the terms breadth and depth to indicate the extension and intension of concepts. The extension (breadth) concerns what can be predicated and thus the propositional subject, while the intension (depth) concerns the range of predicates that can be attributed to a subject. In addition to breadth and depth, Peirce adds a third element, namely the information that is articulated from the denotative dimension of the subject and the connotative dimension of the predicate. Breadth and depth define the conditions of determinacy and indeterminacy not only of terms, but also of propositions and arguments (as symbols): if, then, icons connote without denoting, and indices denote without connoting, symbols are those signs which have both extension (denotative properties) and intention (connotative properties).[8] I do not intend to go into all the distinctions that Peirce elaborates (and that Brock uses extensively) between logical, essential, substantial, informational breadth and depth. I intend to use, more simply, the notion of breadth as referring to the propositional subject, while that of depth as referring to the predicate. In this sense, indeterminacy involves both the denotative and indicative domains (breadth) and the connotative and iconic ones (depth).

Terminological analysis then moves on to propositional analysis. A proposition is symbol, composed of a subject and a predicate, which indicates (subject) and describes (predicate) an object and to which a truth value can be attributed. In contrast to terms, which refer neither to the object nor to the interpretant, and to arguments, which refer both to the object and to the interpretant, the proposition is the symbol that refers to an object, and as such is an incomplete symbol. According to Peirce's classification of signs, the propositional subject corresponds to an indexical sign, while the predicate corresponds to an iconic sign. In the proposition "Giovanni is tall", the proper name "Giovanni" refers to a single individual and thus takes the form of a singular indexical sign. Although Peirce, in the 1870 Logic of Relatives, argues that a proper name can still be further divided, and is therefore not entirely individual, he himself later admits that "Phillip is not, on the whole, either drunk or sober" (MS 515: 23). [9] Neither the principle of contradiction nor that of the excluded middle party applies when a subject is definite and individual as in this case. The subject of a proposition can also be indeterminate, however, when, for instance, a set of individuals is referred to or a common name is used. It should be noted that although there is a difference concerning the quantification of the subject, the proper name and the common name have the same purpose, namely that of drawing attention to an object. The existential and universal quantifiers, discovered by Peirce between 1880 and 1885 independently of Frege with the help of Mitchell, fulfil exactly this function, allowing one to select a subject from a universe of discourse. Vagueness (or indefiniteness), represented by *some*, is indicated by the existential quantifier while generality, represented by *any*, is indicated by the universal quantifier. A sign that is not indeterminate (and therefore neither vague nor general) is called singular, and is characterized by definiteness and individuality. A vague sign, on the other hand, is individual without being definite, while a general sign is definite without being individual:[10] for example, a certain man or some are vague subjects. Even before elaborating the definition of the vague and the general in terms of principles, that of contradiction (vagueness) and that of the excluded middle (generality), Peirce distinguishes by the use of quantifiers when a subject is existential and when it is universally quantified.

---

8   As Bellucci (2018) points out, although Peirce here limits his discourse to symbolic signs, he broadens this perspective first in 1902 and then in 1903, broadened the scope of Speculative Grammar. The first reform occurs in the *Minute Logic* of 1902, where Peirce proposes to consider the two trichotomies icon, index and symbol and term, proposition and argument no longer as classes of signs, but rather as ways of classifying signs. The second occurs in the *Syllabus* of 1903, where Peirce introduces another trichotomy of signs (qualisign, dicisign, legisign), making it possible to obtain iconic and indexical legisigns (symbols).

9   Peirce returns to this point in the next manuscript, 516. On page 35 he writes "I may note, by the way, that circumstance, that *hic et nunc*, is the only sort of object that is, strictly speaking, individual. A person, for example, like Phillip of Macedon, is not individual, since an individual is, by definition, only a term to which the principle of excluded middle applies. Now Phillip is neither always drunk nor always sober. But Phillip under any individual circumstance is the one or the other".

10   "A universal proposition is non-individual (and consequently, necessarily definite) in respect to its subject. A particular proposition is indefinite (and so necessarily individual) in respect to its subject. A singular proposition is both definite and individual in respect to its subject" (MS 515, p. 21).

The last point I want to discuss concerns the pragmatic-contextual definition of the vague and the general. Just as on the propositional level no sign can be completely determinate or indeterminate, also on the communicative level there cannot be a dialogue that is neither completely vague nor completely determinate. Hence, communication between two speakers cannot take place in a completely clear and precise manner, since the collateral experiences of the two speakers will always diverge to some extent. The pragmatic-contextual definition that Peirce offers of the vague and the general is based on a definition of assertion that Peirce proposed between 1902 and 1903 and that points in the direction of a speech act theory. As Hilpinen (1982) has shown, the pragmatic-contextual definition of vagueness and generality translates the theory of existential (vague quantification) and universal (general quantification) quantifiers into a game-theoretic semantics.

