CHARLES SANDERS PEIRCE, AN ANTI-CARTESIAN REVOLUTION: PEIRCE'S CRITIQUE OF DESCARTES AND HIS INNOVATIVE VISION OF COGNITION

Charles Sanders Peirce, Uma revolução anticartesiana: a crítica de Peirce a Descartes e sua visão inovadora da cognição
Charles Sanders Peirce, Una revolución anticartesiana: La crítica de Peirce a Descartes y su innovadora visión de la cognición

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Resumo: Este ensaio examina a revolução anticartesiana de Peirce na filosofia. Peirce desafiou o fundacionalismo e o dualismo cartesiano, propondo uma abordagem falibilista, comunitária e corporificada do conhecimento. Ele enfatizou a importância da investigação, da experiência e da comunidade na formação do entendimento. O ensaio explora o conceito de cognição de Peirce como um processo dinâmico de inferência, impulsionado pela dúvida e orientado para a crença. Ele também explora a convergência entre as ideias de Peirce e o enativismo, um movimento contemporâneo na ciência cognitiva que enfatiza a natureza corporificada, integrada e enativa da cognição.
Palavras-chave: Charles Sanders Peirce. Anticartesianismo. Cognição. Enativismo. Pragmatismo.

Abstract: This essay examines Charles Sanders Peirce's anti-Cartesian revolution in philosophy. Peirce challenged the foundationalism and dualism of Cartesian philosophy, proposing instead a fallibilist, communitarian, and embodied approach to knowledge. He stressed the importance of inquiry, experience, and the community in shaping our understanding of the universes of experience. The essay explores Peirce's concept of cognition as a dynamic process of inference, driven by doubt and oriented towards the fixation of belief. It also states and explores the convergence between Peirce's ideas and enactivism, a contemporary movement in cognitive science that emphasises the embodied, embedded, and enacted nature of cognition.
Keywords: Charles Sanders Peirce. Anti-Cartesianism. Cognition. Enactivism. Pragmatism.

Resumen: Este ensayo examina la revolución anti-cartesiana de Peirce en la filosofía. Peirce desafió el fundacionalismo y el dualismo cartesiano, proponiendo un enfoque falibilista, comunitario y encarnado del conocimiento. Destacó la importancia de la indagación, la experiencia y la comunidad en la formación de la comprensión. El ensayo explora el concepto de cognición de Peirce como un proceso dinámico de inferencia, impulsado por la duda y orientado hacia la creencia. También explora la convergencia entre las ideas de Peirce y el enactivismo, un movimiento contemporáneo en la ciencia cognitiva que enfatiza la naturaleza encarnada, integrada y enactuada de la cognición.
Palabras-clave: Charles Sanders Peirce. Anticartesianismo. Cognición. Enactivismo. Pragmatismo.

Introduction

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In recent times, interest in topics of cognition has gained great strength. Different perspectives, including Eastern traditions such as mindfulness, emulations of the brain's functioning such as AI, and the openness to look at cognitive processes organically versus closed processes of zeros and ones. This allows the same person to learn and unlearn over time. Studies from disciplines such as psychology, anthropology, pedagogy, and neuroscience work to understand what happens in people's minds regarding cognition. Cognitive semiotics has been established as a branch of study that amply and systematically researches these issues.

In the 1960s, experimental psychologists showed interest in cognition due to strong criticism of the current explanations of the linguistic and communicative phenomena and the insufficiency to explain the complexity of the mental processes related to language. Besides, the emergence of the information processing approach questions the perspectives related to mental operations in acquiring knowledge and skills. Moreover, new scientific tools were developed to trace the non-observable cognitive operations during an interaction stimulus-response. Finally, with the strong extended presence of cognitive neurosciences, the models, metaphors, techniques, and resources to examine cognition and human interactions have changed (Fiske & Taylor, 2017).

Within this contemporary landscape of cognitive inquiry, the work of Charles Sanders Peirce offers a particularly compelling and prescient perspective, especially considering that many of these approaches to cognition are affected by what we call Cartesian views of knowledge. This essay will examine Peirce's radical anti-Cartesian revolution, demonstrating how his challenge to foundationalism and dualism anticipates key themes in modern cognitive science, especially enactivism. We will explore his dynamic, process-oriented understanding of cognition, his emphasis on community and experience,

and the nuanced intersections and divergences between his semiotic framework and enactivist thought, particularly concerning the contentious issue of representation.

