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Contributions of Peircean philosophy to contemporary debates on disinformation¹

Contribuições da filosofia peirciana aos debates contemporâneos sobre a desinformação

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Abstract: This text aims to theoretically explore how Peirce's philosophy can serve as a basis for conceptualizing and explaining everyday practices understood as disinformation. We begin with a review of the Brazilian literature on the contributions of Peircean philosophy to the phenomenon of disinformation. We then situate our position as inspired by the normative theoretical proposal of Peircean semiotics. However, we argue that addressing disinformation events requires the addition of descriptive elements, which were not at the center of interest of Peircean philosophy. In light of this, we will examine two philosophical aspects that are important to a Peircean approach to disinformation: (1) the semiotic theory of information, seen as part of Peirce's normative account on the ideal development of semiosis; and (2) the fixation of beliefs, where we focus on the three non-scientific ways of settling a doubt and a belief. We argue that what is understood as disinformation in the current digital culture is a set of practices that, in general terms, deviate from the demands of systematic critical inquiry and function as deviations in the normal course of semiosis.

Keywords: Belief. Disinformation. Peirce. Semiosis.

Resumo: O presente texto pretende explorar teoricamente de que maneira a filosofia de Peirce pode servir de base para conceituar e descrever práticas cotidianas entendidas genericamente como desinformação. Partimos de uma revisão da literatura brasileira sobre as contribuições da filosofia peirceana para o fenômeno da desinformação. Em seguida, situamos nossa posição como inspirada na proposta teórica normativa da semiótica peirceana, mas defendemos que para lidar com o fenômeno da desinformação, tal proposta precisa ser complementada por elementos descritivos, que não estavam no centro de interesse da filosofia peirceana. A partir dessa consideração, refletimos sobre duas dimensões filosóficas que nos parecem centrais para uma abordagem peirceana sobre a desinformação: (1) a teoria semiótica da informação, entendida como parte da proposta normativa peirceana sobre o curso ideal da semiose; e (2) a reflexão sobre os métodos de fixação de crenças, na qual chamamos a atenção para os três métodos não científicos de resolver uma dúvida e fixar uma crença. Defendemos que o que se entende por desinformação na atual cultura digital são práticas que, em linhas gerais, se afastam das exigências de escrutínio sistemático do pensamento crítico, e funcionam como desvios no curso normal da semiose.

Palavras-chave: Crença. Desinformação. Peirce. Semiose.

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1 Peirce and disinformation: insights from brazilian literature on the topic

Over the past five years, research in semiotics and Peircean philosophy in Brazil has intensely focused on the topic of disinformation. A search conducted on November 1st of 2024 in the Google Scholar database identified 723 scientific works that use the keywords “disinformation” and “Peirce”. Although the concept of disinformation is broad and encompasses various phenomena such as lies, deception, fake news, deepfakes, and post-truth, many works in Brazilian literature have linked Peirce’s philosophy to these themes. To facilitate a dialogue with the scientific community, it is essential to first review what specialized literature on Peirce has revealed about the phenomenon of disinformation.

Santaella (2023) gives a historical overview of information theories in the twentieth century, including Peirce’s own contributions. She defines disinformation as the antonym of information and introduces the concept of the “disinformation paradox”, which suggests that disinformation can be perceived as both an excess and a deficiency of information. To address the complexities of disinformation, Santaella emphasizes the importance of indexical anchoring in the context of factual experiences shared within a common world between interlocutors.

Similar to Santaella, Romanini et al. (2022) explore the concept of disinformation through Peirce’s semiotics and information theory. In addition, they provide a reflection that frequently appears in the literature, particularly referencing Peirce’s text “The Fixation of Beliefs”. The authors assert that disinformation involves generating and circulating false documents and misleading advertisements, which constitutes a broader range of communicative phenomena than the digital practices typically associated with disinformation that Santaella discusses. Romanini et al. (2022, p. 66) connect disinformation to fake news and identify three dimensions of disinformation: 1) manipulation of the propositional symbol; 2) disarray among the Iconic, Indexical, and Symbolical dimensions of a proposition; and 3) the acquisition of beliefs through three non-scientific methods.

Conversely, Ribeiro et al. (2023, p. 2-3) present a distinct perspective in their work. They argue that disinformation is not simply the opposite of information, but rather an “ethical distortion of information”. The authors contend that the semantic landscape of disinformation encompasses “inaccurate, distorted, decontextualized, resignified, malicious, mistaken information, rumors, noise, and lies”. In a similar vein, Ribeiro and Paes (2021, p. 90–91) broaden the scope of their discussion to include both disinformation and misinformation. They examine the relationship between semiosis and dis/misinformation, considering how dis/misinformation affects interpretants and interferes with the teleology of the interpretative process, that is, in the course of semiosis (2021, p. 105).

