



## Effects of parity, sympathy and reciprocity in increasing social welfare

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### Abstract

We are interested in understanding how socially desirable traits like sympathy, reciprocity, and fairness can survive in environments that include aggressive and exploitative agents. Social scientists have long theorized about ingrained motivational factors as explanations for departures from self-seeking behaviors by human subjects. Some of these factors, namely reciprocity, have also been studied extensively in the context of agent systems as tools for promoting cooperation and improving social welfare in stable societies. In this paper, we evaluate how other factors like sympathy and parity can be used by agents to seek out cooperation possibilities while avoiding exploitation traps in more dynamic societies. We evaluate the relative effectiveness of agents influenced by different social considerations when they can change who they interact with in their environment using both an experimental framework and a predictive analysis. Such rewiring of social networks not only allows possibly vulnerable agents to avoid exploitation but also allows them to form gainful coalitions to leverage mutually beneficial cooperation, thereby significantly increasing social welfare.

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