

Cooperation and Assortativity with Endogenous Partner Selection¹

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The natural tendency for humans to choose with whom to form new relationships and with whom to end established relationships is thought to facilitate the emergence of cooperation. Helping cooperators to mix assortatively is believed to reinforce the rewards accruing to mutual cooperation while simultaneously excluding defectors. However, the relationship between endogenous partner selection, assortativity, and cooperation has been largely unexplored experimentally. Here we report on a series of human subjects experiments in which groups of 24 participants played a multi-player prisoner's dilemma game where, critically, they were also allowed to propose and delete links to players of their own choosing at some variable rate. Over a wide variety of parameter settings and initial conditions, we found that endogenous partner selection significantly increased the level of cooperation, the average payoffs to players, and the assortativity between cooperators. Even relatively slow update rates were sufficient to produce large effects resulting in cooperation levels over 80%. Subsequent increases to the update rate still had a positive, although smaller, effect. For standard prisoner's dilemma payoffs, we also found that assortativity resulted predominantly from cooperators avoiding defectors, not by severing ties with defecting partners, and that cooperation correspondingly suffered. Finally, by modifying the payoffs to satisfy two novel conditions, we found that cooperators did punish defectors by severing ties, leading to levels of cooperation approaching 100% which persisted for longer.

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The full text for this paper can be found at:
http://sidsuri.com/Publications_files/wang_et_al_ec.pdf.

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