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# Applying the pragmatics-first approach to agent-based models of emergent communication – insights from a study in experimental semiotics

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## Abstract

Recent theoretical shift in the discussion on the evolutionary origins of human communication points towards cognitive pragmatics as a foundation of open-endedness of our expression (Heintz & Scott-Phillips 2022). This perspective, however, has not been acknowledged yet within computational modeling of language emergence, which suffers from a lack of flexibility and generalization. We present the results from our experimental semiotics study inspired by an agent-based model (Mordatch & Abbeel 2018). Replicating conditions from a multi-agent simulation in the real world with human participants allowed us to: a) disclose commonly shared model assumptions that are potentially harmful and neglect the importance of social cognition and context; b) identify communication strategies that emerged among “human agents” and pragmatic behaviors that helped to establish them. Building on these results, we argue that the models of emergent communication could benefit from applying the pragmatics-first approach, sketching a direction towards more flexible and human-like communication.