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DOSSIÊ PEIRCE E A LÓGICA / *DOSSIER PEIRCE AND LOGICS*

Presentation

This number of the journal *Cognitio* is dedicated to Charles S. Peirce's logic. In its broadest sense, logic is understood by Peirce as semiotics, "the doctrine of the essential nature and fundamental varieties of possible semiotics; and I find the field too vast, the labor too great, for a first-comer" (EP II, 413). Even in its narrowest sense, taken as a study of the validity of deductive inferences and its components, logic is still too vast. In the middle between these two limits (between generality and particularity) lies a huge variety of continuous topics on logic. The articles collected in this number are precisely samples of that variety and this is the reason why the reader can find here articles that, for instance, are not only dealing with the distinction between collective and general signs, but also with three-valued logic or modal logic.

Maybe we should have better said that this issue is about Peirce and logic, due to the fact that one important feature in all the articles here included is that they made an incursion into new territories of logic. This is important for as Peirce said of himself he was "a pioneer, or rather, a backwoodsman, in the work of clearing and opening up" the field of semiotic (*id*.) Hence, these articles are genuine inquiries into their fields, trying to push the borders of science beyond the limits of what they found. Their authors are not historians trying to discover what Peirce said on a specific topic of logic, but they found the limits of Peirce's studies and are trying to continue his pioneering work.

In the paper "Collective signs and generality in the trichotomy of the dynamic object in Charles S. Peirce's semiotics", the authors Priscila Borges and Juliana Rocha Franco clarify the meaning of collective signs in Peirce's semiotics. This adds an important understanding of how Peirce thought of logic as semiotics, as well as to the interdisciplinary nature of his research. According to Peirce, generality has a distributive character, that is, the character of a law that can be applied to anything that may exist in a class, without asserting whether there is anything or what that thing is, but providing a description of how the individuals of that class should be selected (EP 2:284, 1903). In his descriptions of the ten trichotomies, the terms 'collective' and 'distributive' are commonly used by Peirce to describe the mode of being of thirdness, i.e., that of generality. The article also presents the relationship between the term 'collective' and the notion of continuity that culminates in the distinction between finite and enumerable collections and infinite and innumerable collections, suggesting that the notion of collective in the dynamic object has the meaning of an infinite and innumerable collection, associating the notion of dynamic object with the notion of continuum.

The next two articles confirm the value of Peirce's logic for contemporary research. In "Three-valued logic and paraconsistency in Peirce", José Renato Salatiel explores Peirce's pioneering work on three-valued propositional calculus. Peirce's role in the development of what is usually called modern or contemporary mathematical logic is nowadays well established. The article focuses then on one of the least known aspects of Peirce's pioneering work, his "triadic logic", in his own words. Starting from a critical reading of the formalization devised by Turquette (1969), the author advances a reconstruction of Peirce's fragments on three-valued logic, suggesting in the end that Peirce's three-valued matrix induces a paraconsistent, relevant, and substructural logic with investigative potential for contemporary research in non-classical logics.

The next article, "Peirce and the Liar's logic", by Ivan Ferreira da Cunha, Ederson Safra Melo and Jonas Rafael Becker Arenhart, compare distinct interpretations by Peirce of the Liar's Paradox, one of the most representative problems in the history of logic. Peirce's first interpretation of the paradox, from 1865, is compared to his later attempts to solve the paradox. The authors identify two clear analyses by Peirce of the paradox. The authors claim the early one, from 1865, can be taken as a logico-semantic dialetheist analysis *avant-la-lettre*, since it asserts there are true contradictions. From 1868 on, Peirce came to revise his claims and came to adopt a more conservative position on the problem, denying truth to contradictions. Nonetheless, the authors insightfully link Peirce's revision of his own position to his theory of inquiry and truth. This allows for a less traditional reading of Peirce's more conservative withdrawal from his initial position, since dialetheism and paraconsistent logics were not available for Peirce in the 19th century.