In the context of ethics and pragmatism, Ibri (2021), highlights two key points. First, it asserts that dogmatic beliefs are resistant to learning from experience (Ibri, 2021, p. 252). Second, these beliefs reflect failures in conduct, as they represent actions intentionally directed at serving the interests of specific groups (ibid., p. 256). Similarly, Baggio (2021) draws on the realist foundations of Peircean metaphysics to explore how the semiotic-pragmatic implications of fixing beliefs can be adapted in the post-truth era, which is heavily influenced by digital communication networks. The works of Gomes and Broens (2020) and Romanini and Guarda (2019) align with this perspective, emphasizing the importance of examining fake news through the lenses of pragmatism, semiotics, and the methods of belief formation.

Overall, brazilian literature focused on Peirce seems to agree that his extensive philosophy can be a valuable asset in addressing and potentially mitigating the harmful effects of disinformation today. This encompasses a range of contributions, including the revival of methods for fixing beliefs, interpretations of Peirce’s theory of information from both his early and later works, philosophical reflections on ethical and semiotic implications, and even metaphysical considerations – all reinforcing the theoretical framework of Peircean pragmatism. Nevertheless, there are disagreements within the literature regarding how to interpret the concept of disinformation through a Peircean lens. Notably, this debate extends

beyond Peircean specialists and is evident in the broader literature on disinformation. To contribute to this contemporary discussion, this text will explore several aspects of Peirce's philosophy that we find relevant to the ongoing debate.

On the other hand, we observe disagreements in the literature regarding how we should interpret – in the light of Peirce – the concept of disinformation. It is important to note that these disagreements extend beyond Peircean specialists and can be observed in the literature on disinformation in general. To contribute to this contemporary debate, in this text we will explore some aspects of Peirce's philosophy that seem relevant to this debate.

2 Normative sciences and descriptive models

Before exploring the aspects of Peirce's philosophy that we aim to discuss, it is essential to acknowledge that our approach in this article begins with the understanding that, although Peirce developed his philosophical framework at the turn of the nineteenth century into the twentieth, we are applying his concepts to contemporary theoretical debates surrounding a phenomenon that is emblematic of the twenty-first century. From a theoretical standpoint, the challenge we face in this turbulent historical period – marked by the consequences of disinformation in our social landscape – is to understand the irreversible ways in which the internet, as a powerful infrastructure of human communication and sociability, increasingly shapes mediations that influence the formation of our beliefs. The perspective presented in this work suggests that Peircean philosophy can make valuable contributions not only to the purely theoretical treatment of this issue, particularly regarding normative ideals (idealized patterns of semiosis), but also to a more descriptive approach that incorporates deeper reflections on practical aspects such as communication, legislation, and politics.

When Peirce established the theoretical-conceptual framework of semiotics, a normative science, he characterized *semiosis* as a logical process that seeks to capture the general form through which thought *should* develop towards the final interpretant. This general form is derived by abstracting a series of factors and characteristics from thought that are not essential for logically understanding the process. The abstractive lens of semiotics does not concern itself with whether the mind engaging in semiosis is based on organic matter or silicon, whether it is shaped partly by the natural selection of a long evolutionary history and partly by the historical choices made by a culture or socioeconomic system, or whether it is entirely an artificial construct created by scientific knowledge to satisfy the demands of a technology-driven market society.

Semiotics does not concern itself with “processing bottlenecks”, which are clear in human cognition, limited by scarce resources such as attention, memory, and conceptual repertoire. These vicissitudes of thought have been abstracted from the concept of semiosis because, while they may interest fields like evolutionary biology, cognitive or developmental psychology, anthropology, sociology, political science, and economics, they hold little relevance for semiotics. It is as if, for semiotics to take off on its normative flight, Peirce had to get rid of all the extra weight. In our work, however, we aim to understand disinformation as a measure of how far we are from this purely logical, formal, and idealized process. Thus, our challenge is to reintegrate some of the elements that the formal and abstract perspective of semiotics has dismissed.

Within the Peircean theoretical framework, our analysis centers on the dynamic interpretant, particularly focusing on the distance that separates it from the final interpretant. If the ideal of semiosis is to guide the interpretative process toward the final interpretant, then the phenomenon of disinformation prevalent in digital culture – understood through a Peircean lens – represents anything that diverts or misleads semiosis from its *normal direction* (in line with the normative ideal). Disinformation specifically concerns the ways in which the dynamics of the semiotic process can veer off track.

Even though semiotics, according to Peirce, is a normative science, it is important that semioticians – in order to develop a deeper understanding of the factors that mislead semiosis – keep track of the descriptive theoretical models of the human mind developed, for example, in cognitive psychology and behavioral economics. Thus, the study of disinformation demands that semiotics focus on the cognitive imperfections that make individuals susceptible to deceptive strategies, especially in our contemporary landscape, which is deeply influenced by digitally mediated communication. Moreover, it is crucial to acknowledge that modern digital culture has enabled the creation of highly effective and semi-automated methods for delivering personalized messages to large audiences. Technical advancements, such as algorithmic relevance filters (Gillespie, 2014; Pariser, 2012) and microtargeting strategies (Kaiser, 2019), enable the customization of messages and the implementation of highly efficient disinformation strategies². These innovations operate within an attention economy endowed with unprecedented efficiency to engage audiences, form and fix beliefs without requiring any real evidence, but guided by the interests of particular groups.

