Some Considerations on Artificial Semiosis

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ABSTRACT

Meaning is a central problem in intelligent systems design. Most approaches in literature still adopt a strict symbolic definition of meaning, which usually results in deficiencies such as the symbol grounding problem. The objective of this research is to come up with a computational model of the emergence of meaning in autonomous agents based on the pragmatic notion of sign as defined by Charles Sanders Peirce.

Peirce's theory of sign provides a more comprehensive theoretical framework to deal with the problem of meaning, when compared with purely symbolic (dyadic) approaches as those in classical artificial intelligence. His notion of sign (an entity that signifies) does not suffer from the problem of the lack of reference (symbol grounding problem) because it is firmly based on a triadic relation between Sign, Object and Interpretant.

In this paper, we present some considerations regarding an artificial implementation of a process of semiosis, equipped with the ability to process icons, indexes and symbols. We investigate the main theoretical constraints required for a system to be able to process signs of each of these types. The whole process of artificial semiosis is described as an emergent process of interaction among semiotic agents.