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Abstract

Classical models of the emergence of compositionality in communication focused on the compositional nature of the environment (Cangelosi, 2001; Cornish et al., 2008). Here we advance a model in which compositional structure emerges from integrating environments properties with agents actions. We take as a starting point Cangelosis (2001) model, where a population of agents searched for edible mushrooms. Given opportunity to communicate, they evolved a system in which combinations of signs were sensorily grounded in combinations of mushroom properties. We modify this model by grounding the communication also in agents' actions. With this, we are able to evolve communication systems containing meaningful compositions of mushroom properties and agent actions. We investigate how such compositions can facilitate a) learning the communication protocol, b) learning the adequate behavior policy. This kind of sensory-motor compositionality seems better suited for coordinating navigation in dynamic environments.