

2 Cooperation and the scale of competition in humans.

West SA, Gardner A, Shuker DM, Reynolds T, Burton-Chellow M, Sykes EM, Guinnee MA, Griffin AS
Curr Biol. 2006 Jun 6; 16(11):1103-6

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This is the first experimental test of the role of the scale of competition on the degree of cooperation in humans.

The authors developed a model and conducted experiments to determine whether nonrelated humans adjust their level of cooperation facultatively in response to the scale of competition when playing the prisoner's dilemma game.

The results reveal that cooperation is higher when competition occurs at a larger scale.

Disclosures

None declared

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Abstract:

ABSTRACT

Explaining cooperation is one of the greatest challenges for evolutionary biology. It is particularly a problem in species such as humans, where there is cooperation between nonrelatives. Numerous possible solutions have been suggested for the problem of cooperation between nonrelatives, including punishment, policing, and various forms of reciprocity. Here, we suggest that local competition for resources can pose a problem for these hypotheses, analogous to how it can select against cooperation between relatives. We extend the prisoner's dilemma (PD) game to show that local competition between interacting individuals can reduce selection for cooperation between nonrelatives. This is because, with local competition, fitness is relative to social partners, and cooperation benefits social partners. We then test whether nonrelated humans adjust their level of cooperation facultatively in response to the scale of competition when playing the PD for cash prizes. As predicted, we found that individuals were less likely to cooperate when competition was relatively local. Cooperation between humans will therefore be most likely when repeated interactions take place on a local scale between small numbers of people, and competition for resources takes place on a more global scale among large numbers of people.

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