Reasoning in pedagogical versus deceptive situations

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Abstract: The majority of human learning occurs in social situations. In such situations, people may be cooperating or competing, and these different intentions may affect what kinds of information people exchange. Recently, Shafto and Goodman (2008) formalized a Bayesian model of reasoning in pedagogical situations – situations in which a knowledgeable teacher cooperates with a learner. This and other research suggests that individuals understand what information is more helpful and can use the knowledge of a person's intent to facilitate learning. We extend this model to apply to both the pedagogical and deceptive situations. We present a new experiment comparing reasoning in pedagogical and deceptive games. In the experiment, participants play the role of teacher/deceiver or learner/reasoner in a series of games. The results show that people converge to strategies predicted by the model, that people's behavior differs in pedagogical and deceptive conditions, and an analysis of individual games reveals interesting dynamics. We discuss the implications for models of learning in social situations.