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Authors

Le Pargneux, Arthur

Levine, Sydney

Tenenbaum, Joshua B.

et al.

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The trade-off between rule-based thinking and mutual benefit in tacit coordination

Arthur Le Pargneux

Harvard University, Cambridge, Massachusetts, United States

Sydney Levine

Massachusetts Institute of Technology, Cambridge, Massachusetts, United States

Joshua Tenenbaum

MIT, Cambridge, Massachusetts, United States

Fiery Cushman

Harvard University, Cambridge, Massachusetts, United States

Abstract

One way to solve a repeated coordination problem is to generalize from past solutions: acting based on precedent or relying on existing rules. An alternative way is to reason about what would be optimally mutually beneficial in the moment. We investigate the trade-off between backward-looking behavior based on precedent and forward-looking reasoning about mutual benefit in a novel real-time incentivized coordination game ($n = 252$; 22,680 choices; preregistered). Then, we develop a cognitive model based on virtual bargaining and Bayesian inverse joint-planning which combines two components: one based on precedent, and one based on mutual benefit. Our model captures participants' behavior in the task, performs better than alternatives, and reproduces key differences between conditions in simulations.