The Reign of Cartesianism and its view of knowledge

The 17th century marked the rise of Cartesian philosophy as the dominant paradigm in Western thought. René Descartes, with his "Discourse on Method" (1637) and his “Metaphysical Meditations” (1641), laid the foundation for a view of knowledge based on the search for indubitable beliefs, upon which the entire edifice of knowledge could be built. This approach, known as foundationalism, was characterised by pursuing unwavering and indubitable "first principles" to serve as the bedrock of knowledge.

Furthermore, Descartes proposed a radical separation between mind and matter, a dualism that profoundly influenced the understanding of human nature and the relationship between body and consciousness. This separation between *res cogitans* (thinking substance) and *res extensa* (extended substance) marked a deep division in the Western conception of the human being.

Peirce: A Radical Turn

In this context of Cartesian dominance, Charles Sanders Peirce emerged as a dissenting voice, proposing a radically different vision of cognition and knowledge. Through a series of essays published in the *Journal of Speculative Philosophy* (1868-69), Peirce challenged the pillars of Cartesianism, laying the groundwork for a new way of understanding philosophy and science. This revolutionary turn, in Peirce’s understanding, was a return to the Realism of the medieval scholastics (hence, he named it “Scholastic

Realism") and to what Peirce understood was the "method of science" (a method opened without reservations to experience).

Within the corpus of Peirce's philosophical writings, the articles comprising this series stand as his earliest ventures into the domain of speculative thought. While other early works, such as his insightful 1867 paper "On a New List of Categories," merit consideration. For the present, our attention shall be directed towards the triptych of articles that constitute the *Journal of Speculative Philosophy* series (JSP), which unfolded in the following sequence:

Firstly, "Questions Concerning Certain Faculties Claimed for Man" (1868), henceforth referred to as "Questions," wherein Peirce launched a formidable assault upon the Cartesian edifice of intuition. With a surgeon's precision, he dissected the various philosophical strategies employed to defend the notion of immediate, unmediated knowledge, paying particular attention to the intricacies of the Kantian approach and fighting the idea that there are *a priori* intuitions.

Secondly, "Consequences of Four Incapacities" (1868), henceforth "Consequences," wherein Peirce identified the inherent incapacities that arise from the Cartesian presupposition of intuitive knowledge. He proceeded to demonstrate how these incapacities inevitably lead towards a nominalistic conception of reality, a conception that shall be revealed as fundamentally flawed in its premises. Furthermore, this essay lays the groundwork for the antithetical doctrine of *Scholastic Realism*, a philosophical tradition that affirms the reality of universals.

Thirdly, "Grounds of the Validity of the Laws of Logic or More Consequences of Four Incapacities" (1869), henceforth "Further Consequences," wherein Peirce further explored the ramifications of Cartesianism's incapacities, rendering nominalism untenable. With a keen focus on the principles of logic, this essay, originally intended to be titled "Search for a Method," champions the objectivity of

logical norms. Moreover, it contains the first glimmerings of what would become seminal Peircean ideas concerning the clarification of truth and the logic of relatives.

The inaugural article of this JSP series, "Questions," embarks upon a critical examination of Cartesian assumptions, while simultaneously introducing certain positive views that Peirce sought to bring to the forefront of philosophical discourse. Among these is the notion of "Synechism," which states the paramount importance of continuity in philosophical inquiry. Furthermore, Peirce aimed to expose the inherent absurdity of individualism and egoism, vices that he traced back to the insidious influence of Nominalism.