The last three articles in this issue deal with one aspect of Peirce's logic that has been of utmost interest in recent years – his diagrammatic logic. Julio Horta's article, "Scientific models: transcendental conditions of Peirce's diagrammatical thought", analyzes the transcendental conditions that allow for the characterization of a scientific model as a "diagram". The article correctly links Peirce's notion of diagram to Kant's schema through the semiotic character of iconicity, arguing that the validity of knowledge rests not on the empirical verification of theoretical propositions and beliefs, but on the critique of meaning that considers intersubjective consensus as a necessary condition for the validity of knowledge. In this sense, diagrams display a constructivist logic where the relationships that configure the object of reference emerge because of the intersubjective process of successive interpretations.

Jon Alan Schmidt's article, "Peirce and modal logic: delta existential graphs and Pragmaticism", shows how Peirce's unfinished Delta system of graphs anticipates key notions of modal logic. The article makes use of Peirce's manuscripts to show that although Peirce did not develop exactly what he had in mind, nonetheless his delta system is far from merely arbitrary. Actually, Peirce developed this system only in a very fragmentary form, but the paper offers an interpretation of the "heavy line" of the system for compossibility and identifies in Peirce's modal logic the notions of strict implication and the idea of law implicit in Peirce's pragmatism.

The last article is "Topos of Existential Graphs over Riemann Surfaces", by Angie Paola Hugueth Vásquez. The article is a proposal with the aim of extending Peirce's Method of Existential Graphs to manifolds, in particular to Riemann surfaces. It is another excellent attempt to continue the groundbreaking work initiated by Peirce. The gist of the argument is a proposed method to determine a certain topos, T, which should broaden the scope of Peirce's Existential Graphs, allowing the study of a variety of logics beyond the classically known and discussed ones, which could arise through the proposed method. The article could contribute to expanding the horizons in relation to Peirce's method of Existential Graphs. The article shows how much of a considerable amount of work is yet to be done based on Peirce's logic.

A final word needs to be said. For a long time, Peirce's place in the history of logic was neglected and diminished. From the late 20th Century on, a new understanding began to emerge. Peirce's work on logic came to be seen as an important forerunner of many discoveries and theories of contemporary logic, but with little, if any, effective contribution to the historical development of the discipline. This is utterly mistaken. Suffice it to evoke the testimony of A. Tarski (1941, p. 12 n. 2) to attest Peirce's importance in the history of logic. Nowadays, there are several works that raise questions about the hegemonic narration about the development of "modern"logic that erases or diminishes Peirce'' importance (see Anellis 2015). In the Latin American context, the pioneering works by Fernando Zalamea (1993) and Mauricio Beuchot (1993, from a historical point of view) are important, as well as Arnold Oostra''s (e.g. 2004 and 2008) systematic research on mathematical logic. So, it is impossible to sustain the same old and mistaken position.

Historical deference to Peirce is really significant, but this special issue's main aim is not repairing bad historiography. In fact, by calling Peirce's logic in attention our hope among other things is to

encourage a broader view of the history of logic, which we believe has much to gain in being more inclusive of different figures and traditions. In this respect, Peirce's work is exemplary for several reasons. First of all, Peirce was one of the first historians of logic in the 19th century; second, when he was able to teach, Peirce's students developed innovative researches, as did Christine Ladd-Franklin (1847-1930), the first woman to receive a Ph.D. in logic and mathematics in the USA (her dissertation was published in 1883, but Johns Hopkins did not award her with a ph.d until 1926, because she was a woman); and, third, Peirce was himself a creative and prolific logician (and a good mathematician), having developed the discipline into new fields, as well known.

But Peirce's work, as the authors in this issue show, is more alive than ever, and should be known for its own sake, that is, for its inherent power to make us think now. May this issue contribute to show how much Peirce's logic can contribute to logic, not only its past history or its future, but above all to its present, without which none of the former can subsist.

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Editores invitados

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