I Know You Know I'm Signaling: Novel gestures are designed to guide observers' inferences about communicative goals

Royka, A.; Schouwstra, M.; Kirby, S.; Jara-Ettinger, J.

Publication date
2021

Document Version
Final published version

Published in
43rd Annual Meeting of the Cognitive Science Society (CogSci 2021)

I Know You Know I'm Signaling: Novel gestures are designed to guide observers' inferences about communicative goals

Amanda Royka
Yale University, New Haven, Connecticut, United States

Marieke Schouwstra
University of Amsterdam, Amsterdam, Netherlands

Simon Kirby
The University of Edinburgh, Edinburgh, United Kingdom

Julian Jara-Ettinger
Yale University, New Haven, Connecticut, United States

Abstract

For a gesture to be successful, observers must recognize its communicative purpose. Are communicators sensitive to this problem and do they try to ease their observer's inferential burden? We propose that people shape their gestures to help observers easily infer that their movements are meant to communicate. Using computational models of recursive goal inference, we show that this hypothesis predicts that gestures ought to reveal that the movement is inconsistent with the space of non-communicative goals in the environment. In two gesture-design experiments, we find that people spontaneously shape communicative movements in response to the distribution of potential instrumental goals, ensuring that the movement can be easily differentiated from instrumental action. Our results show that people are sensitive to the inferential demands that observers face. As a result, people actively work to help ensure that the goal of their communicative movement is understood.