A Praxical Solution of the Symbol Grounding Problem

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Abstract

This article is the second step in our research into the Symbol Grounding Problem (SGP). In a previous work, we defined the main condition that must be satisfied by any strategy in order to provide a valid solution to the SGP, namely the zero semantic commitment condition (Z condition). We then showed that all the main strategies proposed so far fail to satisfy the Z condition, although they provide several important lessons to be followed by any new proposal. Here, we develop a new solution of the SGP. It is called praxical in order to stress the key role played by the interactions between the agents and their environment. It is based on a new theory of meaning – Action-based Semantics (AbS) – and on a new kind of artificial agents, called twomachine artificial agents (AM²). Thanks to their architecture, AM2s implement AbS, and this allows them to ground their symbols semantically and to develop some fairly advanced semantic abilities, including the development of semantically grounded communication and the elaboration of representations, while still respecting the Z condition.

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