> Let us distinguish between the proposition and the assertion of that proposition. We will grant, if you please, that the proposition itself merely represents an image with a label or pointer attached to it. But to assert that proposition is to make oneself responsible for it, without any definite forfeit, it is true, but with a forfeit no smaller for being unnamed. (CP 5.543).

As early as 1895-1896 (*That Categorical and Hypothetical Propositions are one in Essence, with some Connected Matters*), Peirce argued that in order to distinguish an assertion from a proposition, it is necessary to take into account not only the speaker, but also the interpreter. As Thibaud (1997) has shown, the distinction between proposition and assertion brings out a pragmatic aspect that highlights the performativity of the assertive act:

> To fix our ideas let us set down the proposition, 'Tully has a wart on his nose'. That is a proposition whether it be true or not, whether anybody asserts it or not, and whether anybody assents it or not. For an act of assertion supposes that, a proposition being formulated, a person performs an act which renders him liable to penalties of the social law. (CP 2.315).

Assertion, in contrast to proposition and judgement,[11] takes the form of that act which, on the one hand, involves the assumption of responsibility for what is asserted and, on the other, requires the speaker to persuade the interpreter to believe what he is asserting. There is thus a social commitment in the assertive act that is absent in the propositional dimension. In this sense, assertion is a communicative practice that takes place in a dialogical space and must therefore involve a speaker and an interpreter. "If a sign refers to an object well known already to utterer and interpreter, and gives neither party any latitude as to what it represents, it may be called a singular sign" (MS 10, 1903: 1), and:

> But in respect to its subject, a proposition is definite if the utterer of it defines the singular or set of singulars which it relates so as to leave himself no liberty of choice as what the subject is that the evidence for it is to concern. It is indefinite, or particular, if as in "Some patriarch was translated" he leaves himself such liberty. If the utterer of the proposition leaves himself no such liberty but allows his opponent a choice as to what singular subject, he will instance to refute the proposition, as in "Any man you please is mortal", the proposition is non-individual as to its subject, or as we say is a universal proposition. (MS 515: 25).

Having shown how the dialectic between the vague and the general performs the function of quantifying the subject both in the propositional space (through a logical use of quantifiers) and in the

---

11   I cannot go into this aspect of Peirce's considerations of assent here. Suffice it to say here that if the assertion translates the proposition in a performative sense, the judgement is configured as the assent we give to a proposition. See Maddalena and Zalamea (2012).

assertive-dialogical context (through a pragmatic use of quantifiers), it now remains to consider whether there can be a specularity between the ways in which the subject of a proposition is analyzed and the object of the semiotic process: "the interpretant of a proposition is its predicate; its object is the things denoted by its subject or subjects" (CP 5. 473). As stated at the outset, an analysis of the quantification of predicates and its relation to the theory of interpretants is beyond the scope of this paper. However, with regard to a further exploration of the quantification of the subject, it seems appropriate to refer to the distinction between the immediate and dynamical object.

Bellucci (2015), unlike almost all those who have commented on the distinction between immediate and dynamical object, has argued that this distinction concerns the denotative aspect of the semiotic process. The distinction between immediate and dynamical object is a rather late product within Peirce's philosophy and appears somewhat sporadically. Without reconstructing the various places where this distinction appears, I would like to draw attention to the fact that it is precisely in relation to the immediate object that Peirce articulates three signs that refer to this object: "In its relation to its Immediate Object, it is a Vagosign if it represents that Object as possible, it is Actisign if it represents that Object as existent, it is General if it represents that Object as Law" (BELLUCCI, 2020, p. 154).

On 8 October 1905, in the *Logical Notebook*, Peirce again proposes the same triplet in relation to the immediate object, modifying the terms slightly.

> VAGOSIGN PROPER GENERAL. This is elevating Modality too high. It should not be the question what the object is in itself but whether it is represented. The Vagosign should be a sign that represents its object as simply such and such. The Proper represents its object as compelled (or as an event) (or in some other way Secundan). The General represents its object as an aspect or as considered etc. (BELLUCCI, 2020, p. 155).

On 10 October, Peirce again rewrites the triplet of signs that refer to the immediate object, connoting it according to the pragmatic-contextual definition that we have already seen emerge.

> B. Signs are divisible according to their Objects.
>
> a. According to their Immediate Objects. The Immediate Object is that Object which the sign creates in representing it.
>
> 1. There are signs of each of which the immediate object is only a possible presentment of a dynamic object, a fragment of it, the rest being held in reserve, so that there is nothing in the immediate object to prevent contradictory attributes being predicated of it. Thus "A certain man" may turn out to be rich. He may turn out to be poor. Such a sign may be termed an *Indefinite Sign*.
>
> 2. There are signs of which the immediate object holds nothing in reserve, by supplying which the utterer can afterward limit it, nor allows any freedom of interpretation, the immediate object precisely denoting the dynamical object. Such a sign is called a *Singular Sign*, a term in the use of which a certain latitude must be allowed, however; or else there will be no occasion on which it can applied.
>
> 3. There are signs of each of which the immediate object is represented as exchangeable for any existent within specified or understood limits. Such may be termed a *Distributive Sign*. (BELLUCCI, 2020, p. 160).

