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# The Claiming Effect: Why Players Are More Generous in Social Dilemmas Than in Ultimatum Games

Richard P. Larrick and Sally Blount
University of Chicago

The term *procedural frames* is introduced and defined as different representations of structurally equivalent allocation processes. Study 1 compared 2 well-known games, sequential social dilemmas and ultimatum bargaining, that share the same structure: Player 1 creates an allocation of a resource and Player 2 decides whether to allow it or deny it. Study 1 found that Player 1 made more favorable allocations and Player 2 accepted more unfavorable allocations in a social dilemma frame than in an equivalent ultimatum bargaining frame. Study 2 revealed the critical determinant was whether Player 2 had to respond to an allocation by accepting or rejecting it (as in the ultimatum game) or by making a claim (as in the social dilemma). Two additional studies explored how these actions are perceived. The inconsistency of behavior across procedural frames raises methodological concerns but illuminates construal processes that guide allocation.

Two of the most-studied paradigms in mixed-motive research have been *social dilemmas* and *ultimatum bargaining games* (Komorita & Parks, 1995). These allocation procedures differ substantially in how the actions of participants are described. In ultimatum bargaining games, players propose a division of a common resource and accept or reject the proposal; in social dilemmas, players make a claim from a common resource. However, versions of these games have been developed that are structurally equivalent but that appear to induce different rates of cooperation. Players appear to be more generous in sequential social dilemmas than in ultimatum bargaining games. The following research tests the existence of the social dilemma–ultimatum bargaining framing effect. The findings offer insight into a specific bias in bargaining, which we call the *claiming effect,* as well as the more general role that the subjective interpretation of action plays in allocation decisions.

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Correspondence concerning this article should be addressed to Richard P. Larrick or Sally Blount, Graduate School of Business, University of Chicago, 1101 East 58th Street, Chicago, Illinois 60637. Electronic mail may be sent via the Internet to rick.larrick@gsb.uchicago.edu or sally.blount@gsb.uchicago.edu.

## Procedural Frames in Mixed-Motive Interaction

The identification of framing effects has a long history in the study of mixed-motive interaction. Schelling (1960) provided some early examples of how preference changes under different representations of similar tacit bargaining games. More recently, framing effects from the judgment and decision-making literature (Tversky & Kahneman, 1981) have been applied to negotiation decisions (Neale & Bazerman, 1991; Schurr, 1987). For example, Bazerman, Magliozzi, and Neale (1985; Neale & Bazerman, 1985) predicted that bargainers would be more willing to make concessions when their outcomes were defined in terms of net profit (a gain frame) than in terms of reduction in gross profit (a loss frame), because of the asymmetry of losses and foregone gains (Tversky & Kahneman, 1991). Their results supported this prediction and demonstrated that outcome-framing effects generalize to the process of bargaining.

A second type of framing effect that occurs in mixed-motive interaction is produced by differences in procedural frames. We define *procedural frames* as different ways of describing actions (as opposed to outcomes) in structurally equivalent allocation procedures. Although the concept is related to previous analyses of procedural differences (Lind & Tyler, 1988), it is intended to be more restrictive: *Procedural frames* refer to different representations of structurally equivalent allocation procedures (Fagley, 1993). The best known example of a procedural frame is the difference between *commons* dilemmas and *public goods* dilemmas (Brewer & Kramer, 1986; Fleishman, 1988; McCusker & Carnevale, 1995; Rutte, Wilke, & Messick, 1987). In commons dilemmas, participants take from a common resource, whereas in public goods dilemmas, participants contribute to a common resource. Brewer and Kramer (1986) argued that "despite differences in the way the two collective problems are studied . . . the basic structures of the decision faced by individuals in both cases are equivalent" (p. 543). If participants were influenced only by the structure of a procedure, there would be no difference between the dilemmas. However, the descriptions of the actions invite different interpretations of out-

comes: *Taking* suggests receiving a gain, and *giving* suggests suffering a loss. Because passing up a gain is not as painful as incurring an equivalent loss (Tversky & Kahneman, 1991), cooperation is harder to achieve in commons dilemmas than in public goods dilemmas. Brewer and Kramer (1986) equated the dilemma structures by comparing participants who could take up to 25 points from the common pool with participants who first received 25 points from the common pool and then could give up to 25 points back. As predicted, taking led to more cooperation than giving back. Thus, Brewer and Kramer (1986) demonstrated the importance of procedural frames: Different ways of describing actions in equivalent allocation structures can influence participants' interpretation of outcomes and thereby modify their decisions to cooperate.

Why are procedural framing effects such as the commons dilemma–public goods dilemma difference important? For economists, they undermine the assumption that decision makers' preferences are invariant to task description (Roth, 1994), and for social psychologists, they raise a note of caution about generalizing across paradigms (Brewer & Kramer, 1986). More important, they confirm the central role that construals play in allocation decisions and offer insight into important social psychological variables. As Allison, Beggan, and Midgley (1996) recently argued, interpretation plays a critical role in how participants behave in social dilemmas. They proposed that the metaphors evoked by an allocation task, such as "game," "arms race," "family," "communistic society," and "chaos," convey expectations, norms, and beliefs that influence behavior (Allison et al., 1996). A classic illustration is Eiser and Bhavnani's (1974) finding that cooperation rates are higher when a prisoner's dilemma is described as an international negotiation rather than economic bargaining. In a similar vein, linguistic research has shown that different descriptions of an action can affect how perceivers interpret causality in interpersonal interactions (Brown & Fish, 1983; Hoffman & Tchir, 1990; Kanouse, 1972; Semin & Marsman, 1994). Semantic differences may influence interpersonal behavior by evoking different understandings of responsibility and blame for an outcome. Thus, when procedural frames are discovered, they can help identify the metaphorical (Allison et al., 1996) and semantic (Semin & Marsman, 1994) features that influence allocation preferences (Schelling, 1960). In the following research, we explore the behavioral and psychological effects of procedural frames derived from two popular paradigms in mixed-motive research: ultimatum bargaining games and sequential social dilemmas.

## Ultimatum Bargaining Games and Sequential Social Dilemmas

Two paradigms have dominated the field of mixed-motive research (Komorita & Parks, 1995). The social dilemma paradigm (Dawes, 1980) has been a popular method, for over 20 years, of studying the trade-off between personal and collective outcomes. More recently, the ultimatum bargaining paradigm (Camerer & Thaler, 1995; Guth, Schmittberger, & Schwarze, 1982) has generated a great deal of research on the trade-off between personal and comparative outcomes. In the past decade, these paradigms have been used or discussed in more than 100 and 30 articles, respectively (based on a search of major psychology and economics journals). Although research on the two games has been abundant, it has also been relatively isolated: Social psychologists have been more likely to study social dilemmas, whereas experimental economists have been more likely to study ultimatum games (Komorita & Parks, 1995). This difference largely reflects the research goals and questions particular to each field.

The ultimatum bargaining game was designed by economists to test the theoretical assumption that utility maximization can be equated with maximizing personal monetary payoffs (Guth et al., 1982). In the ultimatum bargaining game, two participants are asked to divide a fixed amount of money. One participant is given the role of proposing a division (Player 1), and the other is given the role of accepting or rejecting the proposal (Player 2). If Player 2 accepts the division, both participants receive the proposed amount; if Player 2 rejects it, neither receives anything. Following from the assumption that people seek to maximize personal payoffs, the equilibrium analysis predicts that Player 1 should offer Player 2 the smallest possible positive amount and keep the remainder. Further, Player 2 should accept this offer because it is greater than the alternative of zero. Research has consistently shown, however, that these predictions fail because participants are motivated by concerns about fairness in comparative payoffs. Participants in the Player 1 position usually offer the other participant more than a trivial amount, often an equal division (Camerer & Thaler, 1995; Guth & Tietz, 1990). And participants in the Player 2 position who receive unfavorable offers frequently reject them, preferring to get nothing at all (Camerer & Thaler, 1995; Guth & Tietz, 1990).

The social dilemma paradigm was originally inspired by Hardin's (1968, p. 1243) "tragedy of the commons" and was designed to test individual-allocation decisions when maintaining a group resource conflicts with maximizing individual gain (Dawes, 1980; Messick & Brewer, 1983). Social dilemmas are simulated in the laboratory by having a group of participants claim resources from a joint, replenishable pool. In the typical study, participants make a series of simultaneous, anonymous claims from the pool. Other versions examine the effect of sequential claims and one-round play (Budescu, Rapoport, & Suleiman, 1992; Budescu, Suleiman, & Rapoport, 1995; Erev & Rapoport, 1990; Rapoport, Budescu, & Suleiman, 1993). Cooperation is measured as the degree to which individuals reduce their own consumption to increase the group resource. Research typically shows that groups have difficulty maintaining sustainable levels of the common resource.

Perhaps because these games have different research traditions, structurally equivalent versions have been developed that appear to yield surprisingly different results: Players appear to be more generous in sequential social dilemmas than ultimatum games. Budescu et al. (1992) studied a version of the social dilemma in which two-person groups were asked to share a common resource pool. Each member made a claim from the pool, and if the total of the claims did not exceed the pool, both members were granted their request; otherwise, each received nothing. In some conditions, claims were made sequentially, so that Player 2 made a claim knowing the amount of Player 1's claim. From a game-theoretic perspective, this one-round version of a social dilemma is equivalent to the traditional ultimatum game: Player 1's claim implicitly creates a division, and

Player 2 can accept it by claiming an amount less than or equal to the remainder or reject it by claiming more than the remainder (Larrick & Blount, 1995; see Blount & Larrick, 1997a, for a more extensive discussion of the game-theoretic equivalence of these games). In keeping with ultimatum game results, Budescu et al. (1992) found that Player 1 tended to claim more than Player 2. However, social dilemma players in both roles appeared to be more generous than their ultimatum game counterparts. In a typical ultimatum bargaining game, 50% of the participants in the Player 1 role take more than an equal share of the pool for themselves, and 40% of the participants in the Player 2 role are unwilling to accept an amount smaller than one fourth of the pool (e.g., Blount, 1995). By contrast, Budescu et al. (1992) found in a sample of 40 participants that only 35% in the Player 1 role took more than an equal share of the pool and that 89% in the Player 2 role who were offered an amount smaller than one fourth of the pool were willing to accept it (D. Budescu, personal communication, December 1995).

A high rate of cooperation in sequential social dilemmas was also found by Messick and Allison (1987) in a study of six-player, sequential social dilemmas. Participants were asked to make claims from a pool of 24 points (in which each point was potentially worth $.50). An equal distribution of the points would be 4 to each player. Although the dilemma was presented as a six-player game, all participants were assigned the role of Player 6 and were presented with unequal claims by the first five players that left them with 3, 2, 1, or 0 points. Ninety percent of all participants claimed an amount equal to or less than the remaining points, thereby letting all players receive their claims. Most dramatically, 73% of the participants who were left 0 claimed 0! Player 2 participants in ultimatum bargaining games rarely, if ever, are willing to accept nothing.

