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Proceedings of the Annual Meeting of the Cognitive Science Society

Title

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Permalink

<https://escholarship.org/uc/item/6kb4c429>

Journal

Proceedings of the Annual Meeting of the Cognitive Science Society, 45(45)

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Publication Date

2023

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Peer reviewed

The importance of communicative success for simulating the emergence of a Word Order/Case Marking trade-off with Neural Agents

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Abstract

Artificial learners often behave differently from human learners in the context of neural agent-based emergent communication (Rita et al., 2022). The lack of human-like cognitive biases is one of the prevailing explanations (Chaabouni et al., 2019). Besides that, it has been proposed that more naturalistic settings of language learning and use could lead to more human-like patterns of language emergence (Lazaridou and Baroni, 2022). In this work, we explore the latter account in the context of an emerging word-order/case-marking trade-off, inspired by human experiments (Fedzechkina et al., 2017). We expose agents to artificial languages in a supervised language learning protocol and combine this with a communication task. We replicate the emergence of a trade-off during the communication phase without the need to hard-code a specific cognitive bias. We see this as an essential step towards the investigation of language universals with neural agents.