One of the central points of Peirce's critique of Cartesianism lies in his rejection of the idea that knowledge can be based on indubitable beliefs and that knowledge is made of self-contained atoms of information. For Peirce, Cartesian doubt, with its search for an absolutely certain starting point, is an unattainable ideal. In "Some Consequences of Four Incapacities" (1868), Peirce argues:

> "We cannot begin with complete doubt. We must begin with all the prejudices which we actually have when we enter upon the study of philosophy." (CP 5.265)

This statement marks a fundamental break with Cartesianism. Peirce proposes an epistemological fallibilism, recognizing that all our beliefs are fallible and subject to revision[3]. Uncertainty, instead of being an obstacle to knowledge, becomes the very engine of inquiry. As he states in a later document, "The Fixation of Belief" (1877):

> "The irritation of doubt causes a struggle to attain a state of belief. I shall term this struggle Inquiry." (CP 5.374)

[3] For a detailed study of each of the criticisms against the Cartesian view see: Reyes Cárdenas, Paniel (2018) *Scholastic Realism, A Key to Understanding Peirce's Philosophy*. Oxford: Peter Lang, especially chapter 2.

Knowledge is not doubt-proof discrete information but a process continuously interacting with experience. Peirce then was the first philosopher to substitute “thoughts” for “cognition”, the latter term emulating a process rather than a piece of information. Cognition is a process and can be embodied through signs because the essence of understanding is the mediation between experience and the meanings we use to make a self-controlled process of engaging with the world through inquiry.

Community of Inquiry: Knowledge as a Collective Collaboration

Another crucial aspect of Peirce's anti-Cartesian revolution is his emphasis on the community of inquiry. For Peirce, knowledge is not an individual achievement but a collective collaboration of inquiry that develops through dialogue, critique, and openness to error-sensitivity among individuals. In "Some Consequences of Four Incapacities," he writes:

> "The individual man... is only a negation" (apart from his fellows and the community of inquiry). (CP 5.264)

This communitarian vision of knowledge contrasts with Cartesian individualism, which stresses the capacity of the isolated subject to achieve certainty. For Peirce, knowledge is a social process that thrives on interaction and exchanging ideas among individuals.

Rejection of Intuition: Knowledge Through Experience

Peirce also rejects the Cartesian (and Kantian) notion of intuition as a source of immediate and infallible knowledge. For him, all knowledge, even that of the internal world, is derived from experience

and hypothetical reasoning. In "Questions Concerning Certain Faculties Claimed for Man" (1868), he states:

> "There is no power of introspection, but all knowledge of the internal world is derived by hypothetical reasoning from our knowledge of external facts." (CP 5.265)

This statement challenges the idea that we can have direct and infallible access to our own mental states. For Peirce, knowledge is constructed through interaction with the external world and the interpretation of experiences, there is no privileged ego with a unique access to the internal aspects of experience, because all interpretation is given through signs of facts that are outside us.

Against Dualism: Mind-Matter Continuity

In contrast to Cartesian dualism, that separates mind from matter as essentially incapable of communication, Peirce proposes a vision of the mind-matter relationship characterised by continuity (that he will later identify as the principle of “synechism”). In "Questions Concerning Certain Faculties Claimed for Man," he tells us:

> "The soul and the body are not two substances in the sense of Descartes, but are the first and second members of a continuous series." (CP 5.264)

This holistic perspective anticipates contemporary developments in neuroscience and philosophy of mind, which question the radical separation between mind and matter. For Peirce, cognition is an embodied process embedded in an organism that interacts with its environment through the use of signs that represent habits of cognition.

Cognitive semiotics

This exploration of Peirce's anti-Cartesian revolution and his innovative vision of cognition naturally leads us to the burgeoning field of cognitive semiotics. Cognitive semiotics, as defined by Brandt (2011), is "the study of mind and meaning — the way meaning exists and works in human minds." Peirce's concept of the "external mind" and his emphasis on cognition as a semiotic process is at the core of the principles of cognitive semiotics. His ideas about belief, habit, and the community of inquiry provide a rich foundation for understanding how meaning is constructed and shared within human communities. Furthermore, Brandt's (2011) emphasis on the embodied and situated nature of the mind aligns with Peirce's rejection of Cartesian dualism and his vision of cognition as a continuous process intertwined with experience and the external world.

By integrating Peirce's insights with the perspectives of cognitive semiotics, we can gain a deeper appreciation for the complex interplay between the mind, the meaning, and the environment. This interdisciplinary approach promises to shed new light on the nature of human cognition and its role in shaping our understanding of the world.

