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Brief article

Foundations of cooperation in young children

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Abstract

Observations and experiments show that human adults preferentially share resources with close relations, with people who have shared with them (reciprocity), and with people who have shared with others (indirect reciprocity). These tendencies are consistent with evolutionary theory but could also reflect the shaping effects of experience or instruction in complex, cooperative, and competitive societies. Here, we report evidence for these three tendencies in 3.5-year-old children, despite their limited experience with complex cooperative networks. Three pillars of mature cooperative behavior therefore appear to have roots extending deep into human development.

Keywords: Kin preference; Reciprocal altruism; Indirect reciprocity; Development; Social cognition

1. Introduction

A central problem for biology and social science concerns the development of cooperation (Darwin, 1871; Fehr & Fischbacher, 2004; Imhof, Fudenberg, & Nowak, 2005; Williams, 1966). Evolutionary models, economic game theory and studies of people in diverse cultures suggest that three propensities favor the emergence of cooperative networks in humans: the tendency to act for the benefit of close relations (Hamilton, 1964), the tendency to reward others whose past actions have

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benefited the self (‘‘reciprocation’’; Trivers, 1971), and the tendency to reward other people who exhibit acts of generosity (‘‘indirect’’ reciprocation or ‘‘third party altruism’’; Alexander, 1987; Nowak & Sigmund, 2005; Trivers, 1971). Human adults show all three tendencies (Greiner & Levati, 2005; Gurven, 2006; Patton, 2005; Wedekind & Braithwaite, 2002; Wedekind & Milinski, 2000). Because caring for kin, reciprocating acts of kindness, and honoring the generous are explicit teachings of the major religious and secular traditions, however, studies of adults fail to clarify the sources of these tendencies in genes, ordinary experience, or instruction. Accordingly, we investigate these tendencies in preschool children with limited experience of complex cooperative networks.

Previous research has demonstrated that children begin to engage in pro-social or helping behaviors in their second year of life (Eisenberg & Fabes, 1998; Warneken & Tomasello, 2006), sharing toys with parents, and other adults (Hay, 1979; Rheingold, Hay, & West, 1976) and cooperating with adults and peers to perform a goal (Brownell, Ramani, & Zerwas, 2006; Warneken, Chen, & Tomasello, 2006). While young children share more with parents than unknown adults (Rheingold et al., 1976), children also are attentive to friendship relations (e.g., Costin & Jones, 1992), and even chimpanzees treat non-kin, close-others as kin (Brosnan, Schiff, & de Waal, 2005). Because children observe parents and friends giving to themselves and others, however, these observations do not tease apart the effects of preference for close relations, reciprocity, and indirect reciprocity on children’s cooperation.

Prior research provides some evidence for reciprocity effects in children’s acts of giving in elementary school (Harris, 1970; Staub & Sherk, 1970) and, more weakly, at younger ages (Levitt, Weber, Clark, & McDonnell, 1985). Because these studies involved first-person giving in which the child was a recipient as well as a potential donor, however, they do not reveal whether children’s giving depended on a principle of reciprocity or on positive or negative emotional states caused by receiving, or not receiving, a prior benefit. Moreover, the studies did not tease apart effects of direct vs. indirect reciprocity, because children observed others who gave to them or gave to no one but not others who gave to another person. To our knowledge, no experiments have examined whether children demonstrate the principle of indirect reciprocity and give to people who have shared resources with others, over people who have kept the resources for themselves.

Here, we report three experiments that test for each of the principles at the foundation of human cooperation, using a third-person giving task. Children were introduced to a protagonist and helped her to allocate resources to her close relations, to actors who had given to her, and to actors who had given to other people. With this third-person task, we sought to minimize effects of the child’s own motivational state and test whether fairness principles serve as general guides to children’s reasoning about social exchange. If children’s judgments accord with these principles, we cannot conclude that their behavior would do so as well (indeed, studies of adults suggest frequent gaps between moral reasoning and moral action). Nevertheless, successful performance by children would provide evidence that basic principles of cooperation are accessible to children in novel contexts and guide their intuitions about other people’s actions.