If we accept that Peirce's philosophical architecture can help us understand the contemporary issue of disinformation through both theoretical and normative means, as well as a more descriptive analysis of disinformation practices, then the initial question arising from Peircean philosophy is: what ideals should define the regular flow of information within semiosis? Additionally, to what extent can disinformation be considered a departure from or deviation from this ideal?

3 Information theory in Peirce: a normative perspective on disinformation

As highlighted in the specialized literature, various aspects of Peirce's philosophy can be relevant to understanding the phenomenon of disinformation. However, it is not suitable to delve deeply into the intricacies of this rich philosophical structure, which spans ethics, the theory of signs and associative mechanisms, metaphysical inquiries, and the nuances of pragmatism. Instead, let us concentrate on the contributions of Peirce's semiotic theory of information, particularly his most mature version of information theory.

The topic of information has captured the interest of several experts (De Tienne, 2005, 2006; Ferraz, 2017; Liszka, 2016; Nöth, 2012; Nöth; Amaral, 2011; Sørensen; Thellefsen; Thellefsen, 2017). These experts agree that Charles Sanders Peirce's information theory can be divided into two phases. According to De Tienne (2005, p. 152), the first phase was systematized in the period covering the tenth and eleventh manuscripts of the *Harvard Lectures* in 1865, as well as the seventh to eleventh manuscripts of the *Lowell Lectures* in 1866 and a series of writings from 1867, including drafts for the "Logical Notebook" and notable texts such as "On a New List of Categories" and "Upon Logical Comprehension and Extension". In this initial phase, Peirce's reflections on information are often linked to what he referred to as "symbol" (in a pre-semiotic language) and as terms and propositions. However, in his later works, Peirce narrows his application of the concept of information to terms (which will later be termed "rheme" in semiotic theory) and defines this notion as potential information. He increasingly associates the informative basis with propositional signs (which will come to be known as "dicisign" in his mature semiotic theory) and acknowledges that information can also be found in arguments.

Given this mature relationship between the notion of information and the dicent sign and the argumentative sign, the following discussion will focus on the relationship between information and

2 In another work (in press), we argue that what characterizes the distinctive feature that would justify the neologism "disinformation" is, from the point of view of contemporary digital culture, its systematicity and scalability. In the present work, we are leaving this specificity aside to focus on, more specifically, Peircean contributions to the study of the current phenomenon of disinformation.

propositional signs. Due to space limitations, we will omit a significant portion of the variations in the concept of information, which unfortunately results in a considerable loss of conceptual richness – particularly the pre-semiotic understanding of information as an interplay of breadth and depth, denotation and connotation, or extension and comprehension of terms and propositions³. To compensate for these omissions, we encourage readers interested in the topic to explore Volumes 1 and 2 of Peirce's Writings, as well as the secondary literature on the subject.

In technical terms, when information is examined through the lens of semiotics, what it seems to do is to shape the sign in its new developments as interpretants of the first sign. The purpose of this process is to make the sign increasingly similar to what it represents, a concept Peirce refers to as the dynamic object. As Nöth and Amaral (2011, p. 11) point out, the goal of any interpretative process is to reduce the gap between a sign and its object. In other words, the widely held idea that to inform is to give form to something can be understood in semiotic terms as a triadic relationship in which: (A) something (a sign) is employed to capture or express (B) the form of another entity (an object), with the purpose of giving form to (or informing) (C) a mind (an interpretant).

The triadic nature of information, as articulated in a semiotic sense, can also be understood in terms of its mental dimensions. Information is developed through the signs and reasoning in which it is embedded and cannot merely be transported; it operates more like a collective mind, which Peirce designates as “commind” or “commens”⁴). Peirce emphasizes that what is communicated through semiotics is the form of an object conveyed to an interpretant via a sign. This means that the action of the sign must be informative. Peirce states, “That which is communicated from the Object through the Sign to the Interpretant is a Form” (Peirce [R 739: 3] *apud* Liszka, 2016, p. 53). Consequently, form cannot be considered a singular entity that is simply transported; if it were, once the sign transmits it, the form would no longer be in the object.

[...] the dyadic relations of logical breadth and depth, often called denotation and connotation, have played a great part in logical discussions, but these take their origin in the triadic relation between a sign, its object, and its interpretant sign; and furthermore, the distinction appears as a dichotomy owing to the limitation of the field of thought, which forgets that concepts grow, and that there is thus a third respect in which they may differ, depending on the state of knowledge, or amount of information. (CP 3.608).

Having grasped the triadic and mental mechanisms of information, the normative character that the semiotic theory of information acquires should now be clear. This clarity arises from the understanding that the action of the sign must, in the sense of a normative ideal, be informative. When a sign fulfills its intended purpose – informing the collective mind about new aspects pertaining to the objects it references – semiosis evolves. Consequently, knowledge within the collective mind expands through the interpretation of the sign, leading to the interpretant becoming a more informative and developed sign. Thus, information emerges as a product of the semiosis process. As Nöth notes, information “is created in a process in which a sign is interpreted in a new and more informative sign, the latter being the interpretant of the former” (Nöth, 2012, p. 107).