Cognitive semiotics can be established by its task: "If semiotics studies meaning, and cognitive science studies the mind, then cognitive semiotics is the study of mind and meaning — the way meaning exists and works in human minds" (Brandt, 2011, p. 1). Concerning the origins of cognitive semiotics, Paolucci (2011) explains that Peirce's theory of the "external mind" proposes that cognition perspective is related to cognitive processes and activities like problem-solving, interpretations, judging, habits, etc. For Peirce, the mind is a semiotic process in which the thoughts do not belong to the individual; the individual is instead a partaker of the life of thoughts (CP 5.289). The concept of mind resides in identifying belief -content- and habit -a predisposition to action-. On the other hand, Brandt

(2011) highlights that "The mind is embodied and situated; the 'body' in question is not only a physiological entity but also a social and emotional entity equipped with consciousness." This author explains that experience occurs in domains of experience, or semantic realms, in physical circumstances; therefore, humans live in situations that must be represented while they occur.

Thinking happens in a subject's mind when he/she solves a problem and influences the activity that moves the individual through a series of stages or steps from a given state to the desired state. Thinking implies the search for meanings, and thanks to the mental process of thinking an individual gives meaning to his/her experience.

Three basic statements, thus, hold cognitive semiotics (Paolucci, 2021, p.6) together:

1. Cognitive semiotics understand cognition as an “enactive” skillful activity that involves ongoing interaction with the external world (Hutto & Myin, 2017).

2. If cognition serves to act in the world in an effective way, in order to do so, it is sometimes necessary to represent it.

3. To act effectively, we need to know the context in which we act, expect something, and pay attention to anything other than what we expect. These are all representative dimensions.

Cognition According to Peirce: A Dynamic Process of Inquiry

The interest in studies on cognition from a non-behavioural perspective has increased. The fundamentals that support the model for the development of thinking are theories about the functioning of the mind, the stimulation of the intellect, and the cognitive phenomena that accompany the mental act. Cognitive science integrates theories and research in areas and disciplines such as philosophy, psychology, linguistics, neuroscience, systems theory, human development, information processing,

computing, and artificial intelligence, among others, that allow explaining the phenomenon of the functioning of the mind; they facilitate the understanding of certain transformation mechanisms that govern thinking and the construction of mental and processing models. Semiotics is incorporated into this set of perspectives to understand the phenomenon of the mind from different approaches associated with the dynamic characteristic of *semiosis* (meaning-making).

According to Paolucci (2021, p. 1) "Cognitive semiotics has to deal with the way in which semio-linguistic reflection on signs, meaning and languages is able to make more intelligible the way in which we come to know the world through action and sense-making". In this order of ideas, Umberto Eco (1997 quoted in Paolucci, 2021) highlights the fact that, technically, Charles Sanders Peirce's semiotic theory is 'cognitive semiotics', because Peirce states that (CP 5.823) "whenever we think, we have present to the consciousness some feeling, image, conception, or other representation, which serves as a sign". This is very clear even at the early stage of Peirce's JSP series (the anti-Cartesian documents reviewed above), in which he states and demonstrates that (1) we cannot think without signs, and (2) every sign is connected to other signs.

Peirce conceives of cognition as a dynamic process of inquiry, driven by doubt and oriented towards the fixation of belief. This process involves three types of inference possible: abduction, deduction, and induction. Abduction, for Peirce, is the process of formulating explanatory hypotheses, the only logical operation that introduces new ideas. In "Deduction, Induction, and Hypothesis" (1878), he writes:

> "Abduction is the process of forming an explanatory hypothesis. It is the only logical operation which introduces any new idea." (CP 5.171)

Deduction is responsible for deriving logical consequences from hypotheses, while induction relies on experience to confirm or refute hypotheses. These three types of inference interact in a continuous process of inquiry, which guides the development of knowledge.

Cognition and meaning-making

Peirce's perspective drives us to reflect on the pragmatic view of cognition as a main process and resource to interact in daily life based on meaning-making. On the one hand, Konderak (2018, p.11) states that in the context of cognitive semiotics, the term meaning could be studied on four levels: life, consciousness, signs, and language. On the other hand, meaning-making refers to the phenomenon of an individual making sense of environmental factors, experiencing the world, involving emotions, recording the experience of an interaction, and its experience in the Lifeworld becoming meaningful. That meaningful Lifeworld is the basis of behavior and decision-making. Considering intentionality as the starting point for mind meaning-making, Konderak (2018) offers a set of operations: perception, remembering, imagination and anticipation, significative intentions, pictorial intentions, indicatory intentions, and categorical intentions.

