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Enhanced recognition of defectors depends on their rarity

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Abstract

Evolutionary psychologists have proposed that humans possess cognitive mechanisms for social exchange, but have perhaps focused overmuch on "cheating", because avoiding exploitation in reciprocal exchange could be accomplished either by avoidance of defectors or by attraction to cooperators. Past studies that have claimed to support the existence of a "cheater-detection module" by finding enhanced memory for the faces of "cheaters" have mostly relied on verbal descriptions, and these are prone to bias if the degree of cheating is unintentionally more severe than the degree of cooperation. Given that populations differ in the prevalence of defectors, it is most effective to remember whatever type is rare rather than always focus on cheaters. In the present experiment, participants played a computerized trust game and saw faces of cooperators and defectors in 20%/80%, 50%/50%, or 80%/20% ratios. Consistent with predictions, defectors were remembered best when rare but worst when common, supporting the existence of slightly more general cognitive mechanisms rather than specific cheater-recognition mechanisms.

Keywords: Cheater recognition; Domain specificity; Reciprocal altruism; Cooperation; Trust; Evolutionary psychology

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1. Introduction

When two individuals reciprocate generous acts towards each other, they can be better off than they would be without this cooperation (Axelrod & Hamilton, 1981; Trivers, 1971). For such reciprocal altruism to be stable, cooperators must avoid exploitation from defectors (those who do not cooperate/reciprocate). This requires cognitive abilities that can solve two tasks: (1) Detecting instances of non-cooperation (cheating detection), and (2) remembering who has been cooperative and who has not (cheater recognition) and interacting preferentially with other cooperators (Trivers, 1971). Cosmides and Tooby (e.g. 1992, 2000) have demonstrated that people are good at recognizing instances of cooperation and defection, while other researchers have used experimental games to show that people interact preferentially with cooperators and/or are more generous towards them (Barclay, 2004; Barclay & Willer, 2007; Fehr & Fischbacher, 2004; Komorita & Parks, 1995; Roberts & Renwick, 2003).

Many evolutionary psychologists have assumed that people accomplish these two tasks by focusing on cheaters and instances of non-reciprocation. For example, Cosmides and Tooby argue that humans possess a cognitive adaptation specifically designed for "cheater detection" (e.g. 1992, 2000), and have explicitly claimed that "detecting cheaters is necessary for contingent cooperation to evolve" (2000, p. 592, emphasis added). Others have proposed that people have a special memory for cheaters (e.g. Mealey, Daood, & Krage, 1996; Oda, 1997). Although it is certainly necessary for people to distinguish between instances of cooperation and defection (as argued by Cosmides, Tooby, and others), people could accomplish the task of remembering whom to cooperate with if they possessed cognitive mechanisms that caused them to focus on reciprocated altruism and to selectively remember and interact with cooperators rather than cheaters (Brown & Moore, 2000). From a selectionist point of view, it should not matter how people accomplish these tasks, so long as they are successfully accomplished with as low a cost and error rate as possible. In fact, the most successful psychology could focus attention in part on whatever action, cooperation or defection, is less common in a population and invest more in remembering instances of the rare action (and/or people who tend to do the rare action), and such a psychology could build on pre-existing tendencies to remember rarity (e.g. Hunt, 1995; Hunt, 2006; McDaniel & Geraci, 2006). There are many cooperative norms in our society (Fehr & Fischbacher, 2004), so cheating may seem more salient to us because of the relative prevalence of cooperation and rarity of deal-breaking. Past researchers may have focused on cheating because of this apparent salience. However, there are a few reasons to expect a more general cognitive system, perhaps one that focuses on reputation in general, to underlie social exchange rather than systems that focus specifically on cheaters.

First, such a flexible system could demand fewer cognitive resources than a psychology that always focuses on cheaters regardless of their frequency. By focusing on the rare type, one need not hold every single defector (or act of defection) in memory if it would be easier to remember the few rare cooperators in an uncooperative population, and this saves valuable and limited cognitive resources. When defectors