## Defining Cooperation in Ultimatum Bargaining Games and Sequential Social Dilemmas

In the following studies, we measured cooperation in terms of the distributive generosity of players' decisions. Specifically, we focused on the effect that players' decisions had on the relative distribution of a common pool between themselves and others. Our specific measures were the average outcomes allocated to Player 2 by Player 1—offering higher average amounts was considered more generous—and the average minimum outcomes accepted by Player 2—accepting lower average amounts was considered more generous. Both of these actions are cooperative in the sense that they make a completed transaction more likely to occur, thereby maximizing joint outcome (Kelley & Thibaut, 1978; McClintock, 1972; Messick & McClintock, 1968). However, in most mixed-motive games, it is difficult to infer actual motivations because of confounded behavioral choices (see Bornstein et al., 1983 for a complete analysis of social motivations in unilateral allocation decisions). For example, because generous concessions facilitate completing a transaction in fixed-sum bargaining, they may be motivated by cooperation (the desire to improve the collective outcome), but they could also arise from altruism (the desire to improve the other party's outcome) or individualism (the desire to improve the expected value of one's own outcome). Hence, we restrict our use of the terms *cooperation* and *generosity* to the distributive consequence of a behavior and leave the question of motivation for the discussion.

In addition to these measures, we examined decisions about two extreme allocations that come closer to revealing motivation: how often Player 2 was willing to let Player 1 take all of the pool (Messick & Allison, 1987) and how often Player 1 decided to make an equal or better allocation to Player 2 (Allison & Messick, 1990). In the first case, the willingness of Player 2 to take an allocation of $0 is noteworthy because it represents an indifference point for personal monetary payoffs (Messick & Allison, 1987). Is Player 2 willing to maximize the joint outcome (and Player 1's outcome) when his or her own payoff remains constant? The willingness to accept a zero allocation shows a concern for the other (or the collective) independent of the self; the willingness to reject demonstrates a desire to punish the other. Similarly, the willingness of Player 1 to make an equal allocation is significant because it represents a balance between concern for self and other. In contrast, making an unequal allocation is more competitive because it increases Player 1's payoff at the expense of Player 2 (Allison & Messick, 1990). Unfortunately, an equal allocation can also be motivated by strategic considerations (i.e., attempting to increase the probability of completing a deal by taking into account Player 2's likely response), so it is not possible to attribute as generous an intent to Player 1's equal allocation as it is to Player 2's acceptance of a zero allocation.[1]

## Study 1

Both ultimatum bargaining games and two-person sequential social dilemmas depict the same underlying allocation procedure: The first player creates a division, and the second player can agree to it or veto it. In the ultimatum frame, this is described as Player 1 proposing a division and Player 2 deciding to accept or reject it. In the social dilemma frame, it is described as Player 1 making a claim and Player 2, knowing the remainder, also making a claim. Previous findings indicate that these frames induce different levels of cooperation. However, because these results came from studies conducted by different researchers, a variety of methodological differences, such as participant populations and instructions, might have contributed to apparent differences. Study 1 addressed this problem by holding all of these factors constant. Thus, if the difference in generosity between games remained, it could be attributed only to differences between procedural frames.

### *Method*

#### *Participants*

One hundred five masters of business administration (MBA) students at Northwestern University and the University of Chicago participated

[1] Although Bornstein et al. (1983) were concerned with unilateral decisions in minimal group studies and not with interdependent decisions in strategic games, their analysis provides a framework for identifying the specific social motivations underlying each player's decision. For Player 2, the zero allocation represented a choice between maximizing joint gain but favoring the other group and minimizing the difference in gain. Player 1's decision about making an equal allocation represented a choice between minimizing the difference in gain and maximizing relative own gain.

in the study as part of a class exercise. One third of the participants were randomly selected for payment. Their exact payments were calculated from the responses they gave on the questionnaire and were made in a subsequent class period.

### Design

Participants read and answered a Resource Allocation Exercise questionnaire. Two versions were distributed randomly. One version was phrased in terms of a sequential social dilemma, and the other was phrased in terms of an ultimatum game. On completion, the questionnaires were collected, and a short debriefing was conducted.

To conserve sample size, all participants provided decisions as both Player 1 and Player 2 in the same questionnaire. For the Player 1 decision, participants made an allocation, and for the Player 2 decision, participants responded to all possible Player 1 allocations. Their questionnaires were then randomly paired outside of class, with 1 participant randomly assigned to the Player 1 role and 1 to the Player 2 role. Player 1's allocation (e.g., "$6.00 for Player 1 and $1.00 for Player 2") was compared with Player 2's response (e.g., accept) for that allocation, and each player was paid on the basis of the outcome.

### Materials

The instructions informed participants of the following:

> You will be randomly paired with a student in another section to participate in a resource-allocation task. In this task, there will be a potential pool of $7.00 made available by the experimenter. Each student in the pair will be randomly assigned to the role of either Player 1 or Player 2.

The description of Player 1's and Player 2's actions varied by condition. In the ultimatum game condition, participants were told the following:

> Player 1 will be asked to propose a division of $7.00 between the 2 players, such as $\$X$ for Player 1 and $\$7 - X$ for Player 2. Then, Player 2 will be asked whether he or she accepts or rejects this proposal. If Player 2 accepts the proposal, each player will get the amount Player 1 proposed. If Player 2 rejects the proposal, neither student will receive any money.

In the social dilemma condition, participants were told the following:

> Player 1 will be asked to state a claim for some portion of $7.00, such as $\$X$. Then, knowing $\$X$, Player 2 will be asked to state his or her claim for some portion of $7.00, let's say $\$Y$. If the total of the two claims ($\$X + \$Y$) is equal to or less than $7.00, each player will get the amount he or she claimed. If the total is more than $7.00, neither student will receive any money.

After reading the instructions, participants were presented with two sets of questions that elicited their decisions as Player 1 and Player 2. The order of the decisions was counterbalanced across questionnaires. Participants were told that if they were selected for payment, they would be randomly assigned to one of the two player roles, and their answer for that role would be matched with the response of a randomly selected partner in the opposing role.[2]

### Dependent Measures

*Decision as Player 1.* Participants were told, "If the random assignment process assigns you to the Player 1 role, we will use your answer to this question to determine your outcome from the exercise." In the ultimatum game condition, participants were asked, "If you are assigned to the Player 1 role, what amount of money between $0.00 and $7.00 would you offer to Player 2?" Participants answered the question by stating the amount they would propose to keep for themselves and the amount they would propose to give to Player 2. In the social dilemma condition, participants were asked, "If you are assigned to the Player 1 role, how much of the $7.00 would you claim?" which they answered by stating the amount they would claim for themselves and the amount that would be available for Player 2. (They were asked to make responses that were multiples of $.50 and totaled to $7.00.)

*Decision as Player 2.* Participants were told, "If the random assignment process assigns you to the Player 2 role, we will use your answer to this question to determine your outcome from the exercise." Participants' decisions as Player 2 were elicited by presenting them with every possible Player 1/Player 2 allocation, starting at $7.00/$0.00 and decreasing by $0.50 to $0.00/$7.00. In the ultimatum game condition, the first allocation was phrased as "If Player 1 proposes $7.00 for Player 1, $0.00 for Player 2," to which participants responded by checking "accept" or "reject." In the social dilemma condition, the first allocation was phrased as "If Player 1 claims $7.00 for Player 1, which leaves $0.00," to which participants responded by stating how much they would claim for themselves.

To analyze the Player 2 decision, each participant's responses were coded as a single value: the smallest outcome that the participant accepted as Player 2 (i.e., the minimum acceptable outcome). In the ultimatum game condition, this amount was the smallest offer for which the participant marked "accept." In the social dilemma condition, this amount was the smallest remainder left by Player 1 for which the participant did not claim more than the remainder.

## Results and Discussion

There were no effects of response order on participants' Player 1 and Player 2 decisions ($Fs < 1.0$, $ps > .30$), so this variable was omitted from subsequent analyses. As predicted, participants given the social dilemma frame accepted lower outcomes as Player 2 than did participants given the ultimatum frame. The average minimum outcome that participants allowed as Player 2 was significantly lower in the social dilemma condition ($M = \$1.31$) than in the ultimatum game condition ($M = \$1.90$), $t(104) = 2.28$, $p < .05$.[3] In addition, Figure 1 shows that the game manipulation had a significant effect on how participants responded to the $7.00/$0.00 allocation. Thirty percent of the participants (16 of 54) in the social dilemma condition claimed $0.00 (thereby allowing it), compared with only 2% (1 of 51) in the ultimatum game condition who accepted this allocation, $\chi^2(1, N = 105) = 12.63$, $p < .001$ (after Yates's correction for continuity).

The difference in the amounts that Player 1s allocated to Player 2s was in the predicted direction ($M = \$2.72$ in the social dilemma condition vs. $M = \$2.48$ in the ultimatum game condition) but was not significant, $t(104) = 1.24$, *ns*. However, the game manipulation did have a marginally significant effect

[2] In Studies 2 through 4, all participants were selected for payment.

[3] Both the outcomes accepted as Player 2 and the offers made as Player 1 are not normally distributed, which violates an assumption made in parametric tests such as *t* tests and analysis of variance. However, we report parametric test results because skewness and kurtosis have very little effect on the Type I error rate (Stevens, 1990). Extreme kurtosis (e.g., a uniform or bimodal distribution) does significantly increase the Type II error rate (i.e., failing to detect a true difference in means).

on the frequency with which participants made the equal allocation of \$3.50/\$3.50. As may be seen in Figure 2, 56% of the participants (31 of 54) in the social dilemma condition left \$3.50 or more to Player 2, whereas only 37% (19 of 51) in the ultimatum condition offered that amount, $\chi^2(1, N = 105) = 3.50$, $p = .06$ (after Yates's correction for continuity).

The results of Study 1 provided initial support for the existence of the social dilemma–ultimatum game framing effect. Participants given the social dilemma frame were significantly more likely to accept zero allocations as Player 2 than were participants given the ultimatum frame. And there was a marginally significant trend for participants in the social dilemma frame to make more equal allocations as Player 1 than participants in the ultimatum frame, which was tested again in a subsequent study. The findings indicate that how bargainers' actions are described influences their decisions to cooperate. Study 2 was designed to test the relative importance of these actions.

## Study 2

Why do participants cooperate more when a two-party sequential allocation procedure is framed as a social dilemma rather than an ultimatum game? The principal remaining differences between the frames are the descriptions of each players' action: Player 1 divides the resource in ultimatum games but claims an amount in social dilemmas, and Player 2 accepts or rejects an offer in ultimatum games but claims an amount in social dilemmas. One salient difference between these actions is how confrontational they seem to be. First, consider Player 1's action. Proposing a division implies more control over Player 2's outcome than merely claiming an amount because the division explicitly names Player 2's outcome, whereas claiming does not. And for Player 2, accepting or rejecting a proposal is a very direct, evaluative response, whereas making a claim is a more independent, nonevaluative response.