Mendoza-Collazos and Zlatev (2022) consider meaning-making synonymous with semiosis and explain that cognitive semiotics is not a particular theory but a new science dedicated to studying meaning by combining methods and concepts from semiotics, cognitive science, and linguistics helped by phenomenology. In other words, cognitive semiotics is oriented toward understanding the dynamic phenomenon of semiosis. The authors agree with Konderak (2018) that the meaning-making phenomenon is linked with intentionality. They explain that semiosis implies three layers of intentionality in which dialectics of free activity and normativity are implicated:

(i) The first layer: the animate and sensing body itself –as an anonymous system of functions- is present for driving and operating intentionality.

(ii) The second layer: is focused on perceptual intentionality, which implies explicit and thematic consciousness a goal-directed attention.

(iii) A Third layer: intersubjectivity, oriented to shared intentionality considering joint objects of attention and goals.

This symbolic intentionality is possible using highly articulated semiotic systems such as spoken, signed, written, and polysemiotic media (mediations). Visual communication design works with the three layers and can accomplish its function through the resources that allow intersubjectivity in the articulated semiotic systems. In a phrase of Terry Brooks we could say: «The future is an evershifting maze of possibilities until it becomes the present» (Expandetumente, 2022). The famous phrase enunciated by Terry Brooks is a very semiotic metaphor around the idea of life as a labyrinth. Following the coenopitagoric categories by Peirce (1839-1914: CP 8.328–331) -firstness, secondness, and thirdness- from which any phenomenon could be explained, future is the world of possibilities (firstness), the present is the time of current action and reaction (secondness) and the resultant is learning and the instauration or reinforcement of laws of thinking (thirdness). The future is uncertain; each decision implies a consequence, and human beings have to deal with their reality.

Charles Sanders Peirce revolutionised philosophy by challenging the foundations of Cartesianism. His fallibilism, his emphasis on the community of inquiry, his rejection of intuition, and his holistic view of the mind-matter relationship laid the groundwork for a new way of understanding knowledge and cognition. In one of his most forceful statements on fallibility, Peirce writes on this:

> "We cannot in any way reach perfect certitude nor exactitude. We can never be absolutely sure of anything." (CP 1.141)

Peirce's ideas have had a profound influence on the development of philosophy and science in the 20th and 21st centuries. His emphasis on the fallibility of knowledge has been fundamental to the development of contemporary philosophy of science, while his vision of the community of inquiry has inspired new models of scientific collaboration and education. His holistic approach to the mind-matter relationship has had a significant impact on neuroscience and philosophy of mind, opening new avenues for understanding consciousness and thought.

Peirce and Enactivism: A Convergent Vision of Cognition

The idea that every thought is a sign and the recognition of the impossibility of thinking without them offers a basis for understanding why the studies on cognition are intrinsically related to phenomenological-pragmatic semiotics (Paolucci, 2021). Paolucci (2021) states that the classic idea of signs connected with common sense needs to be re-signified to think of signs as a semiotic system because this order of ideas matches the activist tradition of cognition sciences. On the other hand, the sign as a semiotic system is the basis of the linguistics revolution.

According to Paolucci (2021), Umberto Eco presents two different perspectives about what a semiotic system is. First, a semiotic system is a cultural system; it is socially conventionalised for offering the possibility of generalising sign functions and thinking in a general semiotic theory of culture. The second one is, the idea of a semiotic system as a system able to lie, offering the possibility to think in a theory of the lie. It does not mean the intention to produce a semiotic system *per se* is lying, but the system allows the possibility. From this perspective, cognition “Is a form of effective action, and, for

action to be effective, it is necessary to know how to construct significant surfaces that can be used in order to lie" (Paolucci, 2021, p.6).

