

A PEIRCEAN ACCOUNT OF 'INFORMATION' AND ITS CRITICAL APPRAISAL FROM THE PERSPECTIVE OF INFORMATION THEORY

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In a research project intended to apply central notions of Peirce's semiotics to the understanding of what is genetic information, El-Hani, Queiroz, and Emmeche developed a Peircean account of what is 'information'. We adopted in that work a methodology in which we aimed, first, at conceptualizing 'information' inside Peirce's theory of Signs. In the current paper, we move, then, to a second step, in which we intend to critically appraise the Peircean account of information we developed from the standpoint of information theory. Peirce defined the action of a Sign, *semiosis*, as an irreducible triadic relation between Sign-Object-Interpretant (S-O-I) (EP 2.171, CP 2.274). He defined 'information' at least ordinarily (CP 2.418), metaphysically (CP 2.418), as a connection between form and matter, and logically (W 1.276), as the product of extension and intension of a concept. In our work, we systematically refer to *information* as the transmission of a *form* from O to I through S, i.e., as the transference of a habit embodied in the Object to the Interpretant, so as to constrain the interpreter's behavior. Peirce conceived of the function of the Sign as that of conveying a form: "... a Sign may be defined as a Medium for the communication of a Form. [...]. As a medium, the Sign is essentially in a triadic relation, to its Object which determines it, and to its Interpretant which it determines. [...]. That which is communicated from the Object through the Sign to the Interpretant is a Form [...]" (EP2, p. 544, n.22). Information is thus conceived in a non-substantive, processual way, as a constraining factor of possible patterns of interpretative behavior. According to a semiotically-based approach (*sensu* Peirce), information can be defined as an *interpreter-dependent objective* process. A framework for thinking about information as a process can be built in Peircean terms by taking as a starting-point the following definition: [Information = semiosis] A triadic-dependent process through which a form embodied in the Object in a regular way is transmitted to an Interpretant through the mediation of a Sign. To critically appraise these ideas from the perspective of information theory, we will argue, first, that information theory comes in at least two forms, given the differences between the cultures of science and technology, on the one hand, and the humanities (and arts) on the other. The first approach tends to be methodologically reductionist. Computer science is the template for the concept of information from the scientific and technological perspective. According to it, information is a something that can be handled, that is, received and processed, as in a cognitive respect, transmitted, as in a communicative respect, and stored and retrieved, as in a co-operative respect. Put to the extremes, information is like a material object itself. It is something objective that can be measured. The second approach takes as its point of departure the position of the humanities and projects the particular quality in question, which, as a rule, is the most complex one, onto phenomena which do not possess this quality and then pretends to discover it there or it is argued that the natural and social phenomena concerned are not comparable. Such one-sided approaches cannot satisfy a truly integrative information science or Peirce's intentions. The approach we want to put forward in this paper will consider properly related objective and subjective aspects of information.