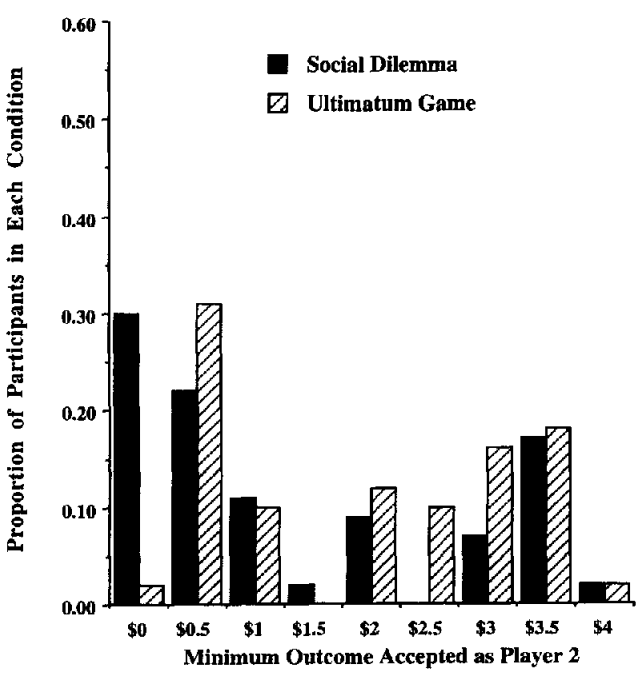


*Figure 1.* Minimum outcome accepted by participants in Player 2 role for each condition.

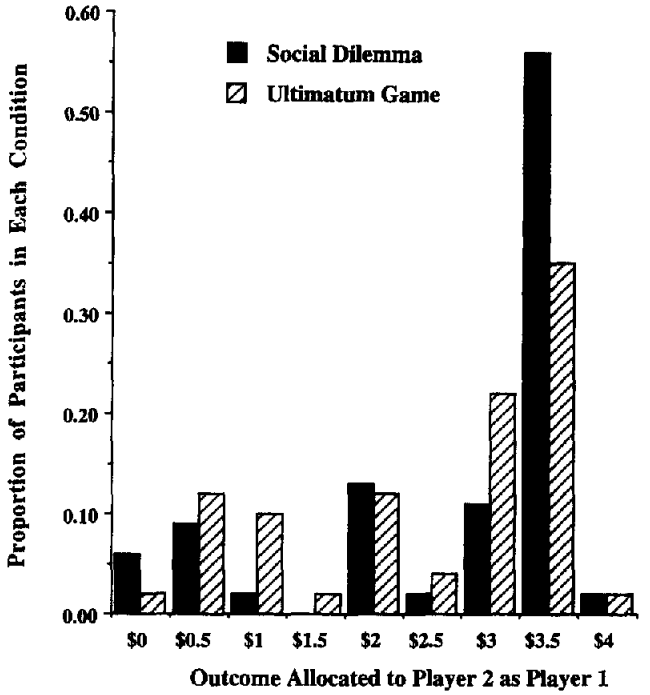


*Figure 2.* Outcome allocated to Player 2 by participants in Player 1 role for each condition.

Unfortunately, Study 1 cannot distinguish the relative contributions of each players' actions because the games confounded them. To eliminate this confound, Study 2 systematically manipulated the form of each player's action. The ultimatum game and social dilemma descriptions of Player 1's action (divide vs. claim) and Player 2's action (accept or reject vs. claim) were crossed in a full factorial design. This made it possible to test the importance of each form of action. For example, one possible explanation for the difference in Player 2's behavior in social dilemmas and ultimatum games is that the games elicit different norms of distributive fairness. Perhaps making a claim creates the appearance that Player 1 got to the resource first, and the norm "first come, first served" entitles Player 1 to take as much of the resource as desired. Proposing a division, on the other hand, requires that Player 1 give some consideration to both parties' outcomes, which makes a fairness norm of equal split more appropriate.[4] The entitlement explanation would be supported if Player 2 responded differently to the two forms of Player 1's action. In addition, the factorial design provided a test for the presence of possible interactions. For example, a second explanation for the high rate of cooperation in social dilemmas is the similarity between the players' actions (Brown, 1965). Because both players make a claim, they may feel more

[4] We thank David Messick for suggesting this explanation.

similar and equal than do players in ultimatum games. The similarity explanation predicts that the cell in which Player 1 and Player 2 both make claims should produce a disproportionately higher rate of cooperation than the other three cells.

Finally, a measure was included to address a possible artifactual explanation for Player 2's compliance with the \$7.00/\$0.00 allocation. Perhaps participants in the social dilemma condition claimed \$0 because they incorrectly believed that they could not claim more than the remaining amount. A subset of participants was presented with an additional question to test their understanding of the rules.

## Method

### Participants

Two hundred nineteen MBA students at the University of Chicago participated in the study as part of a class exercise. All participants were paid on the basis of their decisions.

### Design and Materials

The instructions and procedure were identical to those used in Study 1, except that the descriptions of the Player 1 actions (dividing vs. claiming) and Player 2 actions (accepting or rejecting vs. claiming) were independently manipulated in a 2 × 2 between-participant factorial design shown in Table 1. As in Study 1, all participants provided decisions as both Player 1 and Player 2.

### Dependent Measures

*Decisions as Player 1 and Player 2.* The response formats used in Study 1 were repeated in Study 2. As in Study 1, participants were told that their answers would be matched with those of another player to determine their outcome for the exercise. For the Player 2 decision, they were presented with every possible Player 1/Player 2 allocation, starting at \$7.00/\$0.00 and decreasing by \$0.50 to \$0.00/\$7.00. Participants answered using the format that corresponded to their condition (marking "accept" or "reject" or filling in an amount claimed). For the Player 1 decision, they responded either by dividing (i.e., filling in the amounts that they allocated to themselves and to Player 2) or by claiming (i.e., filling in the amount that they claimed for themselves and the amount that was available for Player 2). Because Study 1 found that decision order was not a significant factor, Study 2 presented all participants with the Player 2 decision first.

*Comprehension check.* A final question was added to a subsample of 27 questionnaires in the Player 2 claiming conditions, to verify that participants had understood the instructions correctly. After making their decisions, participants in the Player 2 claiming condition were shown a \$7.00/\$0.00 allocation to which another participant had responded by claiming \$1.00. They were asked whether this response was allowed by the rules and to describe the consequences.

## Results

The average minimum outcome that participants accepted as Player 2 is given in Table 2. A two-factor analysis of variance (ANOVA) revealed a significant main effect for the form of the Player 2 action, such that claiming ($M$ = \$1.49) led to a lower outcome being allowed than did accepting or rejecting ($M$ = \$2.01), $F(1, 215) = 6.87$, $p < .01$. The form of the Player 1 action (dividing vs. claiming) and the interaction were not significant ($F$s $< 1.4$, $p$s $> .20$). The percentage of participants who allowed the \$7.00/\$0.00 allocation is reported in Table 3. Because the analysis involved two dichotomous independent variables and a dichotomous dependent variable, we conducted a log-linear analysis, which tested changes in goodness of fit when each effect was removed from a saturated model. A large reduction in goodness of fit would indicate that a term was a significant predictor of the dependent variable. The analysis revealed that the form of the Player 2 action was a significant predictor, $\chi^2_{change}$ $(1, N = 219) = 13.92$, $p < .001$. As may be seen in Table 3, participants instructed to make a claim as Player 2 were more likely to allow the \$7.00/\$0.00 allocation (30%) than were participants instructed to accept or reject (10%).

Table 1
*Instructions in 2 × 2 Factorial Design Crossing Player 1's Actions and Player 2's Actions*

| Description of Player 1's action | Description of Player 2's action: **Accepting or rejecting** | Description of Player 2's action: *Claiming* |
|---|---|---|
| Dividing | "Player 1 will be asked to propose a division of the \$7.00 between the two players, such as \$*X* for Player 1 and \$7 − *X* for Player 2. Then, knowing the proposal, **Player 2 will be asked whether he or she accepts or rejects Player 1's <u>proposal</u>. If Player 2 accepts the <u>proposal</u>, player 1 will receive \$*X*, and Player 2 will receive \$7 − *X*. If Player 2 rejects the <u>proposal</u>, neither student will receive any money."** | "Player 1 will be asked to propose a division of the \$7.00 between the two players, such as \$*X* for Player 1 and \$7 − *X* for Player 2. Then, knowing the proposal, *Player 2 will be asked to state a claim for some portion of the \$7.00, let's say <u>\$Y</u>. If the total of the two <u>amounts</u> (\$X + \$Y) is equal to or less than \$7.00, each player will get the amount he or she claimed. If the total is more than \$7.00, neither student will receive any money."* |
| CLAIMING | "PLAYER 1 WILL BE ASKED TO STATE A CLAIM FOR SOME PORTION OF THE \$7.00, SUCH AS \$*X*. THEN KNOWING \$*X*, **Player 2 will be asked whether he or she accepts or rejects Player 1's <u>claim</u>. If Player 2 accepts the <u>claim</u>, Player 1 will receive \$*X*, and Player 2 will receive \$7 − *X*. If Player 2 rejects the <u>claim</u>, neither student will receive any money."** | "PLAYER 1 WILL BE ASKED TO STATE A CLAIM FOR SOME PORTION OF THE \$7.00, SUCH AS \$*X*. THEN, KNOWING \$*X*, *Player 2 will be asked to state a claim for some portion of the \$7.00, let's say \$Y. If the total of the two <u>claims</u> (\$X + \$Y) is equal to or less than \$7.00, each player will get the amount he or she claimed. If the total is more than \$7.00, neither student will receive any money."* |

*Note.* To facilitate comparisons, phrases with identical wording have been placed in identical font. Exceptions are underlined. Actual instructions were presented in uniform font.

Table 2
*Average Minimum Acceptable Outcome as Player 2*

| Description of Player 1's action | Description of Player 2's action: Accepting or rejecting *M (SD)* | *n* | Claiming *M (SD)* | *n* | *M* |
|---|---|---|---|---|---|
| Dividing | \$2.06 (\$1.50) | 60 | \$1.66 (\$1.52) | 63 | \$1.85 |
| Claiming | \$1.95 (\$1.43) | 50 | \$1.26 (\$1.47) | 46 | \$1.62 |
| *M* | \$2.01 | | \$1.49 | | |

Table 4
*Percentage of Participants in Each Cell Offering a \$3.50/\$3.50 or Better Allocation as Player 1*

| Description of Player 1's action | Description of Player 2's action: Accepting or rejecting Percentage | *n* | Claiming Percentage | *n* | Overall percentage |
|---|---|---|---|---|---|
| Dividing | 48% | 60 | 57% | 63 | 53% |
| Claiming | 34% | 50 | 57% | 46 | 45% |
| Overall percentage | 42% | | 57% | | |

Neither the main effect for the form of the Player 1 action ($p > .10$) nor the interaction ($p > .90$) was statistically significant.