In a similar way, the second perspective of Eco presents three principles of cognitive semiotics (Paolucci, 2021, p.6):

- Radical Enactivism [meaning is not thought as content representing the world as being a certain way]
- Pragmatism [meaning is identified with habits and with sense-making]
- Material Engagement Theory [Extended mind / enactive signs /material agency].

If we take as a reference the second angle, the signs we produce or think about do not necessarily represent the world as it is -which is not 100% possible because there is a perception process between the human interaction with the world and the idea or representation that is created from it- but the human mind generates, feds and enriches rather personalised versions of it. In addition, intentionality exists as a resource to create possible scenarios (not necessarily true) to be able to interact with the world effectively. This also requires a human ability to negotiate meanings to communicate and live in a community.

While Peirce's work predates the emergence of enactivism as a distinct approach to cognition, there are striking parallels between his ideas and the core tenets of enactivist thought. Enactivism, a contemporary movement in cognitive science and philosophy of mind, so emphasises the embodied, embedded, and enacted nature of cognition, arguing that cognition arises from the dynamic interaction between an organism and its environment. This view challenges traditional (exclusively) representationalist interpretations of the mind, which often posit a separation between mind and world, and offers a more holistic and dynamic understanding of cognitive processes.

Peirce's philosophy, with its capacity to account for the continuity of mind and matter, the importance of action and experience, and the role of the community in shaping inquiry, resonates deeply with enactivist principles. As Di Paolo, De Jaegher, and Gallagher (2018) argue, enactivism views cognition as "the exercise of skillful know-how in situated and embodied action" (p. 7). This emphasis on action, embodiment, and situatedness aligns closely with Peirce's pragmatic understanding of cognition as a process of inquiry driven by the need to resolve doubt and engage with the world. Let us review some key points of convergence between Peirce's thought and enactivism, illustrated with quotations from key enactivist thinkers:

1. Embodied Cognition:

Peirce rejected the Cartesian dualism that separates mind and body, arguing instead for a continuity between the mental and the physical. He saw the body as an integral part of the cognitive process, delineating the role of action and perception in shaping our understanding of the world. "The body is the first and most intimate instrument of the mind." (CP 7.560) Varela, Thompson, and Rosch (1991), in their seminal work *The Embodied Mind*, argue that "cognition depends upon the kinds of experience that come from having a body with various sensorimotor capacities" (p. 173). This highlights the crucial role of bodily experience in shaping our cognitive processes, a view that resonates with Peirce's affirmative take on the continuity of mind and body.

2. Embedded Cognition:

Peirce recognised the importance of the environment in shaping cognitive processes. He saw inquiry as a process of interaction between the organism and its surroundings, powered and facilitated by the role of signs in mediating this interaction."All thought is in signs." (CP 5.251)

For its part, Enactivism similarly highlights the embedded nature of cognition, arguing that cognitive processes are not isolated within the brain but are deeply intertwined with the environment and the social context in which they occur. As Di Paolo, De Jaegher, and Gallagher (2018) state, "cognition is not something that happens inside us but is something we do in interaction with the world around us" (p. 8).

3. Enacted Cognition:

Peirce stated the importance of action and experience in shaping (and rendering possible) knowledge (as cognition). He saw inquiry as an active process of experimentation and exploration, driven by the "irritation of doubt" and the desire to attain a state of belief. Peirce tells us: "The action of thought is excited by the irritation of doubt, and ceases when belief is attained." (CP 5.374)

Enactivism similarly stresses the enacted nature of cognition, arguing that cognition is not a passive process of representation but an active process of engagement with the world. Varela, Thompson, and Rosch (1991) declare that "cognition is not the representation of a pre-given world by a pre-given mind but is rather the enactment of a world and a mind on the basis of a history of the variety of actions that a being in the world performs" (p. 9). Perhaps Peirce's enactivism should be further qualified in order to highlight the relevance of self-controlled habits of inquiry that pragmatism stresses. In this sense, Patricia Fanaya's (2021) article in *Synthese* explores the fruitful intersection of autopoietic

