

## **“If only” counterfactual thoughts in social dilemma games**

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### **Abstract**

Imagine you and another person must independently make a decision that pits your individual interests against your collective interest. Suppose you decide to cooperate but the other person decides not to and as a result you fail to obtain any reward while the other person maximizes theirs. How would you think about how things could have turned out differently “if only...”?

We report three experiments that examined how people think about how things could have turned out differently after they have made a decision in a social interaction. More specifically, we examined the counterfactual “if only...” thoughts that participants created after cooperative and uncooperative decisions in three well-known social dilemma games: the prisoner’s dilemma, the stag hunt, and the chicken game.

Typically, when people experience a bad outcome they tend to think, “if only I had made a different choice, I would have won” - they imagine how things could have been better rather than worse and create an alternative by changing an action within their control rather than outside their control (see Byrne, 2016 for a review). Such counterfactual thoughts may serve a preparatory role for future intentions by identifying what people could have done differently to avoid the bad outcome (e.g., Roese & Epstude, 2017). However, this preparatory function has been called into question by the observation of an *actor-reader effect* - when people read about someone failing to perform a task they focus on controllable actions, e.g., “if only she had made a different choice” whereas when they perform the task themselves they focus on things outside their control, e.g., “if only I had had more time” (e.g., Girotto et al., 2007; Pighin et al., 2011; Ferrante et al., 2013; Mercier et al., 2017).

The scope of our experiments was to examine how people think about how things could have turned out differently in the domain of social dilemmas with clear moral implications, in which the outcome depends not only on the participant's decision but also on another person's decision (rather than on attempts to solve a task). Our first aim was to examine whether people imagine alternatives to controllable actions when they read about other people's decisions to cooperate or not, but imagine alternatives to actions outside their control when they themselves make decisions to cooperate or not, i.e., whether there is an actor-reader effect. The second aim was to examine whether an actor-reader effect occurs not only when a decision leads to a bad outcome and people imagine how things could have been better, but also when it leads to a good outcome and people imagine how things could have been worse.

The participants in the three computer-based experiments were university students (N = 156, N = 152, and N = 243) who were tested individually. We compared the counterfactual thoughts produced by participants who read a story about a fictional protagonist who took part in a social dilemma game to those produced by participants who actually took part in the game against an unknown second player. When the outcome was bad, participants had to indicate how things could have been better and when it was good, how things could have been worst.

The results showed that people created different counterfactual thoughts when they read about a game that turned out badly for the protagonist compared to when they actually experienced one, independently of whether the most negative outcome followed a cooperative decision (as in Exp. 1 and 2) or a competitive one (as in Exp. 3). Most readers imagined an alternative to the protagonist's own decision within her control, e.g., "things would have turned out better if only she had decided not to cooperate..." (92% in Exp. 1, and 68% in Exp. 2, and 66% in Exp. 3), whereas most actors imagined an alternative to the other person's decision outside their control, e.g., "things would have turned out better if only the other person had decided to cooperate..." (71% in Exp. 1, 73% in Exp. 2, and 76% in Exp. 3). However, when things turned out well, most participants imagined an

alternative to the other person's decision outside their control, and they did so whether they read about the game or acted in it.

The implications of these results for theories of moral and social decision making as well as for theories of counterfactual thinking will be discussed.