Naturalizing semiotics: The triadic sign of Charles Sanders Peirce as a systems property - DTU Orbit (08/11/2017)

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The father of pragmatism, Charles Sanders Peirce, gave in 1903 the following definition of a sign: "*A Sign, or Representamen, is a First which stands in such a genuine triadic relation to a Second, called its Object, as to be capable of determining a Third, called its Interpretant, to assume the same triadic relation to its Object in which it stands itself to the same Object. The triadic relation is genuine, that is its three members are bound together by it in a way that does not consist in any complexus of dyadic relations*". Despite its cult status and its pragmatic foundation, the Peircean sign has never revealed its true potential by being integrated into a formal system. In the present report, a reconstruction of the sign model is presented, which may at first appear somewhat obvious and superficial. However by use of the reconstructed model, the above statement and the majority of Peirce's other statements about the nature of signs fall into place. Instead of defining three links between Object (O), Representamen (R), and Interpretant (I), the sign is described as having a single three-dimensional link, specifying its location in a three dimensional (O,R,I) linkage space. To understand and explain sign function, the process of sign utilization (semiosis) has to be divided into two temporally separated phases, a sign-establishment phase where a three-dimensional link (Ψ(O,R,I)) is formed between three sign elements, and a later sign-interpretation phase where the established linkage is used for inferring significance to a novel phenomenon, if this satisfies the criteria for being a Representamen for the sign. Numerous statements from Peirce indicate that he used a two-staged semiosis paradigm although he did not state that explicitly.The three-dimensional model was primarily constructed for use in biosemiotics, as an exploratory frame for mapping the evolutionary establishment of sign links, which logically must have preceded the fixation of any regulatory process in molecular biological systems. It became clear, however, that the model is able to clarify many of the difficult explanations offered by Peirce about his sign model. I make no claim that Peirce used a similar type of three-dimensional model, because he explicitly used the chemical atom as naturalization (natural scientific explanation) for his sign model, an interesting but problematic analogy. In order to discuss common versus specific semiotic scaffolds for molecular biosemiotics, biosemiotics and semiotics proper, I start with a generic definition of the three-dimensional sign system, using human semiosis as examples. After this, the major part of the paper, I define the specific biochemical and evolutionary scaffolds that is used for obtaining the evolutionary memory that is needed for sign establishment.To exemplify semiosis according to the present model I present a typical situation where a Representamen (R_E) and an object (O_E) in the establishment phase are frequently encountered together by a sign interpreter. The process that links specific Representamens to specific Objects will first involve the recognition of the specific traits that distinguish the two sign elements. Subsequently the establishment process leads to the creation of a specific systems-state, called the Interpretant, which links the two traits in a way that allows retrieval of the information (a memory function). During a later interpretation phase, a hypothetical Object will be inferred by the interpreter when a Representamen (R_I) harboring the required characteristics is encountered. This inference happens through a memory retrieval process, irrespective of the fact that relevant Objects of the sign may never be encountered after establishment. A simplified scheme for computer neural network algorithms is introduced as an example of such a system. Since the Peircean sign according to this definition is a systems property, there can be no sign without a sign interpreting systems or without some kind of memory function. A sign interpreter will thus harbor a semiotic scaffold that consists of at least an input sensor and an interpreting system coupled to a memory function. Further border conditions for semiotic scaffolds will be introduced. Peirce published a comprehensive sign definition system, but he allowed only ten sign classes, selected from the twenty-seven sign classes that result from his three main subdivisions, each containing three classes. His allowed sign classes are here identified as those which do not infer more significance during interpretation than was warranted during establishment. The excluded sign classes are either undefinable in his system or are of such a nature that the objects during interpretation are inferred to be much more significant than what was warranted during establishment. Occult signs are of these forbidden free-wheeling types, and it is postulated that they were omitted because Peirce defined his sign classes for use in a novel sign based logical system, where such over-signification would be detrimental.

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