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Costly punishment in the ultimatum game evokes moral concern, in particular when framed as payoff reduction

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HIGHLIGHTS

- Rejection in the ultimatum game is a well-studied form of costly punishment.
- Costly punishment can alternatively be framed as reduction of payoffs.
- We studied framing effects on use and moral judgments of rejection/reduction.
- The reduction framing elicited more moral concern and less use of costly punishment.

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ABSTRACT

The ultimatum game is a common economic experiment in which some participants reject another's unfair offer of how to split some money, even though it leaves them both worse off. This costly behavior can be seen as enforcement of a fairness norm and has been labeled "altruistic punishment", suggesting that it is a moral thing to do. But is this behavior viewed as moral by participants? Is it viewed as punishment? And are the payoff consequences of the behavior sufficient to determine the answers to these questions? To investigate this we framed costly punishment in two different ways: either as rejection of an offer (the standard ultimatum game framing) or as reduction of payoff. In a series of paid and hypothetical experiments we found that moral concerns about costly punishment depended on the framing. Specifically, the reduction frame elicited more moral concern about, and less use of, costly punishment than did the rejection frame. Several implications are discussed.

1. Introduction

When someone does not respect norms about fairness, a peer may sanction the norm violator. Game theory has become a popular paradigm for behavioral and evolutionary studies of how such social control can make groups do better (e.g., Fehr & Gächter, 2002). A core idea in this paradigm is that, on the one hand, groups tend to benefit from fairness norms being enforced but, on the other hand, it is costly for the individual who enforces the norm. In game theoretic terms, norm enforcement is modeled as a strategic choice that has negative payoff for oneself as well as for the target but potential benefits for the group by promoting adherence to the social norm. Such choices are referred to as *costly punishment* in this literature. It is possible to interpret an act of costly punishment as an altruistic act, as there is a cost to the actor and a potential benefit to the group. This interpretation is the basis of the strong reciprocity hypothesis in evolutionary social science (e.g., Boyd, Gintis, Bowles, & Richerson, 2003; Fehr, Fischbacher, & Gächter, 2002; Fehr & Gächter, 2002). However, this is s a controversial interpretation (e.g., Kurzban & DeScioli, 2013), which merits further investigation.

The literature on altruistic punishment relies to a large extent on experiments using two economic games. The *public goods game with punishment* (PGP) is a symmetric game in two stages, played in a group of players (Fehr & Gächter, 2002). The first stage is the public goods game, in which each player decides their own monetary contribution to a common project; contributions benefit the group but are costly

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for the individual. Then follows the punishment stage, in which players can reduce the payoff of selected other players at a cost to themselves. Usually the punishment-to-cost ratio is 3:1 (e.g., Herrmann, Thöni, & Gächter, 2008). In contrast to the PGP, the *ultimatum game* (UG) is an asymmetric two-player game (Güth, Schmittberger, & Schwarze, 1982). The first player makes an offer to the second player about how to divide a sum of money. The second player has a choice between accepting this offer or rejecting it, in which case neither player gets the money.

Despite the differences between the two games, the term altruistic punishment has been used to refer both to costly reduction of the payoff of selfish players in the PGP (e.g., Fehr & Gächter, 2002; Herrmann et al., 2008) and to rejection of unfair offers in the UG (e.g., Crockett, Clark, Lieberman, Tabibnia, & Robbins, 2010; Fehr & Fischbacher, 2003; Strobel et al., 2011). This usage suggests that the acts of reduction and rejection are equivalent, in particular in terms of being altruistic and punitive. But are they?

1.1. "Rejection" vs. "reduction" framing of costly punishment of an unfair division

A substantial body of research demonstrates that behavior in economic games tends to be sensitive to how the game is framed (e.g., Brewer & Kramer, 1986; Eriksson & Strimling, 2014; Liberman, Samuels, & Ross, 2004). However, framing effects on the use of costly punishment have been largely ignored. To examine framing effects we shall use the ultimatum game and assume that the second player faces an offer of an unfair 3:1 division of, say, 100 dollars. Rejection of the offer then costs the first player three times more than the second player. Instead of framing the second player's decision as whether to reject the unfair division we can therefore alternatively frame it as a decision about whether to pay 25 dollars to reduce the first player's payoff by three times as much. These are the framings used in the current paper. They will be referred to as *rejection* and *reduction*, respectively.