3 Despite the considerable number of pairs that the first version of Peirce's theory addressed in relation to the logic of propositions, it would be incorrect to interpret this version of information as merely “dual”. As De Tienne (2006) explains, even in his youth and while utilizing concepts that seem to suggest a duality, Peirce understood this informative mechanism in a triadic manner. He viewed it as a relationship involving three elements: the informed amplitude of the proposition, the informed depth of the proposition, and the information conveyed by the proposition. In this context, information is defined indirectly based on the totality of known facts about the objects of the proposition, which can be seen as a product of the extension and comprehension of the proposition. Thus, even in his early work, Peirce's approach aimed to articulate three notions: depth (which includes connotation, comprehension, and sense), breadth (which involves denotation, extension, and reference), and the somewhat nebulous concept of the interpretant (a new notion, which characterizes what Peirce understood as information).

4 Peirce states, “This mind may be called the commens. It consists of everything that is, and must be well understood initially between enunciator and interpreter, so that the sign in question can fulfill its function” (Peirce, 2020 [1906], p. 60; EP 2:478).

Additionally, it is important to highlight the growth of signs through the relationship between the information contained in a sign and its effect on its interpretant. In this context, the information conveyed by a proposition (sign information) is linked to the interpretant's understanding of that sign (interpretant information). Therefore, the "saying" of the dicisign – meaning the information that the sign is capable of conveying about an object to its interpretant – depends not only on the interpretant receiving the message but also on their ability to decode it. This decoding relies on interpretative rules, based on the use of a previously known coding system. Consequently, the creation of new information, in this pragmatic sense, occurs during the process of interpretation.

Thus, the information completes its task when the dynamic interpretant "reads" the sign through the activation of an interpretative rule, which guides the proposed decoding of the dicisign. We can refer to this as (1) sign information, which represents the symbolic connection between the index part (the subject of the proposition) and the icon part (the predicate of the proposition) of the dicisign. However, the most significant aspect of this decoding process is that it activates the accumulated repertoire of collateral signs, creating what we may call (2) interpretant information⁵. This interpretant information is produced by an interpretative connection in the mind that "translates the dicisign". This process is essential for the increase in the repertoire, which characterizes the growth of the sign. To illustrate this, consider a propositional sign like the sentence "The chair is green". When my friend utters this sentence to me (which is a symbolic copula between the subject "chair" and the color "green"), I attempt to capture a form of the object (the green chair referred to by the sign) by interpreting the information of the sign (1) into something meaningful for myself. This involves associating what was spoken with my existing repertoire and the interpretative rule, ultimately generating interpretant information (2) and expanding my own understanding.

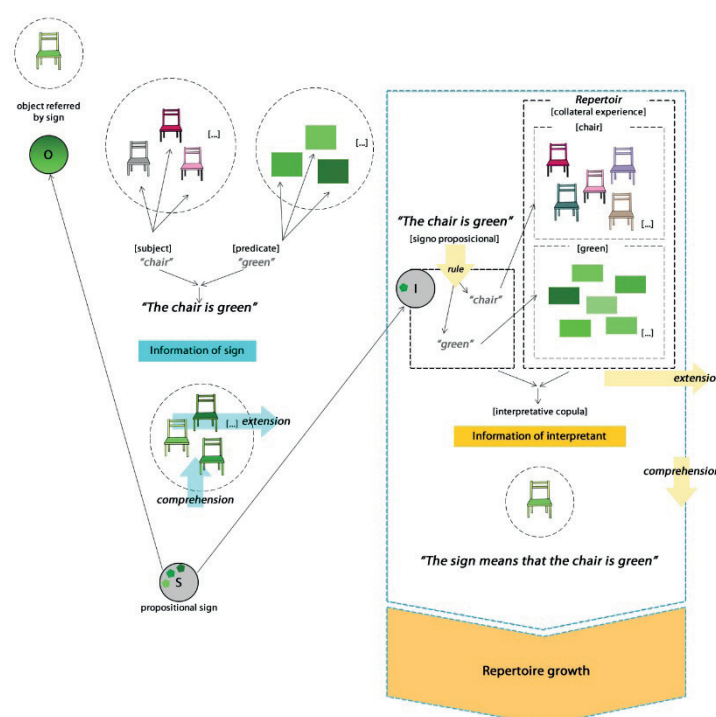


Image 1 : Information of the sign (copula of the proposition) and information of the interpretant (copula of the collateral experience).

Source: Original Author.