The independent variables did not significantly affect the average amount that participants allocated to Player 2 as Player 1 ($ps > .10$). However, the proportion of participants who made an equal or better allocation to Player 2 did differ by condition. The log-linear analysis revealed that the form of the Player 2 action was a significant predictor of Player 1's allocation, $\chi^2_{change}(1, N = 219) = 4.85, p < .05$. As may be seen in Table 4, participants were more likely to make the equal allocation as Player 1 when instructions described Player 2's action as claiming (57%) than as accepting or rejecting (42%). There was no significant effect for the form of the Player 1 action or for the interaction ($ps > .20$).

After their Player 1 and Player 2 decisions, 27 participants in the Player 2 claiming condition were shown a \$7.00/\$0.00 allocation to which another participant had responded by claiming \$1.00. They were asked whether this response was permitted by the rules, and all but 1 (4%) correctly reported that it was. This finding indicates that Player 2's high rate of compliance was not an artifact of misunderstanding. Additional evidence against the artifactual explanation comes from a study by Blount and Larrick (1997a) in which participants in the Player 2 claiming condition marked their decisions about the \$7.00/0.00 allocation by placing a check next to "I will claim \$0" or "I will claim more than \$0." This format made it obvious that the game permitted claiming more than the remainder; nevertheless, the results replicated the finding that participants allowed the \$7.00/\$0.00 allocation more often in the claiming condition (28%) than in the accept-or-reject condition (6%).

Table 3
*Percentage of Participants in Each Cell Allowing the \$7.00/\$0.00 Allocation as Player 2*

| Description of Player 1's action | Description of Player 2's action: Accepting or rejecting Percentage | *n* | Claiming Percentage | *n* | Overall percentage |
|---|---|---|---|---|---|
| Dividing | 8% | 60 | 24% | 63 | 16% |
| Claiming | 12% | 50 | 37% | 46 | 24% |
| Overall percentage | 10% | | 30% | | |

### *Discussion*

The results of Study 2 showed that describing Player 1's action as the more confrontational "proposing a division" or the more neutral "making a claim" did not significantly affect cooperation. Thus, the explanation that the fairness norm "first come, first served" entitled Player 1 to claim \$7.00 cannot explain Player 2's compliance, because when Player 2 was given the option to reject it, they did. (An additional study by Blount & Larrick, 1997b, verified that the two games do not differ in the extent to which they evoke an equality vs. first come, first served fairness norm.) In addition, the similarity between Player 1's and Player 2's actions in the social dilemma cell did not produce a disproportionately higher rate of cooperation. Differences in cooperation were mainly attributable to the form of Player 2's action: Participants were more likely to allow the \$7.00/\$0.00 allocation as Player 2 and more likely to make the \$3.50/\$3.50 allocation as Player 1 when Player 2's response was described as claiming rather than as accepting or rejecting. Study 3 was designed to measure differences in how claiming and accepting or rejecting are construed.

## Study 3

Study 2 demonstrated that the form of Player 2's action was an important explanation for differences in cooperation. What is the difference between the more confrontational "accept or reject" and the more neutral "claim?" Two aspects of these responses appear to be important. First, the decision to accept or reject is a reaction to Player 1's behavior, whereas the decision to claim an amount is a relatively independent action. Reactions differ from actions in the causal attributions they elicit: Reactions are attributed to objects, whereas actions are attributed to subjects (Semin & Marsman, 1994). Second, the decision to accept or reject asks for a direct evaluation of Player 1's behavior and provides a clear means of expressing it, whereas the decision to claim an amount does not ask for a direct evaluation and provides only an indirect means of expressing approval or disapproval. We believe that these differences affect how participants in each role perceive their decisions. Study 3 was

designed to examine the effect these differences have on Player 2's interpretation of actions toward Player 1. Study 4 returns to the issue of how these differences might influence Player 1's decision.

Consider how Player 2 might think about rejecting a $7.00 claim made by Player 1. Because rejecting it is merely a reaction to Player 1's behavior (Semin & Marsman, 1994), Player 2 can blame Player 1 for any harm that results. Moreover, there is no ambiguity about the meaning of Player 2's decision—"reject" is a clear protest to Player 1's behavior. The comparable decision of claiming an amount greater than $0, however, may create more troubling attributions in the mind of Player 2. In this case, Player 2's decision is independent of Player 1's decision (Semin & Marsman, 1994), and Player 2 may feel more responsibility for inflicting harm on Player 1 (Ritov & Baron, 1990; Spranca, Minsk, & Baron, 1991). In addition, the meaning of Player 2's decision is ambiguous: Claiming more than $0 could be a protest, but it could also be interpreted as stupidity or greed. It is these differences in perceptions, we believe, that deter some participants, who would otherwise be willing to "reject" a $7.00/$0.00 allocation, from claiming more than $0.

Study 3 was designed to provide a preliminary test of the perceptions evoked by rejecting and claiming. After reading a description of the game, participants were asked how likely they would be to deny a $7.00/$0.00 allocation if they were Player 2. Then they were asked to report the thoughts that they had while making their likelihood decision. They responded to a set of adjectives that distinguished between favorable and unfavorable self-attributions: *selfish, wasteful, and vindictive* versus *rational, fair, and reasonable.* By having participants rate their agreement with these and similar adjectives, Study 3 was able to test whether perceptions varied for the different Player 2 actions.

In addition, Study 3 was designed to eliminate a potential confound in the instructions in Studies 1 and 2. In these studies, the description of Player 2's action as claiming or as accepting or rejecting was followed by different explanations for the consequences of Player 2's decision. Participants in the claiming condition were told, "If the total of the two claims ($\$X + \$Y$) is equal to or less than $7.00, each player will get the amount he or she claimed. If the total is more than $7.00, neither student will receive any money." Participants in the accept-or-reject condition were told, "If Player 2 accepts the claim, Player 1 will receive $\$X$, and Player 2 will receive $\$7 - X$. If Player 2 rejects the claim, neither student will receive any money." The problem with these descriptions is that they emphasize different aspects of Player 2's decision: The claiming description emphasizes the players' joint action with Player 1, whereas the accept-or-reject description emphasizes Player 2's individual action. Thus, the high rate of cooperation in the claiming condition could have been due to the perception of a common fate created by the emphasis on joint action (Campbell, 1958). To eliminate this possible confound, a new version of the claiming condition was included in Study 3, in which Player 2's individual action was emphasized. If behavior and perceptions were found to be the same in both claiming conditions, it would show that it is the act of claiming itself, and not whether it appears to be a joint or individual action, that influences participants' decisions to cooperate.

## Method

### Participants

One hundred eighty-nine MBA students at the University of Chicago participated in the study as part of a class exercise. As in Study 2, all participants were paid on the basis of their decisions.

### Design and Materials

The instructions were the same as those used in Study 2, except that the form of Player 1's action was not manipulated (Player 1's action was always described as "claiming") and an additional Player 2 condition was included. The form of Player 1's action was held constant because Study 2 revealed that it did not have a significant effect on the rate of cooperation. The description of Player 2's action was manipulated in a three-level, one-factor, between-participant design. Two of these conditions replicated the claiming and accept-or-reject descriptions in Study 2 (see the bottom row of Table 1). A third condition consisted of an alternative description of claiming that eliminated the confound present in Studies 1 and 2. The new claiming condition was identical to the previous claiming condition except that the phrase used to describe the consequences of Player 2's action was shifted from a joint focus ("If the total of the two claims ($\$X + \$Y$) is equal to or less than $7.00, each player will get the amount he or she claimed. If the total is more than $7.00, neither student will receive any money") to an individual focus ("If Player 2's claim ($\$Y$) is equal to or less than the remainder ($\$7 - X$), each player will get the amount he or she claimed. If Player 2's claim is more than the remainder, neither student will receive any money"), to make it parallel to the focus of the accept-or-reject condition. We refer to the new claiming condition as *individual* focus and the original claiming condition as *joint* focus. As in Studies 1 and 2, participants provided decisions as both Player 1 and Player 2.

### Dependent Measures

*Perceptions of denying a $7.00–$0.00 allocation.* After reading the description of the game, but before making their actual Player 1 and Player 2 decisions, participants answered a series of questions about how they would respond to a $7.00/$0.00 allocation as Player 2. First, they were told to imagine that they had been assigned to the role of Player 2. In the claiming conditions, they were asked, "If Player 1 claims $7.00, which leaves $0, how likely would you be to claim more than $0?" In the accept or reject condition, they were asked, "If Player 1 claims $7.00, which leaves $0, how likely would you be to reject the claim?" Participants responded on a 9-point scale ranging from *very unlikely* (1) to *very likely* (9). Participants were then asked, "As you made your decision about the question above, to what extent did you have the following thoughts?" The subsequent adjectives were preceded by the stem "Claiming more than $0 would be . . ." or "Rejecting the claim would be . . ." matched to condition. The adjectives that followed were *wasteful, self-centered, fair, rational, vindictive, reasonable, incompetent, selfish,* and *justifiable.* The adjectives were rated on a 9-point scale, ranging from *strongly disagree* (1) to *strongly agree* (9).

*Decisions as Player 1 and Player 2.* The response formats used in Studies 1 and 2 were repeated in Study 3. As in the previous studies, participants were told that their answers would be matched with those of another player to determine their outcome for the exercise. As in Study 2, all participants made the Player 2 decision first. For the Player 2 decision, they were presented with every possible Player 1/Player 2 allocation, starting at $7.00/$0.00 and decreasing by $0.50 to $0.00/$7.00. Participants answered using the format that corresponded to their condition (checking "accept" or "reject" or filling in an amount claimed). For the Player 1 decision, they always responded by filling

in the amount that they claimed and the amount that was available for Player 2.

## Results

### Perceptions of Denying a $7.00/$0.00 Allocation

A one-factor ANOVA revealed that the form of Player 2's action significantly affected participants' responses to the question, "If Player 1 claims $7.00, which leaves $0, how likely would you be to claim more than $0 [reject the claim]?" $F(2, 186) = 12.12$, $p < .001$. Participants in the accept or reject condition expressed a higher likelihood ($M = 8.00$) than did participants in the two claiming conditions (joint-focus $M = 5.38$ and individual-focus $M = 6.00$). Planned comparisons confirmed that the two claiming conditions were not significantly different from each other, $t(186) = 1.12$, $p > .25$, but were significantly less than the accept-or-reject condition, $t(186) = -4.78$, $p < .001$.