According to Bellucci's reconstruction, the immediate object, combined with vagosigns, actisign and general signs, embodies the quantifying part of propositional signs. Thus, if the first definition of the immediate object and the triplet vagosign, actisign, general sign is still strongly focused on a logical-formal use of the theory of quantifiers, the definition of 10 October seems to use terminology

more similar to that of the pragmatic definition. If the argument developed so far can be considered valid, then, as we have said, the vagueness of the quantification of the subject seems to move along the coordinates outlined here.

In the next two paragraphs, I will only sketch how two other dimensions of vagueness (the epistemological and the metaphysical) can be configured, understood as possible consequences of the logical-semiotic dimension. The epistemological dimension concerns critical common sense, while the metaphysical dimension concerns the scholastic realism of late Peirce.

3 An Epistemology and a Metaphysics of Vagueness

By "epistemology of vagueness" I mean, in a broad sense, the ways in which vagueness and generality redefine certain coordinates of Peircean epistemology. I say broadly in the sense that the epistemological dimension includes not only fallibilism, the pragmatic maxim, the anti-Cartesianism according to which intuition and introspection do not concern our capacities, but also and above all the reflections on critical common sensism. Thus, critical common sensism, as a consequence of Peircean pragmaticism, is the fundamental core of the epistemological dimension of the vague. As a matter of fact, it is in the writings around 1905 that Peirce begins to consider a redefinition of common sense, taking vagueness as the fundamental characteristic of critical common sensism. Beliefs and inferences of common sense are inherently vague, and although this path is beyond the scope of this paper, suffice it to say that it will no longer be about the quantification of the subject, but about that of the predicates.

Lastly, I will use the expression "metaphysics of the vague" to indicate the dimension in which the Peircean investigations of continuity and its borders, modalities (both logical and temporal), and triadic logic are situated. Hence, the metaphysical dimension emerges as a second consequence, having at its core the scholastic realism, of how the logical-semiotic notion of vagueness can be articulated.

4 Conclusion

Given the introductory and programmatic tone of this paper, I have attempted to show that the notion of vagueness in Peirce's philosophy cannot be considered as a superficial and sporadic detail, but rather as an evolving element that articulates itself by acquiring different dimensions. I am aware that pointing out the terms of a problem and trying to define them cannot be the solution of that problem. I do believe, however, that setting some coordinates can help one to find a way through the great labyrinth that is Peirce's writings, published and unpublished. In this sense, I would say that vagueness seems to be another of those red threads that, instead of leading us out of the Peircean labyrinth, allows us to inhabit it more consciously.

References

AGLER, D. *Vagueness and its Boundaries:* A Peircean Theory of Vagueness. M.A Thesis, Indianapolis: Indiana University-Purdue University, 2010.

AGLER, D. Peirce and the Specification of Borderline Vagueness. *Semiotica*, v. 193, p. 195-215, 2013.

BELLUCCI, F. Exploring Peirce's Speculative Grammar: The Immediate Object of a Sign. *Sign Systems Studies*, v. 43, n. 4, p. 399-418, 2015.

BELLUCCI, F. *Peirce's Speculative Grammar*: Logic as Semiotics. New York/London: Routledge, 2018.

BELLUCCI, F. (ed). *Charles S. Peirce*: Selected Writings on Semiotics 1894-1912. Berlin: Mouton De Gruyter, 2020.

BERGMAN, M. *Fields of Significations*: Explorations in Charles S. Peirce's Theory of Signs. Philosophical Studies from the University of Helsinki 6, 2004.

BERGMAN, M. *Peirce's Philosophy of Communication:* The Rhetorical Underpinning of the Theory of Signs, London and New York: Continuum Press, 2009.

BROCK, J. *C. S. Peirce's Logic of Vagueness*. PhD, Philosophy, University of Illinois, Urbana, 1969.

BROCK, J. An Introduction to Peirce's Theory of Speech Acts. In *Transactions of Charles S. Peirce Society*, v. 17, n. 4, p. 319-326, 1981a.

BROCK, J. The Origin and Structure of Peirce's Logic of Vagueness. *Zeichenkonstitution. Akten des 2 Semiotischen Kolloquiums Regensburg*, p. 133-138, 1981b.

CHAUVIRÉ, C. *Peirce et la signification:* Introduction à la logique du vague. Paris: Presses Universitaires de France, 1995.