We can infer from the above that Peircean semiotics proposes an intimate relationship between information and the growth of the sign. If a sign is informative for its interpretant, then the informational

⁵ The terms "sign information" and "interpretant information" used in this paper correspond to what De Tienne (2005) refers to as "transformation" and "metaformation," respectively. We adopt this terminology here solely for didactic purposes.

state that the sign imparts to its object increases within the interpretant's repertoire. This process updates the previously established system considering the new information. As a result, both the information that the interpretant possesses about the object and its capacity for future interpretations of that object are enhanced. This means that the interpretant's repertoire for future interpretations is also expanded, reconfiguring its belief system. However, for this process to occur, the information contained in the sign must be compared with the interpretant's existing repertoire during the interpretative process. This comparison allows the most pragmatic information to emerge, that is, the new idea in the interpretant. Therefore, knowledge – or the belief system of a collective mind – should be viewed as a provisional network of triads (o-s-i) articulated through inferential processes, or reasoning that constructs arguments.

In this context, the confrontation of propositions through reasoning appears to be the only effective means of verifying the information conveyed by signs. This involves comparing signs to determine whether to accept or reject a proposition based on what other propositions indicate within specific interpretative rules. For example, despite what my friend said – “The chair is green” – my eyes tell me otherwise; they say, “The chair is blue”. This illustrates the necessity of an inferential examination of the signs' claims. Consequently, the revision of a belief system depends on comparing different parts of the triad network (o-s-i) with one another⁶. The diagram below illustrates the validation of information through the confrontation of collateral signs regarding the same object, to be resolved inferentially.

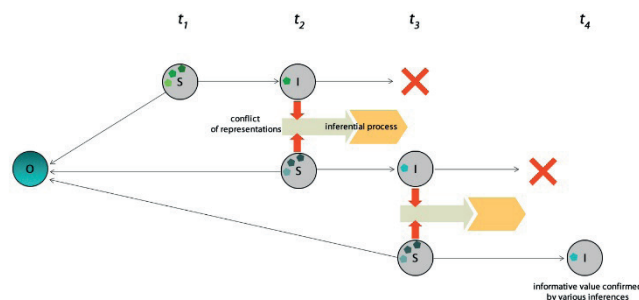


Image 2 : Evaluating information through the confrontation of collateral signs (to be resolved inferentially).

Source: Original Author.

At this point, it's important to note that the normal course of the information process – functioning as a means to update belief systems – plays a crucial role not only in understanding teleology (the ideal trajectory of what the “processing” of information should be), but also to understanding how occasional deviations from this normal path can be corrected in future interpretative processes, as long as that the first rule of Peircean philosophy and semiotics is respected: “the path to knowledge must not be blocked”.

However, this principle is not upheld in the contemporary phenomenon of disinformation. For these, on the contrary, the path to knowledge may be lost or blocked. Viewed through the lens of Peircean semiotics, information is meant to foster knowledge within a collective context. By contrast, disinformation represents a deviation from this normative ideal. If information enhances knowledge – essentially the growth of signs through updated interpretations – then disinformation induces ignorance by constraining interpretations. This process reinforces habits and beliefs that are shielded from doubt due to the influence of disinformation. Thus, disinformation should be regarded as a deviation of semiosis from its intended course⁷.

6 In another work (currently in press), we explain in greater detail the process through which collateral experience relates to interpretation. This notion is fundamental to semiotics and represents a significant aspect of Peircean philosophy in its later stages. The concept of collateral experience pertains to how information can play a critical role in teleology, particularly in the verification of information. Without collateral experience, the self-correction that characterizes investigation would not be possible within the semiosis. Consequently, it would be impossible for semiotics, in its normative ideal, to guide the collective mind toward a final interpretation.

7 Peircean pragmatism links the normative understanding of information to the construction of knowledge, aiming to enhance concrete reasonableness. Conversely, disinformation has the opposite direction, driving a wedge between minds and the ideal of acquiring knowledge, cultivating concrete ignorance in the collective mind.

The following diagram illustrates the imbalance caused by disinformation, which disrupts the weight of evidence (information derived from signs in a semiotic process) and destabilizes the usual updating flow of belief systems.

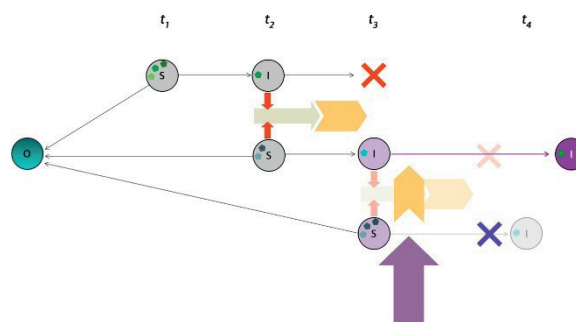


Image 3: Imbalance in the inferential process of information (leading to the acceptance of an untruth).

Source: Original Author.

The particularity that the notion of disinformation assumes in the contemporary context carries multiple layers of complexity. Here, we focus only on the contrast between the normative character of the semiotic conception of information and the current phenomenon of disinformation. We emphasize this contrast because understanding such a complex and multifaceted issue requires a theoretical ground that is not only logically robust and conceptually refined but also flexible enough to recognize the imperfections and vulnerabilities of human cognition. Human cognition is particularly susceptible to the traps posed by modern and efficient means of communication. Given Peirce's description of humans as "imperfect logical animals" (CP 5.633 [1877]), it is crucial to explore how contemporary disinformation practices might exploit this characteristic of "logical imperfection" that has been abstracted by normative sciences. We thus pose the question: can we find insights within Peirce's extensive philosophy to study the ways semiosis can deviate from its ideal path? This question will guide our subsequent discussion.