Participants were then asked, "As you made your decision about the question above, to what extent did you have the following thoughts?" They rated a series of adjectives on a 9-point scale that ranged from *strongly disagree* (1) to *strongly agree* (9). The means for their agreement ratings are presented in Table 5. A two-factor ANOVA was performed, which included one 3-level between-participant factor (form of Player 2's action) and one 9-level within-participant factor (adjective). (For analysis, coding for *wasteful, self-centered, vindictive, incompetent,* and *selfish* was reversed, so that higher scores on all nine adjectives indicated a favorable perception of denying the $7.00/$0.00 allocation.) The ANOVA found an unsurprising main effect for adjective, $F(8, 175) = 13.34$, $p < .001$, which indicated that strength of endorsement varied across the items, and found no interaction between adjective and the form of Player 2's action ($F = 1.0$, $p = .30$). As predicted, the form of the Player 2 action significantly affected perceptions of denying the $7.00/$0.00 allocation, $F(2, 182) = 12.79$, $p < .001$. The planned comparisons reported in Table 5 show that there was no difference between the two claiming conditions in participants' endorsement of adjectives but that the two claiming conditions did differ significantly from the accept-or-reject condition. Specifically, participants in the accept-or-reject condition thought that denying the $7.00/$0.00 allocation was less wasteful, vindictive, incompetent, and selfish and more fair, rational, reasonable, and justifiable than did participants in the claiming conditions.

Note that there were several adjectives for which the conditions produced different rates of neutral responses. Participants in the claiming conditions (joint focus and individual focus) gave the neutral response more frequently than did participants in the accept-or-reject condition for the adjectives *fair* (29% and 28% vs. 8%), $\chi^2(1, N = 185) = 10.11$, $p < .01$, and *rational* (20% and 20% vs. 3%), $\chi^2(1, N = 185) = 9.68$, $p < .01$, and less frequently for the adjective *vindictive* (14% and 8% vs. 29%), $\chi^2(1, N = 185) = 9.74$, $p < .01$.

A drawback of using a postdecision self-report technique is that although generally valid (Ericsson & Simon, 1993), it can invite some degree of postdecision justification. To address this problem, we conducted additional analyses that controlled for participants' initial likelihood judgment about denying the $7.00/$0.00 allocation. We performed a 2 (accept or reject vs. claiming) × 9 (adjective) analysis of covariance (ANCOVA), which included the likelihood judgment as a covariate. (A test of the covariate regression coefficients revealed no difference between conditions [$p > .20$], thereby satisfying the ANCOVA requirement of homogeneous slopes.) As with the original analysis, there was a main effect for adjective, $F(8, 176) = 11.84$, $p < .001$. And, as expected, the initial likelihood judgment was a highly significant predictor of participants' perceptions, with those disposed to deny the $7.00/$0.00 allocation seeing it as a more favorable action to take, $F(1, 182) = 126.85$, $p < .001$. The difference in the form of Player 2's response, however, was still an important predictor of aggregate perceptions, with "claiming more than $0" judged less favorably than "rejecting a claim of $0," $F(1, 182) = 6.41$, $p < .01$. Univariate tests revealed that three specific perceptions—*rational, vindictive,*

Table 5
*Participants' Average Degree of Agreement That an Adjective Described Their Thoughts About Denying a $7.00/$0.00 Allocation as Player 2*

| | Form of Player 2's action | | | | |
|---|---|---|---|---|---|
| Adjective | Accepting or rejecting *M* (*SD*) | Claiming (joint focus) *M* (*SD*) | Claiming (individual focus) *M* (*SD*) | Planned comparison 1 vs. 2 & 3 *t* statistic | Planned comparison 2 vs. 3 *t* statistic |
| Wasteful | 3.68 (2.83) | 5.45 (3.06) | 4.98 (3.07) | −3.32*** | 0.88 |
| Self-centered | 4.45 (3.00) | 5.17 (3.02) | 5.18 (2.71) | −1.60 | −0.01 |
| Fair | 6.47 (2.84) | 5.71 (2.62) | 5.45 (2.45) | 2.15* | 0.55 |
| Rational | 6.91 (2.80) | 4.78 (2.93) | 5.10 (2.79) | 4.47*** | −0.63 |
| Vindictive | 4.29 (2.62) | 5.97 (2.91) | 6.23 (2.95) | −4.11*** | −0.52 |
| Reasonable | 7.13 (2.57) | 5.52 (2.72) | 5.98 (2.52) | 3.40*** | −0.98 |
| Incompetent | 2.31 (2.18) | 3.67 (2.89) | 3.73 (2.52) | −3.52*** | −0.13 |
| Selfish | 3.76 (2.83) | 5.38 (2.94) | 5.30 (2.73) | −3.59*** | 0.17 |
| Justifiable | 7.73 (1.91) | 5.87 (2.71) | 6.42 (2.44) | 4.30*** | −1.27 |

*Note.* All adjectives were rated on a 9-point scale, ranging from 1 (*strongly disagree*) to 9 (*strongly agree*). For all planned comparisons, $df = 182$.
* $p < .05$. *** $p < .001$.

and *selfish*—remained significantly different across the Player 2 conditions, even after participants' initial decision was controlled, $Fs(1, 182) > 3.80$, $p < .05$. Thus, even if one makes the conservative assumption that the relationship between perceptions and initial decision is entirely the result of postdecision justification, claiming and accepting or rejecting still evoke significantly different perceptions.

### *Decisions as Player 1 and Player 2*

The average minimum outcome that participants allowed as Player 2 was significantly affected by the form of Player 2's action, $F(2, 186) = 8.89$, $p < .001$. Participants who responded by claiming (either with joint-focus or individual-focus instructions) accepted a lower outcome (*M*s = \$1.13 and \$1.42, respectively) than did participants who responded by accepting or rejecting ($M$ = \$2.15). Planned comparisons confirmed that the means for the two claiming conditions were not significantly different from each other, $t(186) = 1.15$, $p > .25$, but were significantly less than the accept-or-reject condition, $t(186) = 4.05$, $p < .001$. The proportion of participants who, as Player 2, allowed the \$7.00/\$0.00 allocation was also significantly affected by the form of Player 2's action, $\chi^2(2, N = 189) = 21.35$, $p < .001$. Participants who responded by claiming allowed the \$7.00/\$0.00 allocation more frequently (45% for joint-focus and 39% for individual-focus instructions) than did participants who responded by accepting or rejecting (10%), $\chi^2(1, N = 189) = 19.22$, $p < .001$ (after Yates's correction for continuity).

The average amount that participants allocated to Player 2 as Player 1 was also significantly affected by the form of Player 2's action, $F(2, 185) = 3.21$, $p < .05$. Participants allocated more to Player 2 as Player 1 when Player 2's action was described as claiming (joint-focus $M$ = \$3.10, and individual-focus $M$ = \$3.22) than as accepting or rejecting ($M$ = \$2.81). Planned comparisons confirmed that the means for the two claiming conditions were not significantly different from each other, $t(185) = .75$, $p > .45$, but were significantly higher than the accept-or-reject condition, $t(185) = 2.43$, $p < .02$. The proportion of participants who made an equal or better allocation to Player 2 as Player 1 also differed by condition, $\chi^2(2, N = 189) = 10.49$, $p < .01$. Participants were more likely to make the \$3.50/\$3.50 allocation as Player 1 when instructions described the Player 2 action as claiming (73% in both the joint-focus and individual-focus conditions) than as accepting or rejecting (49%), $\chi^2(1, N = 189) = 9.45$, $p < .01$ (after Yates's correction for continuity).

### *Discussion*

Study 3 replicated the main finding of Study 2. When Player 2's action was described as claiming rather than as accepting or rejecting, participants were more likely to allow a \$7.00/\$0.00 allocation as Player 2 and to make a \$3.50/\$3.50 allocation as Player 1. Moreover, this difference was equally strong when claiming was described as a joint action or as an individual action. Study 3 also showed that participants' thoughts about denying a \$7.00/\$0.00 allocation varied with the description of Player 2's action. Participants who responded by rejecting the allocation felt that it was a fairer and less selfish decision than did participants who responded by claiming more than \$0. We believe that two factors, attributions of responsibility and the clarity of evaluation, underlie the different perceptions of these actions. First, Player 2 is reluctant to inflict harm on Player 1 when the response is independent because, as an "act of commission," it increases a sense of moral responsibility (Ritov & Baron, 1990; Spranca et al., 1991). Second, Player 2 is reluctant to inflict harm when the response allows only an ambiguous protest and is open to many interpretations. The consequence is that rejecting Player 1's \$7.00 claim seems to be an evaluation of Player 1's greed and is perceived as fair and rational but claiming more than \$0 seems to be an expression of Player 2's greed and is perceived by Player 2 as selfish and wasteful, if done deliberately, or incompetent, if done by mistake.

## Study 4

Three studies have shown that the description of Player 2's action consistently affects the decisions made by participants as Player 2. Perhaps even more surprisingly, they have shown that the description of Player 2's action consistently affects the decisions made by participants as Player 1. Player 1 is more likely to make an equal allocation when Player 2 responds by claiming than by accepting or rejecting. Study 4 was designed to explore some possible explanations for Player 1's behavior.

Two very different motivations can give rise to offering an equal allocation. One is an intrinsic desire to be fair. The other is a desire to maximize expected payoff in the face of strategic uncertainty. An old debate in the ultimatum game literature illustrates this point well. Originally, Player 1's fair offers were interpreted as demonstrating that Player 1 had a taste for fairness. With time, however, researchers demonstrated that many participants in the Player 1 role had little intrinsic interest in fairness but, instead, were acting strategically, anticipating that Player 2 might have a taste for fairness (Forsythe, Horowitz, Savin, & Sefton, 1994; Kahneman, Knetsch, & Thaler, 1986). Many participants made an equal allocation simply to play it safe against fair-minded opponents.

We believe that self-interested caution, not a desire for fairness, may be the main explanation for Player 1's generosity toward Player 2s who claim. Because claiming is done relatively independently of Player 1's decision, Player 1 may think that a variety of factors, such as willfulness or incompetence, could lead Player 2 to claim more than the remainder. The action of accepting or rejecting, on the other hand, is dependent on Player 1's allocation. It presents a simple decision to go along or to retaliate. Thus, Player 1 may have more confidence that Player 2 will accept a given allocation than that Player 2 will answer that allocation with the right claim.

To distinguish whether equal allocations were motivated by self-interest or an intrinsic desire to be fair, Study 4 included measures of Player 1's expectations about Player 2's likely responses. If Player 1 were to correctly recognize that 30% of participants in the Player 2 claiming condition would allow a \$7.00/\$0.00 allocation and that 80% would allow \$4.50/\$2.50, then making an offer of \$3.50/\$3.50 would be very altruistic: Player 1 would be sacrificing some personal payoff to be fair

to Player 2. On the other hand, if Player 1 were to expect most participants in the Player 2 claiming condition to hold firm at an equal allocation, then offering \$3.50/\$3.50 would be a (misinformed) strategic decision.