In the experimental literature, UG experiments generally use a rejection frame and PGP experiments use a reduction frame. PGP experiments were explicitly designed to study costly punishment, whereas the UG was originally designed to study bargaining. The interpretation of rejection as punishment was not even mentioned in the classic paper introducing the UG (Güth et al., 1982). Generalizing from researchers to participants, could it be that punishment is less readily associated with the rejection frame than with the reduction frame? We shall return to this possibility in our Hypotheses section below.

1.1.1. Rejection vs. over-claiming

No prior work seems to have examined effects of framing costly punishment as rejection or reduction. However, an important study of framing effects in the UG compared the standard bargaining framing with a social dilemma framing (Larrick & Blount, 1997). In the social dilemma framing, the first player claimed some proportion of a resource to be divided; the second player, knowing the first player's claim, also claimed a proportion, and the claims were paid out only if their sum did not exceed the entire resource. As an economic game this is equivalent to the UG, as the first player's claim is equivalent to an offer of a division of the resource and an over-claim by the second player is equivalent to rejection of the offer. Larrick and Blount found that framing mattered, such that the social dilemma frame elicited more cooperative behavior from both players than the bargaining frame. Moreover, over-claiming in the social dilemma frame was found to be judged as more selfish, less rational, and more vindictive than rejection in the bargaining frame.

1.1.2. Over-claiming is different from both rejection and reduction

According to Larrick and Blount (1997, p. 16), what makes the social dilemma frame special is that the second player's decision to claim an amount "is a relatively independent action" and "provides only an indirect means of expressing approval or disapproval". In contrast, both rejection and reduction are explicit reactions to the first player's behavior. Hence, although the study of Larrick and Blount demonstrates that the UG is sensitive to framing, it cannot tell us what would be the effect of framing costly punishment as reduction instead of rejection.

1.2. Hypotheses

1.2.1. The reason to expect framing effects

Above we hinted at a possible key difference between the rejection and reduction frames: rejection may be less likely to be perceived as an act of punishment, or as directly causing harm to the other player. After all, people have considerable everyday experience of receiving various offers, say, of buying certain goods at a certain price. In general, decisions whether or not to accept such offers would presumably be guided by considerations of whether the offer is satisfactory rather than by considerations of whether the proposer should be punished. The fact that the proposer is worse off if the offer is rejected is likely to be seen as an indirect effect of rejection and not as its purpose. Consistent with this reasoning, Yamagishi et al. (2009) found that rejections of unfair splits were still fairly common even when second players could only reject their own share but not affect the first player's share.

1.2.2. The domain of framing effects: moral judgments, motives, and use of costly punishment

If costly punishment of unfair behavior in economic games is generally seen as "altruistic" it should be morally right to use it. However, costly punishment is by definition harmful. Punishment should therefore be morally right only if the harm to the norm violator is justified by the good inherent in the justice of a norm violator being punished. There are two reasons why would-be punishers in the UG may not see it as justified to harm the other. First, there is the issue of causing direct harm to another; research on other moral dilemmas shows that people tend to experience a strong negative emotional reaction to the thought of causing direct harm, even to achieve a greater good, and therefore judge such actions as immoral (Greene et al., 2001). A second issue is that the good in this case is justice handed out by a peer, and people may have internalized norms against taking justice in their own hands, preferring to leave it to authorities.

We know of no data that speak directly to the moral status of costly punishment in the UG. In the PGP there is a growing body of work studying reactions to players who use costly punishment (e.g., Cinyabuguma, Page, & Putterman, 2006; Kiyonari & Barclay, 2008; Nikiforakis, 2008; Strimling & Eriksson, 2014). Consistent with moral concerns about reduction, these reactions have been found to be more negative than positive. However, by focusing on others' reactions to costly punishment this work has left unexplored whether players' moral concerns may affect their own motivation to use costly punishment and ultimately their actual behavior. We shall now discuss why we expect framing effects on moral concerns about costly punishment in the UG, as well as on motives for using and not using it, and on its actual use.

1.2.3. Predictions about moral judgments

Consistent with the abovementioned findings on reduction in the PGP, we expect moral judgments of reduction to be more negative than positive. We expect moral judgments of rejection to be less negative, because the issues of causing direct harm and handing out justice should be less salient in the rejection frame.

1.2.4. Predictions about motives

Participants in economic game experiments may display a diverse set of motives (Butler, Burbank, & Chisholm, 2011). Different motives may lie behind the exact same behavior (Hein, Morishima, Leiberg, Sul, & Fehr, 2016). Prior research suggests that use of costly punishment can be motivated by a desire to punish as well by a desire to reduce inequality (Dawes, Fowler, Johnson, McElreath, & Smirnov, 2007). Based