4 Methods of fixing beliefs: entry to the descriptive approach to disinformation

The primary reference in Peirce's work for the study of the doubt-belief process is his article "The Fixation of Beliefs" (1877). In this text, Peirce contrasts the scientific method of fixing beliefs with the three non-scientific ones: tenacity, authority, and *a priori*. Each of them can be understood as mechanisms for protecting what we term the "background belief", which can give rise to various strategies of disinformation. The method of tenacity safeguards an individual's belief from opposing evidence. The method of authority derives protection from community imposition or directives. The *a priori* method protects beliefs based on their perceived logical consistency or agreeableness to reason.

Without intending to create an exhaustive classificatory system, Peirce defines these forms of belief fixation by considering progressively broader circles of belief scope, along with the susceptibility to doubt or criticism that each method permits. The first circle pertains to individual factors, the second to social factors within a community, and the last to overarching species-level considerations, as agreement becomes more broadly defined.

Peirce argues that, unlike the three non-scientific methods, which ground belief on casual elements – namely, elements that vary according to individuals, cultures, and societies – the scientific method relies on principles that are independent of human particularities. After providing examples illustrating that encounters with diverse cultures can reveal how the beliefs of our own culture are often shaped by arbitrary circumstances, Peirce asserts:

[...] I cannot help seeing that, though governments do not interfere, sentiments in their development will be very greatly determined by accidental causes. Now, there are some people, among whom I must suppose that my reader is to be found, who, when they see that any belief of theirs is determined by any circumstance extraneous to the facts, will from that moment not merely admit in words that that belief is doubtful, but will experience a real doubt of it, so that it ceases in some degree at least to be a belief. To satisfy our doubts, therefore, it is necessary that a method should be found by which our beliefs may be determined by nothing human, but by some external permanency – by something upon which our thinking has no effect. (CP 2:383-384 [1877]).

Worthy of note is the fact that both doubt and belief are, from a Peircean perspective, provisional states. Belief can be undermined at any moment by the mind's entrance into a state of doubt. Therefore, Peirce's central question is not how to fix a belief – meaning how to prevent it from being disrupted by doubt – but rather how to choose between the various paths we can take as we move toward a belief when confronted with doubt. Peirce suggests that although all methods for resolving doubt have both advantages and disadvantages, the only method that can effectively resolve doubt is one that is based on “nothing human” (ibid.). This is the scientific method, which is characterized by anchoring its beliefs in some external element that is independent of human cognition, which Peirce calls reality (ibid., p. 54). Peirce defines reality as something that transcends what any specific group of human beings can grasp and what can resist all their conceptions.

In the following diagram, reality is represented as existing beyond the concentric circles that denote the individual, the community, and the species. These circles represent the levels of tenacity, authority, and *a priori* methods, respectively. Beyond the limits of human inclinations lies reality, and the method that uses this as its foundation is that of science.

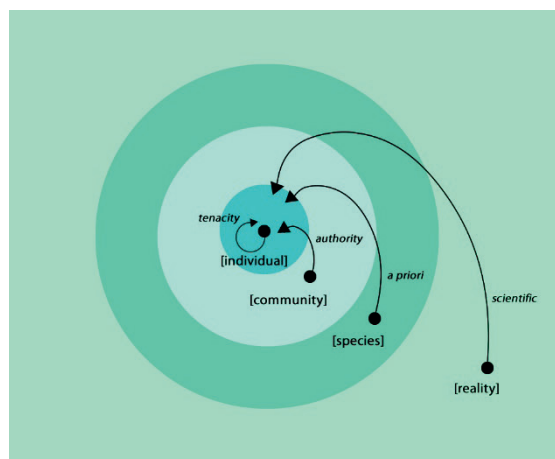


Image 4 : Methods of fixing beliefs (according to the spheres of the individual, the community, the species, reality).

Source: Original Author.

The reflection on the methods of establishing beliefs opens the series of texts known as the Illustrations of the Logic of Science. This series necessitates the development of a semiotic theory within Peirce's philosophical framework. Peirce's argument asserts that the scientific method is advantageous due to its foundation in elements that go beyond the casual dimensions that are prevalent in the other three methods. However, it also faces the significant challenge of addressing a new conception: that of reality. Philosophically, questions regarding the concept of reality can be exceptionally complex. As such, attempting to resolve these questions requires substantial philosophical work concerning form, essence, and means available to us to think or access reality. Our intention, however, is not to scrutinize the intricate relationships between phenomenology and semiotics that underpin Peirce's metaphysics

– there is already a vast body of specialized literature on this topic. Instead, we aim to highlight that Peirce’s commitment to grounding his philosophical framework in the scientific method is not merely a matter of “preference”. It is a deliberate choice that recognizes the responsibility and challenges inherent in his philosophical project.