Study 4 was also designed to address a potential methodological concern about Studies 1 through 3. In all three studies, participants were asked to describe a strategy for both the Player 1 and Player 2 roles. It is possible that playing both roles could have biased decisions in some systematic way (although we believe it could not have caused the differences in behavior found between games). For example, all participants in Studies 2 and 3 answered the Player 2 decision before the Player 1 decision. It is possible that making the Player 2 decision informed their decision as Player 1, most likely leading to greater caution. A more complicated consequence of playing both roles is that it may have induced participants to devise a metastrategy for the two roles. For example, perhaps participants struck a balance in aggressiveness by being highly aggressive in one role but unaggressive in the other. This option of mixing risk could produce more risky aggregate behavior than would be found if participants were assigned to one role alone. To address this methodological concern, Study 4 was designed to test the initial social dilemma—ultimatum bargaining framing effect when participants are assigned to a role at the outset of the task.

## Method

### Participants

Participants were 304 MBA students at the University of Chicago who completed the task as part of a class exercise. As in Studies 2 and 3, all participants were paid on the basis of their decisions.

### Procedure and Materials

The materials used were the same as the Study 1 social dilemma and ultimatum bargaining game descriptions, with the exception that participants were assigned to a specific role (Player 1 or Player 2) in the third sentence of the instructions. For example, participants who were assigned to the Player 1 role in the ultimatum game were told the following:

> In this exercise, you will be randomly paired with another student to participate in a resource allocation task. In this task, there is a potential pool of \$7.00, and there are two roles, Player 1 and Player 2. You have been randomly assigned to the Player 1 role. As Player 1, you will be asked to propose a division of \$7.00 between the two players, such as \$$X$ for Player 1 and \$7 − $X$ for Player 2.

The remaining instructions and questions were identical to the Study 1 versions, except that participants were asked only the questions corresponding to their assigned role.

A subset of Player 1 participants were asked to provide expectations about the proportion of Player 2 participants who would allow various allocations. Participants in the ultimatum game (social dilemma) condition were told the following:

> Imagine that a hypothetical Player 1 is making an offer [claim] that could be matched with any of 100 potential Player 2s' responses. For each possible Player 1 offer [claim] listed below (a through e), provide your estimate of how many Player 2s are likely to (1) accept it [claim equal to or less than what's left] or (2) reject it [claim more]. For each possible offer [claim], the values you assign in spaces (1) and (2) should total 100.

Five Player 1 allocations followed. In the ultimatum game condition, the precise wording for the first allocation was, "If Player 1 were to propose: (a) \$7.00 for Player 1, \$0.00 for Player 2." Underneath the heading, "How many Player 2s out of 100 do you think would . . ." were two columns, "(1) ____ accept it? + (2) ____ reject it? = 100," which forced participants to provide estimates summing to 100. The social dilemma condition questions had the same format, although the wording was changed to "If Player 1 were to claim: (a) \$7.00 for Player 1, which leaves \$0.00" and "(1) ____ claim \$0.00? + (2) ____ claim more? = 100." The remaining four allocations were: \$6.50/\$0.50, \$5.50/\$1.50, \$4.50/\$2.50, and \$3.50/\$3.50. Half of the participants in each condition answered the expectation questions before making their own allocation, and half answered them after.

## Results and Discussion

### Player 1 and Player 2 Decisions

The effect of game description found in Study 1 was replicated in Study 4. As in Study 1, participants in the Player 2 role accepted lower outcomes in the social dilemma condition than in the ultimatum game condition. Forty percent (31 of 78) of the Player 2 participants in the social dilemma condition allowed the \$7.00/\$0.00 allocation, compared with only 16% (14 of 86) in the ultimatum game condition, $\chi^2(1, N = 164) = 10.16, p < .001$ (after Yates's correction for continuity). The average minimum outcome allowed by participants in the social dilemma condition ($M$ = \$1.19) was lower than the outcome accepted by participants in the ultimatum game condition ($M$ = \$1.58), although this effect was only marginally significant, $F(1, 163) = 3.22, p < .08$.

The decisions of participants in the Player 1 role confirmed the marginal effect found in Study 1. Seventy-five percent of the Player 1 participants (51 of 68) in the social dilemma condition allocated \$3.50 or more to Player 2, compared with only 51% (37 of 72) in the ultimatum condition offering that amount, $\chi^2(1, N = 140) = 7.37, p < .01$ (after Yates's correction for continuity). The difference in the average amount that participants allocated to Player 2 was in the predicted direction ($M$ = \$3.17 in the social dilemma condition vs. $M$ = \$2.93 in the ultimatum game condition) but, as in Study 1, was not significant, $F(1, 139) = 1.96, p = .16$.

### Player 1 Expectations

Seventy-three participants assigned to the Player 1 role were asked to provide estimates of the number of 100 Player 2s who would allow or deny a series of five allocations. We conducted a 2 × 2 × 5 ANOVA, with game (social dilemma vs. ultimatum game) and order (expectations elicited before vs. after the allocation decision) as between-participant factors and level of allocation (five levels) as a within-participant factor. There were no significant order effects or interactions (all $F$s < 1.2, $p$s > .30), and there was an unsurprising level-of-allocation effect, such that more equal allocations were predicted to be more acceptable, $F(1, 69) = 200, p < .001$. As can be seen in Table 6, there was a main effect of game, such that Player 1 participants in the social dilemma condition were more pessimistic

Table 6
*Player 1's Mean Estimate of Number of 100 Player 2s Who Would Allow Each Allocation*

| | Allocation (Player 1/Player 2) | | | | |
|---|---|---|---|---|---|
| | $7.00/$0.00 | $6.50/$0.50 | $5.50/$1.50 | $4.50/$2.50 | $3.50/$3.50 |
| Game | *M* (*SD*) | *M* (*SD*) | *M* (*SD*) | *M* (*SD*) | *M* (*SD*) |
| Social dilemma ($n$ = 35) | 1.0 (2.3) | 9.1 (19.0) | 15.1 (22.2) | 26.3 (26.5) | 68.4 (24.9) |
| Ultimatum game ($n$ = 38) | 0.2 (0.6) | 14.5 (29.3) | 27.3 (30.7) | 40.0 (32.6) | 86.3 (20.6) |

than participants in the ultimatum condition, about the acceptability of most allocations, $F(1, 69) = 5.68$, $p < .02$. A significant Level of Allocation × Game interaction, $F(4, 276) = 3.09$, $p < .02$, revealed that the game effect was much stronger for the $3.50/$3.50 allocation, univariate $F(1, 69) = 10.94$, $p < .001$, than for the other allocations, univariate $Fs(1, 69) < 3.8$, $ps < .06$. The strong game effect for the $3.50/$3.50 allocation appears to have been due to decreased variance in the dependent variable, because many participants predicted that nearly all 100 Player 2s would accept the allocation. The tendency to report such high levels of confidence differed significantly by game: In the ultimatum condition, 71% of Player 1 participants believed that at least 90 of 100 Player 2s would accept the equal allocation, whereas in the social dilemma condition, only 36% of Player 1 participants were so confident, $\chi^2(1, N = 73) = 7.74$, $p < .01$ (after Yates's continuity correction).

### *Discussion*

Study 4 confirmed that the framing effects found in Studies 1 through 3 were robust to decision-elicitation procedures. Specifically, the initial social dilemma–ultimatum game framing effect found in Study 1 was not diminished when participants were assigned to a specific player role. The magnitudes of the framing effects in Study 4 were virtually identical to those found in Studies 1 through 3. In Studies 1 through 4, the percentage of Player 2 participants allowing the $7.00/$0.00 allocation in the claiming versus accept-or-reject conditions were 30% vs. 2%, 30% vs. 10%, 43% vs. 10%, and 40% vs. 16%. In those same conditions, the percentage of Player 1 participants making the $3.50/$3.50 allocation were 56% vs. 37%, 57% vs. 42%, 73% vs. 49%, and 75% vs. 51%. Although the Study 4 responses were somewhat more generous than those in Studies 1 and 2 (perhaps reflecting less risk taking or greater concern for the opponent), they were of similar generosity to those of Study 3, providing little evidence that playing two roles significantly altered behavior.

Study 4 also provided insight about why Player 1 participants are more likely to make an equal allocation when Player 2 claims rather than accepts or rejects. Player 1 participants were relatively pessimistic about Player 2 making a cooperative counterclaim, even in response to the equal allocation. Their tendency, therefore, to offer the equal allocation appears to be a strategic decision motivated by self-interest. We believe that the open-ended claiming response creates the perception of independence. Player 1 may believe that Player 2, out of pride or stupidity, could make an aggressive claim regardless of the amount that is left. By contrast, the close-ended accept or reject response creates the appearance of dependence on Player 1's initial allocation. Accurately or not, Player 1 may feel that Player 2's behavior will be more predictable and compliant.

## General Discussion

We began this article with the observation that structurally equivalent versions of two-party social dilemmas and ultimatum bargaining games were being studied with different results. Through the studies reported here, we verified the existence of this procedural framing effect and showed that a subtle difference in how an action is framed can produce a large and consistent change in allocation preferences. Study 1 confirmed that participants in a sequential social dilemma behaved more generously than did participants in an equivalent ultimatum game. In particular, participants were more likely to accept a $7.00/$0.00 allocation as Player 2 and to offer a $3.50/$3.50 allocation as Player 1. Study 2 revealed that the procedural framing effect was primarily due to the form of Player 2's action. Participants were more generous when Player 2's action was described as claiming than when it was described as accepting or rejecting. Study 3 showed that claiming and accepting or rejecting evoked different interpretations of fairness and selfishness in denying a $7.00/$0.00 allocation. We argued that claiming more than $0 is a more independent and ambiguous action than rejecting a claim of $7.00, which makes Player 2 in the claiming condition more reluctant to inflict harm on their Player 1 partner. The results confirmed that participants felt that claiming more than $0 was more selfish and less fair than rejecting a claim of $7.00. Finally, Study 4 revealed that Player 1 participants had different expectations about Player 2's rate of compliance in ultimatum games and social dilemmas. Nearly 90% of Player 2s were expected to accept an equal allocation, compared with only 70% expected to claim $3.50 or less. The tendency for Player 1 to offer equal allocations to Player 2s who claim appears to be a strategic rather than generous act.

### *The Source of Bias: Rejecting or Claiming?*

The studies reported here have shown that social dilemma frames and ultimatum frames lead to different bargaining decisions, even though they both describe the same two-party, se-

quential allocation procedure. Could participants, through reflection, recognize the deeper structure in these games and show consistent preferences across frames? If so, then their subsequent enlightened preferences can serve as a benchmark for interpreting the direction of bias. For example, it is possible that both frames induce a bias (in opposite directions) or that one frame alone accounts for the discrepancy. A study that we conducted on perceptions of procedural fairness in ultimatum games and social dilemmas seems to provide a benchmark (Blount & Larrick, 1997b). In this study, participants read the same game descriptions used in Study 1 and then answered 11 procedural fairness questions (Tyler, 1994), before making their decisions as Player 1 and Player 2. These questions asked about dimensions of control, such as, "Who has more control over the allocation process?" and "Who has more control over the allocation outcome?" (which were answered on a 21-point scale, with the anchors *Player 1 has complete control* and *Player 2 has complete control*), and relationship, such as "Do Player 1 and Player 2 have similar or conflicting interests?" (which was answered on a 21-point scale, with the anchors *their interests are highly similar* and *their interests are highly conflicting*).