CHAUVIRÉ, C. *L'œil mathématique*: essai sur la philosophie mathématique de Peirce. Paris: Éditions Kimé, 2008.

EGRÉ, P. *Qu'est-ce que le vague?*. Paris: Libraire Philosophique J. Vrin, 2018.

FABBRICHESI, R. *Continuità e vaghezza:* Leibniz, Goethe, Peirce, Wittgenstein. Milano: CUEM, 2001.

FABBRICHESI, R. Del certo e del vago. L'analisi del senso comune in Peirce e Wittgenstein. In: *Semiotica ed ermeneutica*, a cura di Carlo Sini, Quaderni di ACME, p. 9-44, 2003.

FISCH, M.; TURQUETTE, A. Peirce's Triadic Logic. *Transactions of the Charles S. Peirce Society*, v. 2, n. 2, p. 71-85, 1966.

HILPINEN, R. On C. S. Peirce's Theory of the Proposition: Peirce as a Precursor of Game-Theoretical Semantics. In: *The Monist*, v. 65, n. 2, p. 182-188, 1982.

JAMES, W. *The Principles of Psychology.* Cambridge and London: Harvard University Press, 1890-1891.

LANE, R. *Charles Sanders Peirce and The Principle of Bivalence*. PhD, Philosophy, University of Miami, 1997.

LANE, R. Peirce's Triadic Logic Revisited. *Transactions of the Charles S. Peirce Society*, v. 35, n. 2, p. 284-311, 1999.

LANE, R. *Peirce on Realism and Idealism*. Cambridge: Cambridge University Press, 2018.

MADDALENA, G.; ZALAMEA, F. A New Analytic/Synthetic/Horotic Paradigm. From Mathematical Gesture to Synthetic/Horotic Reasoning. *European Journal of Pragmatism and American Philosophy*, v. 4, n. 2, 2012.

PEIRCE. C. S. *The Charles S. Peirce Papers*, *1787-1951, MS Am 1632*. Houghton Library, Harvard University, 1787-1951. (Ms).

PEIRCE, C. S. *Collected Papers of Charles Sanders Peirce*. 8 vols, edited by C. Hartshorne, P. Weiss, and A. Burks. Cambridge: Harvard University Press, 1932-1958. (CP).

PEIRCE, C. S. *The Essential Peirce. Selected Philosophical Writings*, v. 1: 1867-1893, ed. by Nathan Houser and Christian Kloesel; v. 2: 1893-1913, ed. by The Peirce Edition Project. Bloomington: Indiana University Press, 1992-1998. (EP1).

PEIRCE, C. S. *Writings of Charles S. Peirce: A Chronological Edition*, vols. 1-6, 8. 1982, v. 1: M. H. Fisch (ed.); 1984, v. 2: E. C. Moore (ed.); 1986, v. 3; 1989, v. 4; 1993, v. 5: C. J. W. Kloesel (ed.); 2000, v. 6; 2010, v. 8: Peirce Edition Project (ed.). Bloomington: Indiana University Press, 1982-2010. (W).

ROYCE, J. *The Harrison Lectures:* The Nature and Accessibility of Absolute Truth. Manuscripts transcribed by Joe Dillabough, 1911. https://josiah-royce-edition.org.

ROYCE, J. *The World and the Individual*. New York and London: The MacMillan Company. 2 vol., 1916.

RUSSELL, B., Vagueness. *Australasian Journal of Philosophy*, v. 1, n. 2, p. 84-92, 1923.

THIBAUD, P. Between Saying and Doing: Peirce's Propositional Space. *Transactions of the Charles S. Peirce Society*, v. 33, n. 2, p. 270-327, 1997.

TIERCELIN, C. Le vague est-il réel? Sur le réalisme de C. S. Peirce. *Philosophie*, v. 10, p. 69-96, 1986.

TIERCELIN, C. Peirce ou le projet d'une logique du vague. *Archives de Philosophie*, v. 4, n. 1, p. 553-579, 1989.

TIERCELIN, C. Vagueness and the Unity of Peirce's Realism. *Transactions of the C. S. Peirce Society*, v. 28, p. 51-82, 1992.

TIERCELIN, C. *Pragmatism and Vagueness:* The Venetian Lectures. G. Tuzet (ed.), Mimesis international, 2019.

TURQUETTE, A. Peirce's Complete Systems of Triadic Logic. *Transactions of the Charles S. Peirce Society*, v. 5, n. 4, p. 199-210, 1969.

VIOLA, T. From Vague Symbols to Contested Concepts: Peirce, W. B. Gallie, and History. *History and Theory*, v. 58, n. 2, p. 233-251, 2019.

WILLIAMSON, T. *Vagueness*. New York: Routledge, 1994.

COGNITIO