While we recognize that semiotics is rooted in Peirce’s adoption of the scientific method, we would like to focus on the three other methods that Peirce criticized. Our aim is to address the question posed at the end of the previous section: can Peircean philosophy provide any clue about the paths that deviate from the ideal one? We believe the answer is yes, and Peirce’s three non-scientific methods of fixing beliefs – tenacity, authority, and *a priori* methods – provide some insight on that question.

Despite the advantages and disadvantages of each method, these three non-scientific approaches frequently uphold beliefs rather than questioning them, even in circumstances where revision is necessary. This tendency arises because these methods view the process of fixing a belief as a means of protecting it; they treat existing beliefs and systems as something to be preserved rather than challenged. As Peirce states:

If I adopt the method of tenacity, and shut myself out from all influences, whatever I think necessary to doing this, is necessary according to that method. So with the method of authority: the state may try to put down heresy by means which, from a scientific point of view, seem very ill-calculated to accomplish its purposes; but the only test on that method is what the state thinks; so that it cannot pursue the method wrongly. So with the *a priori* method. The very essence of it is to think as one is inclined to think. (CP 2.385 [1877]).

Peirce’s argument rejects the three methods mentioned earlier because, while each method offers justifications for beliefs, they fail to distinguish between correct and wrong beliefs beyond what is already accepted in the previous belief system. What is notably absent from these methods is the crucial normative element of semiosis: the ability to change habits, that is, the possibility of revising beliefs based on current information. This ability to revise beliefs is what distinguishes the pragmatic approach from non-pragmatic approaches, (or scientific from non-scientific). This distinction allows us to consider disinformation in relation to non-scientific methods of establishing beliefs, a path that seems to be the most promising pathway for a more descriptive approach to understanding disinformation through Peirce’s perspective.

In this sense, we agree with Romanini et al. (2022, p. 67) that we must “understand dis/misinformation as a result of obtaining beliefs through three non-scientific methods”. The authors provide an example of obtaining beliefs through non-scientific means, citing the *a priori* method. They state that this method “has a mode of operation very similar to the post-truth action system and what is called ‘confirmation bias’”, which, for the authors, is evident in “people’s tendency to accept what is in accordance with what they already believe and reject what conflicts with their belief system”.

While we agree with the authors’ overall perspective, we disagree with their characterization of the *a priori* method as solely linked to confirmation bias. We believe this connection is limited because many cognitive biases and heuristics, as discussed by Kahneman (2003; 2011), can influence how beliefs are formed through non-scientific methods. Furthermore, the relationship between these biases and the *a priori* method does not fully capture the complexity of belief formation, as illustrated in Diagram 4. This might suggest that the *a priori* method is presented as a separate layer, rather than being organized in sequence with the previous two methods. Additionally, it overlooks how disinformation strategies utilize not only the *a priori* method but also the tenacity and authority ones. These strategies exploit cognitive biases and heuristics to steer the course of semiosis in a specific direction, often guided by particular interests. the layers of foundational beliefs that the scientific method seeks to circumvent, it becomes

evident that even more deeply rooted are the belief systems of individuals and communities – what we might call the core belief systems that we trust and often regard as fundamental.

The concept of trust – whether related to our foundational beliefs, the knowledge of experts, or the testimony of others – warrants a detailed exploration on its own. Here, we focus on the challenging distinction between our beliefs and the confidence we have in them. According to Houser, we often equate our beliefs with our level of confidence in the ideas we believe to be true. In his words, “It is surprisingly common to equate belief with the feeling of confidence we have that what we believe is true or as we believe it to be” (Houser, 2015, p. 275). Moreover, our most deeply held beliefs are often the most challenging to change, and the process of revision can be costly.

The ability to revise our belief systems based on new information is essential for understanding the phenomenon of disinformation. In 1898, at the peak of his intellectual development, Peirce made a distinction between full beliefs and theoretical beliefs. Full beliefs are linked to the notion of “readiness to act” or “willingness to act” (EP 2:33). In contrast, theoretical beliefs are tied to “provisional propositions” (EP 2:55-56), which is the focus of scientific inquiry. These theoretical beliefs can be easily updated or replaced when experiences or new evidence contradict them (EP 2:33).

Peirce highlights a distinction between two types of desires: one centered on fundamental beliefs and the other focused on knowledge derived from theoretical beliefs. This differentiation underscores two philosophical perspectives: one that focuses on the believer, who prioritizes the desire to maintain their beliefs – a central theme in the philosophy of William James – and another that centers on the scientist, who identifies the desire to learn as the fundamental desire – which is at the heart of Peirce’s philosophy.

But whether the word truth has two meanings or not, I certainly do think that holding for true is of two kinds; the one is that practical holding for true which alone is entitled to the name of belief, while the other is that acceptance of a proposition which in the intention of pure science remains always provisional. To adhere to a proposition in an absolutely definitive manner, supposing that by this is merely meant that the believer has personally wedded his fate to it, is something which practical concerns, say for instance in matters of right and wrong, we sometimes cannot and ought not to avoid; but to do so in science amounts simply to not wishing to learn. Now he who does not wish to learn cuts himself off from science altogether. (EP 2:56).