Perceptions of power and similarity did not differ between the two game conditions. For example, participants in both conditions believed that Player 1 had more control over the process (ultimatum game $M = 6.6$ and social dilemma $M = 5.4$, *ns*) and that Player 2 had more control over the outcome (ultimatum game $M = 14.67$ and social dilemma $M = 14.61$, *ns*). Having perceived the same structure underlying the two games, participants in both conditions no longer behaved differently. Not surprisingly, the \$7.00/\$0.00 allocation was accepted by just 3% of the ultimatum game participants (1 of 34). Quite surprisingly, however, the typical 30% to 40% rate of acceptance among social dilemma participants dropped to only 7% (2 of 30). This dramatic shift in cooperation suggests that it is the act of claiming that ordinarily induces a bias, specifically, a bias to comply. The more basic frame in these two-party, sequential allocation procedures appears to be the ultimatum frame.

### *Player 1's Strategic Failure When Player 2 Claims*

Study 4 revealed that Player 1's expectations in the ultimatum game condition were reasonably accurate. Player 1 participants correctly predicted that almost no Player 2s would accept a \$7.00/\$0.00 allocation, that half would accept a \$4.50/\$2.50 allocation, and that about 90% would accept a \$3.50/\$3.50 allocation. The modal Player 1 allocation of \$3.50/\$3.50 turned out to be a wise one. It was the allocation that had the highest expected value (EV: \$3.43), given the actual distribution of Player 2 responses, exceeding the next best allocation (\$6.50/\$0.50) by \$0.20; deviating from it only slightly (\$4.00/\$3.00) was quite costly in terms of EV (\$3.12).

By comparison, the Player 1 expectations in the social dilemma condition were strikingly inaccurate. Player 1 participants believed that almost no Player 2s would allow a \$7.00/\$0.00 allocation, that only 30% would allow a \$4.50/\$2.50 allocation, and that only 70% would allow a \$3.50/\$3.50 allocation, whereas the true percentages were roughly 30%, 80%, and 100%, respectively. Their modal allocation of \$3.50/\$3.50 yielded a high EV (\$3.50) but was not as good as four other allocations: \$6.50/\$0.50 (EV = \$3.64), \$6.00/\$1.00 (EV = \$3.60), \$5.00/\$2.00 (EV = \$3.70), and \$4.50/\$2.50 (EV = \$3.60). Expected value ignores attitudes about risk, but assuming that decision makers could tolerate a minimum amount of risk, such as a three in four chance of success, the \$5.00/\$2.00 and \$4.50/\$2.50 allocations were still more advantageous than an equal allocation.

All four studies showed that when Player 2 claims, Player 1 has an opportunity to exploit Player 2's generosity but does not take it. How deep is the failure to recognize the opportunity? One means for testing this failure is to see whether experience reduces it. For example, Harrison and McCabe (1992) had participants alternate playing the role of Player 1 and Player 2 in a variant of the ultimatum game. They found rapid learning: Having once been Player 2, participants moved away from making an equal allocation to an allocation that barely exceeded Player 2's minimum. This is consistent with a well-established finding in the social judgment literature that people use their own attitudes and behavior to predict the attitudes and behavior of others (Marks & Miller, 1987). Some have argued that this tendency produces egocentric overgeneralizations about others, or a "false-consensus effect" (Ross, Greene, & House, 1977), whereas others have argued that it is a reasonable strategy when dealing with limited information and may actually be underused (Dawes, 1989, 1990).

The methods used in Studies 1 through 3 allowed us to examine whether our participants generalized from their experience as Player 2. In all three studies, participants made decisions as both Player 1 and Player 2. In some conditions of Study 1 and in all conditions of Studies 2 and 3, participants made their Player 2 decision first. Participants in the Player 2 claiming conditions therefore knew their own willingness to allow unfavorable allocations before they made their decision as Player 1, and participants in the Player 2 accept-or-reject conditions knew their own tendencies to be firm. Did they use the knowledge about their own behavior to generalize (or overgeneralize) to the behavior of other players?

To explore whether experience with the Player 2 role affected decisions as Player 1, we calculated two measures of association between Player 1 and Player 2 responses: the percentage of participants who gave identical responses in both roles and the Pearson product-or-moment correlation coefficients between their responses. The identical response variable measured the percentage of participants who allocated to Player 2 as Player 1 an amount equal to their own minimum as Player 2. The Pearson correlation measured the relative correspondence between these variables (i.e., not whether they were identical, but whether they were linearly related). These measures were calculated for the claiming conditions and accept-or-reject conditions in the three studies reported here, as well as for three similar studies reported elsewhere. The measures of association reported in Table 7 indicate that with the exception of Study 2, decisions as Player 1 and Player 2 tended to correspond more closely in the accept-or-reject conditions than in the claiming conditions. Statistical tests performed on the pooled data found that participants in the claiming conditions gave significantly fewer identical responses (28%) than did participants in the accept-or-reject conditions (42%), $\chi(1, N = 730) = 14.08$, $p < .001$. And the correlation coefficients calculated for the

Table 7
*Measures of Association Between Participants' Responses as Player 1 and as Player 2*

| | Form of Player 2 action | | | | | |
|---|---|---|---|---|---|---|
| | Claiming | | | Accepting or rejecting | | |
| Study | Identical response | $r$ | $n$ | Identical response | $r$ | $n$ |
| Study 1 | 25% | .29 | 36 | 35% | .46** | 34 |
| Study 2 | 35% | .17 | 109 | 38% | .17 | 110 |
| Study 3 | 19% | .17* | 126 | 40% | .59*** | 62 |
| Blount & Larrick (1997a) | 26% | .22* | 80 | 46% | .30 | 33 |
| Blount & Larrick (1997b; Study 1) | 36% | .11 | 39 | 51% | .70*** | 37 |
| Blount & Larrick (1997b; Study 2) | 43% | .36* | 30 | 50% | .79*** | 34 |
| Pooled data | 28% | .18*** | 420 | 42% | .40*** | 310 |

*Note.* All measures are within-participant comparisons of the amount a participant allocated to Player 2 as Player 1 and the minimum amount allowed as Player 2. Identical response is the percentage of participants who allocated to Player 2 (as Player 1) the same amount that they themselves allowed as Player 2. $r$ is the Pearson product–moment correlation between these amounts. Study 1 data included only those conditions in which participants made their Player 2 decisions before their Player 1 decisions. See the reference section for more information on additional studies.
* $p < .05$. ** $p < .01$. *** $p < .001$.

pooled data were significantly different from each other at $p = .001$ (using Fisher's $r$-to-$z$ transformation).[5]

The tendency to generalize from one's behavior is weaker after making a claim than after deciding to accept or reject. Once again, this is consistent with the notion that the independence of claiming makes Player 2's behavior less predictable than accepting or rejecting. A second factor that might underlie the difference is that accepting or rejecting is evaluative and draws more attention to fairness. (Recall that in Study 3, there was a good deal of consensus that rejecting a \$7.00/\$0.00 allocation was fair, whereas there was a significant proportion of neutral feelings about the fairness of claiming more than \$0.) Fairness judgments are notoriously egocentric: Bargainers tend to make self-serving fairness judgments and then assume that informed, reasonable observers would reach the same conclusion (Babcock, Loewenstein, Issacharoff, & Camerer, 1995; Thompson & Loewenstein, 1992). The accept-or-reject response, therefore, may lead to more egocentric generalization because it evokes fairness judgments more strongly than claiming does.

It would be interesting in subsequent studies to examine the salience of fairness in each game and to test whether it mediates generalizing to others from one's own behavior. More generally, these simple, well-controlled games would be a useful context for testing what moderates whether people generalize too much (Ross et al.'s, 1977, "false consensus") or too little (Dawes's, 1990, version of "false uniqueness") from their own behavior. The findings could inform both experimental economic research on learning and social psychological research on the egocentricity of judgments.

### *The Claiming Effect*

Framing Player 2's response in a sequential allocation as claiming an amount rather than as accepting or rejecting Player 1's allocation has four behavioral consequences. First, it makes Player 2 more inclined to allow highly unfavorable allocations, such as the \$7.00/\$0.00 allocation we have studied. Second, it deters Player 1 from making unequal allocations. Third, these two effects in combination increase the percentage of transactions that are completed. For example, if all possible pairs of Player 1 allocations and Player 2 decisions were matched in Study 1 (using the frequency distributions in Figures 1 and 2), there would be an 85% completion rate when Player 2 claims (in the social dilemma frame), compared with a 70% completion rate when Player 2 accepts or rejects (in the ultimatum bargaining frame). This same pattern was replicated in the other three studies. The fourth consequence of Player 2's claiming is that it reduces participants' willingness to generalize from their own decision as Player 2 to the allocation they make as Player 1 (as shown in Table 7).

The claiming effect, like the commons dilemma–public goods dilemma effect, illustrates the importance of construal processes in bargainers' decisions (Allison et al., 1996). In addition, it extends the concept of procedural frames to more social psychological factors. Whereas the commons dilemma–

[5] There was no difference in variance between the claiming and accept–reject conditions for either the Player 1 decision (respective $SD$s = 1.08 vs. 1.17), $F(417, 307) = 1.17$, $p > .10$, or the Player 2 decision (respective $SD$s = 1.45 vs. 1.37), $F(417, 307) = 1.12$, $p > .30$, and the direction of difference was opposite for the two decisions, which indicated that the difference in correlation between the two conditions was not an artifact of restricted range. Regression analyses that included dummy variables for individual studies yielded standardized regression coefficients (part correlations) of the same magnitude as the Pearson correlation coefficients found for the pooled data ($\beta = .19$ for claiming and $\beta = .40$ for accept–reject). An interaction test for the difference in slope was significant, $t(721) = 3.47$, $p < .001$.

public goods dilemma effect is produced by the asymmetry of gains and losses, the claiming effect occurs because of changes in perceptions of control and responsibility. Naturally, there are many other influences of procedural description on behavior that need to be explored. We believe that procedural framing effects can be useful tools in future research for identifying new linguistic (Semin & Marsman, 1994) and metaphorical (Allison et al., 1996; Bazerman & Carroll, 1987) features that influence bargaining and allocation behavior.

The claiming effect also has implications for research on sequential social dilemmas and ultimatum bargaining games. In their recent review of mixed-motive interaction, Komorita and Parks (1995) recommended these games as useful paradigms for studying basic social psychological aspects of bargaining, such as judgments of fairness. In addition, they noted that the games' similarities offer the possibility of using research in one paradigm to inform the other (Komorita & Parks, 1995). We believe that such comparisons would be extremely valuable, and that they can be made as long as potential limitations are recognized. For example, it appears that the findings on learning in the ultimatum game literature (e.g., Harrison & McCabe, 1992) may not generalize well to the sequential social dilemma literature. In addition, the "taste for fairness" explanations that have dominated the ultimatum game literature may be less relevant to sequential social dilemmas, for which fairness judgments appear to be less important. Naturally, these speculations are based on preliminary findings, and future research is needed to uncover the range of psychological differences that distinguish these games.