enactivism and Peircean thought, demonstrating how Peirce's pragmatism and semiotics can enrich our understanding of embodied cognition. Fanaya (2021) explores the potential intersections between Peirce's semiotics and enactivist thought, highlighting how Peirce's triadic model of the sign, his concept of habit, and his emphasis on the external sign might offer valuable perspectives on certain debates within enactivism, particularly regarding the relationship between action, representation, and the environment. Fanaya suggests that Peirce's semiotics could provide a framework for understanding the interconnectedness of the organism and its world. However, it is crucial to acknowledge that the issue of representation remains a significant point of divergence. While Peirce's semiotics inherently involves representation, radical enactivists reject it. Therefore, while Peirce's ideas may illuminate some aspects of enactivist discussions, particularly regarding the role of action and experience, the fundamental difference concerning representation must be carefully considered. As Fanaya notes, "Peirce's semiotics offers a way to bridge the gap between the internal and external aspects of cognition, highlighting the interconnectedness of the organism and its world." (Fanaya, 2021, p. 123)

Thus, Fanaya (2021) offers a valuable exploration of the potential intersections between Peirce's semiotics and enactivist thought, demonstrating how Peirce's triadic model of the sign, his concept of habit, and his emphasis on the external sign can illuminate key debates within enactivism, particularly concerning the relationship between action, representation, and the environment. Fanaya rightly points out the ways in which Peirce's semiotics can shed light on the interconnectedness of the organism and its world. While Peirce's semiotics inherently involve representation, radical enactivists, as she notes, reject it. Therefore, while Peirce's ideas may illuminate some aspects of enactivist discussions, particularly regarding the role of action and experience, the fundamental difference concerning representation must be carefully considered. In light of Fanaya's analysis, it is more accurate to say that

Peirce's work prefigures certain ideas explored within autopoietic enactivism, rather than claiming a full alignment. This allows us to appreciate the nuanced contributions of Peirce's thought to our understanding of the dynamic interplay between mind, body, and world, while respecting the crucial distinctions that Fanaya has highlighted.

4. The Role of the Community:

From a social cognition perspective, Friske and Taylor (2017, p. 20) remind us that “people are not things”, stating the importance of considering human minds orient their cognitive operations in different ways to think about objects and interpret people's behaviours. The authors remark on some of the important differences between people and things as targets of perception but also as agents of the meaning processes. To know: a) people intentionally influence the environment and try to control it according to their intentions; b) they have the capacity to perceive back, creating mental images or impressions of themselves in relation to others, which means social cognition. The individuals are conscious that they are self-implicated, people inferences emerge in each interaction with the environment, and animated or inanimate objects include other individuals. The human experience is, of course, complex (Friske & Taylor (2017).

Peirce recognised the importance of the community in shaping inquiry and knowledge. He saw the "community of inquiry" as essential for the growth and development of knowledge, stating the role of dialogue, critique, and collaboration in the pursuit of truth, we are better off to account for reality as a fallibilist community, he defines reality in these words:

> "The real, then, is that which, sooner or later, information and reasoning would finally result in, and which is therefore independent of the vagaries of me and you." (CP 5.407)

Enactivism also acknowledges the social and cultural dimensions of cognition. Our cognitive abilities are shaped by our interactions with others, our participation in shared practices, and our immersion in a cultural context. Shaun Gallagher (2017), in *Enactivist Interventions*, argues that "social interaction is not just a matter of two (or more) individuals with minds interacting, but involves the co-creation of meaning and understanding through shared activity" (p. 135).

Peirce's Inferentialism and Enactivism

Peirce's inferentialism, his view that all cognition is a form of inference, provides a further point of connection with enactivism. Peirce argued that even perception involves an inferential process, where we actively interpret sensory data based on our existing beliefs and expectations. This aligns with the enactivist emphasis on the active and embodied nature of perception, where our bodily interactions with the world shape our perceptual experiences. Following Beer (2000, p. 97 quoted in Paolucci, 2021, p.7), the fundamental task of cognition is “accurately representing an environment to continuously engaging that environment with a body so as to stabilize appropriate coordinated patterns of behavior.” Very often, more than representing the world, cognition has to bring forth the world through meaning, and meanings are not representations of the world, but habits and sense-making activities.

Furthermore, Peirce's pragmatic maxim, which states that the meaning of a concept lies in its conceivable practical consequences, can be seen as a form of "enacted cognition." The maxim emphasises the importance of action and experience in shaping our understanding of the world through future-oriented experience. It suggests that our concepts are not merely abstract representations but are tools for guiding our actions and interactions with the environment. This is compatible with the enactivist

view that cognition is not simply about representing the world but about enacting a world of meaning through our embodied actions.

