The Emergence of Indirect Reciprocity: Is the standing strategy the answer?

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Abstract

Although altruism based on direct reciprocity has been theoretically and empirically illustrated in both the biological and the social sciences, the occurrence of altruism without direct reciprocity has been a puzzle. Recently, however, significant advances have been made in research in biology on this issue. Nowak and Sigmund (1998a, b) proposed that what they refer to as the image scoring strategy makes indirect reciprocity possible. Criticizing their works, Leimar and Hammerstein (2001) and Panchanathan and Boyd (2002) proposed the standing strategy as the solution. After critically examining the work of Nowak and Sigmund (1998a, b), this paper points out several limitations in their research. In addition, careful attempts to replicate the findings of Leimer and Hammerstein (2001) and Panchanathan and Boyd (2002) reveal that the standing strategy is not the solution, either. Instead, based on a series of evolutionary simulation, this paper proposes a new strategy we refer to as the "strict discriminator," as the solution. All three strategies that attempt to shed light on the occurrence of altruism without direct reciprocity (image scoring strategy, standing strategy, and the strategy we call the strict discriminator) are similar in the sense that only discriminating altruism can hold (Hardin, 1981). They are also similar to the strategies that have been proposed in the studies of generalized exchange in the social sciences.