We close by considering some possible implications of procedural framing effects in everyday allocations. The existence of procedural frames suggests that more powerful parties could exploit weaker parties by manipulating procedural descriptions (see Lind and Tyler's, 1988, discussion of "false consciousness"). For example, bargainers (or institutions) who can successfully frame an allocation process as a social dilemma rather than an ultimatum game will have an advantage over other participants. And, in fact, many real-world resource dilemmas seem to be framed this way. For many scarce resources, society's Player 1s make a claim, and Player 2s—new arrivals and new generations—have nothing left from which to make a counterclaim. Framed in this way, Player 2 may be reluctant to block Player 1's claim because doing so requires an act of commission: Attempting to take more than what is left. A different frame, such as the decision to accept or reject, is likely to increase Player 2's willingness to challenge unfavorable allocations even if it jeopardizes joint outcome. A practical implication is that protest leaders and bargainers may find it more politically effective to frame their response as rejecting unfair allocations than making a selfish counterclaim.

## References


Allison, S. T., Beggan, J. K., & Midgley, E. H. (1996). The quest for "similar instances" and "simultaneous possibilities": Metaphors in social dilemma research. *Journal of Personality and Social Psychology, 71,* 479–497.

Allison, S. T., & Messick, D. M. (1990). Social decision heuristics in the use of shared resources. *Journal of Behavioral Decision Making, 3,* 195–204.

Babcock, L., Loewenstein, G., Issacharoff, S., & Camerer, C. (1995). Biased judgments of fairness in bargaining. *American Economic Review, 85,* 1337–1343.

Bazerman, M. H., & Carroll, J. S. (1987). Negotiator cognition. In B. Staw & L. Cummings (Eds.), *Research in organizational behavior* (Vol. 9, pp. 247–288). Greenwich, CT: JAI Press.

Bazerman, M. H., Magliozzi, T., & Neale, M. A. (1985). Integrative bargaining in a competitive market. *Organizational Behavior and Human Decision Processes, 35,* 294–313.

Blount, S. (1995). When social outcomes aren't fair: The effect of causal attributions on preferences. *Organizational Behavior and Human Decision Processes, 63,* 131–144.

Blount, S., & Larrick, R. P. (1997a). *The claiming effect in ultimatum games.* Unpublished manuscript, University of Chicago.

Blount, S., & Larrick, R. P. (1997b). *Guided by fairness: Distributive and procedural fairness judgments explain ultimatum bargaining behavior.* Unpublished manuscript, University of Chicago.

Bornstein, G., Crum, L., Wittenbraker, J., Harring, K., Insko, C. A., & Thibaut, J. W. (1983). On the measurement of social orientations in the minimal group paradigm. *European Journal of Social Psychology, 13,* 321–350.

Brewer, M. B., & Kramer, R. M. (1986). Choice behavior in social dilemmas: Effects of social identity, group size, and decision framing. *Journal of Personality and Social Psychology, 50,* 543–549.

Brown, R. (1965). *Social psychology.* New York: Free Press.

Brown, R., & Fish, D. (1983). The psychological causality implicit in language. *Cognition, 14,* 237–273.

Budescu, D. V., Rapoport, A., & Suleiman, R. (1992). Simultaneous vs. sequential requests in resource dilemmas with incomplete information. *Acta Psychologica, 80,* 297–310.

Budescu, D. V., Suleiman, R., & Rapoport, A. (1995). Positional and group size effects in resource dilemmas with uncertain resources. *Organizational Behavior and Human Decision Processes, 61,* 225–238.

Camerer, C., & Thaler, R. H. (1995). Ultimatums, dictators and manners. *Journal of Economic Perspectives, 9,* 209–219.

Campbell, D. T. (1958). Common fate, similarity, and other indices of the status of aggregates of persons as social entities. *Behavioral Science, 3,* 14–25.

Dawes, R. M. (1980). Social dilemmas. *Annual Review of Psychology, 31,* 169–193.

Dawes, R. M. (1989). Statistical criteria for establishing a truly false consensus effect. *Journal of Experimental Social Psychology, 25,* 1–17.

Dawes, R. M. (1990). The potential nonfalsity of the false consensus effect. In R. M. Hogarth (Ed.), *Insights in decision making* (pp. 179–199). Chicago: University of Chicago Press.

Eiser, J. R., & Bhavnani, K. (1974). The effect of situational meaning on the behavior of subjects in the Prisoner's Dilemma Game. *European Journal of Social Psychology, 4,* 93–97.

Erev, I., & Rapoport, A. (1990). Provision of step-level public goods: The sequential contribution mechanism. *Journal of Conflict Resolution, 34,* 401–425.

Ericsson, K. A., & Simon, H. A. (1993). *Protocol analysis: Verbal reports as data.* Cambridge, MA: MIT Press.

Fagley, N. S. (1993). A note concerning reflection effects versus framing effects. *Psychological Bulletin, 113,* 451–452.

Fleishman, J. A. (1988). The effects of decision framing and others' behavior on cooperation in a social dilemma. *Journal of Conflict Resolution, 32,* 162–180.

Forsythe, R., Horowitz, J., Savin, N., & Sefton, M. (1994). Fairness in simple bargaining experiments. *Games and Economic Behavior, 6,* 347–369.

Guth, W., Schmittberger, R., & Schwarze, B. (1982). An experimental

analysis of ultimatum bargaining. *Journal of Economic Behavior and Organization, 3,* 367–388.

Guth, W., & Tietz, R. (1990). Ultimatum bargaining behavior: A survey and comparison of experimental results. *Journal of Economic Psychology, 11,* 417–449.

Hardin, G. (1968). The tragedy of the commons. *Science, 162,* 1243–1248.

Harrison, G. W., & McCabe, K. A. (1992). Testing noncooperative bargaining theory in experiments. *Research in Experimental Economics, 5,* 137–169.

Hoffman, C., & Tchir, M. A. (1990). Interpersonal verbs and dispositional adjectives: The psychology of causality embodied in language. *Journal of Personality and Social Psychology, 58,* 765–778.

Kahneman, D., Knetsch, J., & Thaler, R. H. (1986). Fairness and the assumption of economics. *Journal of Business, 59,* S285–S300.

Kanouse, D. E. (1972). Language, labelling, and attribution. In E. E. Jones, D. E. Kanouse, H. H. Kelley, R. E. Nisbett, S. Valins, & B. Weiner (Eds.), *Attribution: Perceiving the causes of behavior* (pp. 121–135). New York: General Learning Press.

Kelley, H. H., & Thibaut, J. W. (1978). *Interpersonal relations.* New York: John Wiley.

Komorita, S. S., & Parks, C. D. (1995). Interpersonal relations: Mixed-motive interaction. *Annual Review of Psychology, 46,* 183–207.

Larrick, R. P., & Blount, S. (1995). Social context in tacit bargaining games: Consequences for perceptions of affinity and cooperative behavior. In R. M. Kramer & D. M. Messick (Eds.), *Negotiation as a social process* (pp. 268–284). Thousand Oaks, CA: Sage.

Lind, E. A., & Tyler, T. R. (1988). *The social psychology of procedural justice.* New York: Plenum.

Marks, G., & Miller, N. (1987). Ten years of research on the false consensus effect: An empirical and theoretical overview. *Psychological Bulletin, 102,* 72–90.

McClintock, C. G. (1972). Social motivation: A set of propositions. *Behavioral Science, 17,* 438–454.

McCusker, C., & Carnevale, P. J. (1995). Framing in resource dilemmas: Loss aversion and the moderating effects of sanctions. *Organizational Behavior and Human Decision Processes, 61,* 190–201.

Messick, D. M., & Allison, S. T. (1987). Accepting unfairness: Outcomes and attributions. *Representative Research in Social Psychology, 17,* 39–50.

Messick, D. M., & Brewer, M. B. (1983). Solving social dilemmas: A review. In L. Wheeler & P. Shaver (Eds.), *Review of personality and social psychology* (Vol. 4, pp. 11–44). Beverly Hills, CA: Sage.

Messick, D. M., & McClintock, C. G. (1968). Motivational basis of choice in experimental games. *Journal of Experimental Social Psychology, 4,* 1–25.

Neale, M. A., & Bazerman, M. H. (1985). The effects of framing and negotiator overconfidence on bargainer behavior. *Academy of Management Journal, 28,* 34–49.

Neale, M. A., & Bazerman, M. H. (1991). *Cognition and rationality in negotiation.* New York: Free Press.

Rapoport, A., Budescu, D. V., & Suleiman, R. (1993). Sequential requests from randomly distributed shared resources. *Journal of Mathematical Psychology, 37,* 241–265.

Ritov, I., & Baron, J. (1990). Reluctance to vaccinate: Omission bias and ambiguity. *Journal of Behavioral Decision Making, 3,* 263–277.

Ross, L., Greene, D., & House, P. (1977). The "false consensus effect": An egocentric bias in social perception and attribution processes. *Journal of Experimental Social Psychology, 13,* 279–301.

Roth, A. E. (1994). Bargaining. In J. Kagel & A. E. Roth (Eds.), *Handbook of experimental economics* (pp. 253–348). Princeton, NJ: Princeton University Press.

Rutte, C. G., Wilke, H. A., & Messick, D. M. (1987). The effects of framing social dilemmas as give-some or take-some games. *British Journal of Social Psychology, 26,* 102–108.

Schelling, T. C. (1960). *The strategy of conflict.* Cambridge, MA: Harvard University Press.

Schurr, P. H. (1987). Effects of gain and loss decision frames on risky purchase negotiations. *Journal of Applied Psychology, 72,* 351–358.

Semin, G. R., & Marsman, G. (1994). "Multiple inference-inviting properties" of interpersonal verbs: Event instigation, dispositional inference, and implicit causality. *Journal of Personality and Social Psychology, 67,* 836–849.

Spranca, M., Minsk, E., & Baron, J. (1991). Omission and commission in judgment and choice. *Journal of Experimental Social Psychology, 27,* 76–105.

Stevens, J. (1990). *Intermediate statistics: A modern approach.* Hillsdale, NJ: Erlbaum.

Thompson, L. L., & Loewenstein, G. (1992). Egocentric perceptions of fairness and interpersonal conflict. *Organizational Behavior and Human Decision Processes, 51,* 176–197.

Tversky, A., & Kahneman, D. (1981). The framing of decisions and the psychology of choice. *Science, 211,* 453–458.

Tversky, A., & Kahneman, D. (1991). Loss aversion in riskless choice: A reference dependent model. *Quarterly Journal of Economics, 106,* 1039–1061.

Tyler, T. R. (1994). Psychological models of the justice motive: Antecedents of distributive and procedural justice. *Journal of Personality and Social Psychology, 67,* 850–863.

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