

Researchers investigate the science behind cooperation

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(Phys.org)—For two decades, evolutionary scientists have been locked in a debate over the evolved functions of three distinctive human behaviors: the great readiness we show for cooperating with new people; the strong interest we have in tracking others' reputations regarding how well they treat others; and the occasional interest we have in punishing people for selfishly mistreating others.

In an article published today (Sept. 26) in the journal *PLoS ONE*, researchers at UC Santa Barbara's Center for [Evolutionary Psychology](#) report new findings that may help settle the debate and provide answers to the behavioral puzzle.

As they go about their daily lives, people usually don't know the names of the people they encounter and—in cities, at least—typically expect never to see them again, noted Max M. Krasnow, a postdoctoral researcher in psychology at UC Santa Barbara and the paper's lead author. Despite the fact that these encounters are brief, anonymous and unlikely to be repeated, however, people often behave as if they are interested in the ongoing well-being and behavior of the strangers they meet.

"Imagine that, while [grocery shopping](#), you see someone help a wheelchair-bound person he or she doesn't know get her bags across the [parking lot](#) to her car. For many people, witnessing the action would elicit feelings of [kindness](#) toward the helper," Krasnow explained. "Equally, if people see someone driven off the road by a reckless driver,

they might become angry enough to pursue and even confront the driver. Evolutionary scientists are interested in why humans have [impulses](#) to help the kind stranger or to punish the callous one. At first glance, these sometimes costly impulses seem like they would subtract from the welfare of the individual who exhibited them, and so should be evolutionarily disfavored."

Scientists have struggled for decades to explain these behaviors in evolutionary terms, with two alternative theories gaining prominence. The first proposes that these social inclinations emerged because our ancestors lived in small populations, where every encounter—even one with a stranger—had a chance to develop into an ongoing relationship that yielded mutual gains from cooperation. In such a world, paying attention to how those around you treat others could help zero in on the partners most likely to cooperate with you. In addition, letting it be known that you wouldn't allow yourself to be treated poorly would increase the likelihood that you'd be treated well.

The second theory suggests that these behaviors emerged because our ancestors lived in groups that often fought with other groups—interactions where groups with high levels of internal cooperation would have the advantage over groups in which the members were divisive and exploitative of each other. This theory proposes that these other-oriented social inclinations were designed to cultivate a group-wide culture of cooperation.

"The reason why the debate has dragged on so long is that previous studies unfortunately focused on situations where the two theories made very similar predictions," said Tooby. "We wanted to design studies involving situations where the theories made sharply contrasting predictions, so the results would falsify one theory or the other."

In the studies reported in this paper, over 200 participants were tested in

a series of structured social interactions designed to capture the essence of real-world situations like the supermarket mentioned above. "We wanted to know exactly what kinds of information people actually use in deciding who to trust—that is, who to cooperate with, and who to avoid," said Krasnow. "If our minds are designed to seek out the benefits of cooperative relationships with others, then participants should have preferred to trust those likely to cooperate with them in particular. On the other hand, if our reputational psychology is designed to support group-wide cohesion and cooperation, the participants should have resisted cooperating with those who defected on other group members."

The findings supported the individual cooperation account, not the group cooperation account. "Participants ceased responding to information about whether their partners cheated others when they had good information that their partners would not cheat them," Tooby emphasized.

The researchers were also interested in testing the diverging predictions about what situations should trigger the inclination to punish cheating. "We all recognize that punishing others is costly and unpleasant," said Cosmides. "So what benefits led it to evolve?"

The authors reasoned that tracking the triggers of punishment should illuminate which benefits favored its evolution. "If the impulse to punish evolved as a bargaining tool to defend the individual by deterring against future instances of being cheated, then participants should be inclined to punish others' defections when they themselves would be vulnerable to being cheated by that person in the future," said Kasnow. "On the other hand, if our punitive psychology is designed to defend the group against cheating, then participants should have punished those who mistreated others, regardless of their own personal exposure to continuing mistreatment by that person."

The researchers found that participants strongly conditioned their punishment of their partners' cheating on their own vulnerability to continued bad treatment from their partner. As Krasnow pointed out, people in these experiments systematically avoided expending effort to reform those who only posed a risk to others. Cosmides noted, "It's very hard to reconcile these findings with the group cooperation theory."

These results have significant implications for the science of cooperation. "The current research findings suggest that the human readiness to cooperate, our selectivity in who we cooperate with, and our tendency to respond negatively when we are cheated form an efficient package to forge and maintain strongly cooperative relationships," said Krasnow. "The human tendencies to care about how a person treats others and to protest bad treatment are not simply a thin veneer of cultural norms atop a cold and calculating core. Rather, they represent fundamental features of a universal human social nature."

Provided by University of California - Santa Barbara

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