

# INFLUENCE OF EMBODIMENT ON EMERGENCE OF SUBJECTIVE DATA MODELS IN EVOLUTIONARY AGENTS

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**Abstract:** *We investigated the elementary properties the embodied system should have to be able to spontaneously build and evolve subjective and functional representation of the environment. We show that embodied integration of perception with bodily actions can emerge from a rather simple basic setting of (i) existence of a set of bodily actions and (ii) ability to randomly chose actions and execute them with variable probabilities. In simulations, agents were able to successfully discriminate between beneficial and harmful external objects. Even more interestingly, agents who evolve in the mixed environment, with both food and poison, became much more efficient and lived longer compared to agents that reside in the environment without harmful influences. Finally, we shortly elaborated on possible application in medicine.*

**Keywords:** *Agent-based modeling, environment, interface, embodiment.*