To conduct a descriptive analysis of disinformation through the lens of Peircean philosophy, it is essential to carefully examine the non-scientific mechanisms of fixing beliefs. It should be clear that these methods are problematic from epistemological, ethical, and semiotic perspectives; however, this does not mean they lack effectiveness in political contexts. On the contrary, much of the significant political influence of these methods stems from their ability to exploit passions, values, and inclinations present in the individual and the community, which get integrated into belief systems.

Furthermore, due to its inherently media-driven nature, disinformation encompasses all traditional dimensions of communication, namely the emission, circulation, and interpretation of signs. The messages that circulate in digitally mediated social environments often diverge significantly from normative ideals, leading to interpretations that may stray far from the ideal of enhancing reasonableness through semiosis. Describing these processes is crucial as it enables us to assess the extent to which disinformation strategies deviate from the idealized flow of semiosis. This examination aims to clarify how such strategies reinforce existing beliefs and ultimately hinder their revision or the emergence of new ones.

5 Discussion

This text has examined some of the contributions of Peircean philosophy to the analysis of the contemporary phenomenon of disinformation. We have emphasized two central aspects: one that is more normative, analyzed through the lens of semiotic theory of information, and the other that prepares us for a descriptive study of the various modes of disinformation, based on Peirce's reflections on methods for resolving doubts and achieving beliefs. We argue that disinformation, as understood in today's digital culture, encompasses practices that, broadly speaking, deviate from the critical and teleological ideal of semiosis, functioning as deviations or even blocking to such possibilities. Moreover, we conclude that Peirce's thoughts on non-scientific methods of establishing beliefs offer insights into the persuasive effectiveness of disinformation (despite its clear ethical and epistemic flaws), especially in politics.

When we compare the points discussed with those explored in Peirce's specialized literature, particularly in recent years, we can identify both similarities and disagreements. This reflects Peirce's idea that science is inherently a community project. In alignment with the views of Santaella (2023) and Romanini et al. (2022), we also believe that addressing disinformation requires engaging with the concept of information that Peirce developed within the field of semiotics. However, our approach diverges from that of Romanini et al. (2022), who emphasize the denotative and connotative aspects of symbols, thus highlighting a perspective of information more closely associated with the younger Peirce. In contrast, we have opted to concentrate on the more mature phase of his theoretical framework, during which Peirce built the information theory upon a fully developed semiotic foundation.

We understand that the defining characteristic of disinformation in our current culture, unlike the informative process systematized by Peirce at the beginning of the twentieth century, primarily represents a misleading in the ideal trajectory of semiosis. This trajectory is aimed at the future (teleology) of inquiry, which should lead to knowledge.

This perspective subtly differs from that of Ribeiro and Paes (2023, p. 105), who state that disinformation "is also responsible for generating other interpretants that end up pulling the chains of semiosis in other directions". In our analysis, the word "also" is unnecessary in this context because it is the misleading of semiosis from its normal course that fundamentally defines what we should understand by disinformation. The authors further suggest that semiosis "involves disputes over meaning" (ibid.). However, we argue that the normal semiosis, which Peirce seeks to systematize, is an abstraction that does not rely on a "social" or "political" dispute over meaning, as Ribeiro and Paes seem to imply. It is known that disinformation practices specifically aim to dispute meanings and belief systems. However, we contend that this is driven by the intent to protect a fundamental belief (or belief system). This idea is highlighted by our focus on three non-scientific methods as the basis for a descriptive approach to understanding disinformation through Peirce's perspective.

To reframe disinformation as a distortion of the informational updating process, it was necessary to clarify how Peirce conceptualized the normal informational process. This entails examining the fundamental elements of semiosis, including the sign, object, and interpretant. Additionally, it was essential to consider the informative ideal of expanding the repertoire of interpretants of signs, the role of collateral experience in both interpretation and the development of the sign, and the significance of the inferential reasoning mechanism, which operates through the connection and comparison of propositional signs. Furthermore, the process of semiosis must include ways to verify and validate information, leading to an update in belief systems.

The final part of our reflection begins by acknowledging the consensus in specialized literature regarding the importance of discussing methods of belief fixation in contemporary disinformation practices. Our aim in revisiting this Peircean perspective was to emphasize the characteristics of non-scientific methods used to protect fundamental beliefs. This is the type of attitude that Peirce's philosophy of science criticizes most vehemently, particularly due to its practical consequences of misleading

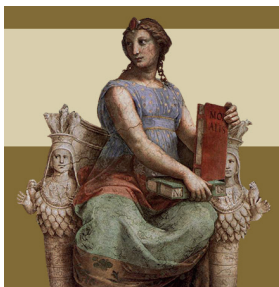
individuals and obstructing the road of inquiry. Peircean semiotics provides us with a theoretical and conceptual framework to understand both the normative nature of a process (namely, semiosis) and the deviations from its normal course. It is crucial to highlight that these elements of Peircean philosophy must be considered in any research program – which is currently in its beginning – that aims to explore the complex, contemporary phenomenon of disinformation.

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