The convergences between Peirce's semiotic proposal and enactivism, particularly developed by Varela, Thompson, and Rosch, are multifaceted. Among them, we can mention that Peirce holds the idea that signs do not exist in a vacuum; they acquire meaning through experience, interaction, and situated interpretation, being dynamic. On the other hand, enactivism considers cognition as an active process of interaction with the environment. Here, the main coincidence is the action as a fundamental factor for cognitive activity and the individual's interaction with their environment.

Peirce states the dynamism of the sign, not as something fixed but as the result of a continuous process of semiosis capable of connecting with another sign in potentially infinite chains of interpretation. For its part, enactivism agrees with the idea of an emergent sign that depends on context and action, and through cognition, the sign takes on meaning in the person's interaction with the environment. In both cases, the interpreter is an active agent, and the cognitive process is a process of "enaction" in which contexts and circumstances are fundamental for interpretation and interaction. However, we can also notice nuances and differences between both perspectives, particularly regarding the concept of representation.

While Peirce's work predates the formal development of enactivism, his insights into the embodied, embedded, and enacted nature of cognition resonate deeply with this contemporary approach. By integrating Peirce's ideas with enactivist principles, we can develop a richer and more nuanced understanding of cognitive processes, recognising the dynamic interplay between the mind, the body, and the environment. This convergence of perspectives offers a promising avenue for future research in cognitive science and philosophy of mind. It is crucial to acknowledge, however, a significant

point of divergence between Peirce's semiotics and radical enactivist thought, particularly as articulated by Hutto and Myin (2017). While Peirce's framework inherently relies on representation through signs, radical enactivism explicitly rejects the notion that cognition functions by representing a pre-given world (Pantsar 2023, 57). The issue of representation remains a significant point of contention. While Peirce's account of process and action aligns with enactivist themes, his semiotic framework, which inherently involves both representation and inference, distinguishes him from radical enactivists. Therefore, while Peirce's ideas anticipate certain aspects of enactivism, especially in his emphasis on action and experience, this critical distinction regarding representation must be carefully considered. It would be an overstatement to say that Peirce's enactivism is autopoietic, a claim that Fanaya (2021) makes and we considered above. Instead, it is more accurate to say that Peirce's work prefigures some of the ideas that autopoetic enactivism explores. Indeed, In Peirce's case, there is a significant emphasis on the sign in action for generating inferences, while enactivism focuses on action and interaction as the starting point for understanding cognition. For Peirce (and the pragmatic tradition), interpretation is possible thanks to the action of signs in terms of triadic relation. As for enactivism, the importance of something making sense in a way that is not reducible to representation is prominent. A settled belief then it is radically questioned indeed. In this particular aspect, there are mediating perspectives that advocate for being careful to avoid polarisation between both perspectives (Fanaya 2021). Finally, the triadic model for approaching the understanding of phenomena that Peirce proposes schematically and practically is not intentionally reflected in enactivist approaches, which prioritise the concept of co-emergence of mind and world through interaction and embodiment to make sense.

Conclusion

This article has delineated Charles Sanders Peirce's radical departure from Cartesian epistemological foundations, revealing the prescient nature of his cognitive framework. By contesting Cartesian foundationalism and dualism, Peirce articulated a fallibilist, communitarian, and embodied account of cognition. We have analysed his conception of cognition as a dynamic, inferential process, driven by doubt and directed towards belief fixation, and traced its influence upon the development of cognitive semiotics. While Peirce's epistemology of signs and inferential processes anticipates certain enactivist themes—specifically, embodied and situated cognition—a crucial divergence persists: Peirce's commitment to representation via his theory of signs (in which a part of the relation is the *representamen*) stands in contrast to radical enactivism's rejection thereof. Notwithstanding this discrepancy, Peirce's emphasis on action, experiential grounding, and communal inquiry illuminates the dynamic interplay between mind, body, and environment. Consequently, Peirce's work offers a valuable conceptual resource for future investigations within cognitive science and the philosophy of mind.

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