Uno R. [(1)], Marocco D. [(2)], Nolfi S. [(3)] & Ikegami T. [(4)] (2011). Emergence of proto-sentences in artificial communicating systems. *IEEE Transactions on Autonomous Mental Development*, 99.

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Abstract

This paper investigates the relationship between embodied interaction and symbolic communication. We report about an experiment in which simulated autonomous robotic agents, whose control systems were evolved through an artificial evolutionary process, use abstract communication signals to coordinate their behavior in a context independent way. This use of signals includes some fundamental aspects of sentences in natural languages which are discussed by using the concept of joint attention in relation to the grammatical structure of sentences.