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# Cooperation with leaders in social dilemmas: On the effects of procedural fairness and outcome favorability in structural cooperation<sup>☆</sup>

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## Abstract

The present research examined the effectiveness of leadership in influencing cooperation in social dilemmas by focusing on the procedural fairness and favorability of leaders' outcome decisions. We predicted that leader's influence on cooperation would be determined by the fairness of the procedures used, but only so when received outcomes were unfavorable. Across two experimental studies, support for this hypothesis was found. Both in Study 1 (using accuracy as a manipulation of procedural fairness) and Study 2 (using voice as a manipulation of procedural fairness), it was found that procedural fairness influenced contributions in a public good dilemma only if outcomes were unfavorable (i.e., participants received less than an equal share), whereas procedural fairness did not influence level of contributions when outcomes were favorable (i.e., participants received more than an equal share).

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## 1. Introduction

A defining feature of organizations is that their members and departments are to a greater or lesser degree interdependent with one another (Victor & Blackburn, 1987; Wageman, 1995), and therefore are often confronted with decisions that involve a conflict between one's own interest and the interest of the department or organization as a whole. For example, the welfare of organizations depends largely on the willingness of its members to contribute time, energy, and effort to organizational goals and projects. This situation, however, motivates individuals to free-ride (i.e., invest less than others or even nothing to the interest of the organization), because once organizational facilities and resources are provided, all members can enjoy them, regardless of whether they contributed much or little. A consequence of such economic behavior is that if all individuals engage in the pursuit of immediate self-in-

terest, outcomes are worse than when all contribute to the collective good (i.e., due to lesser investments team projects will fail, organizational resources will not be provided). This tension between individual interests and collective interests is referred to as *social dilemmas*, or more specifically, *public goods dilemmas* (for overviews see Komorita & Parks, 1994; Messick & Brewer, 1983).

Accordingly, it is important to enhance our understanding on how to reduce free-riding and promote cooperative behavior. A promising and effective way of promoting contributions seems to be to modify or change the interdependence structure by installing a leader structure in which contributions from group members are enforced (Buckley, Burns, & Meeker, 1974; Yamagishi, 1986). Previous research (e.g., Messick et al., 1983; Samuelson & Messick, 1986) has mainly examined *when* group members are willing to appoint a leader. However, despite the fact that within organizations hierarchical structures exist, hardly any research has examined whether group members are also willing to cooperate with an established leader (i.e., referred to as *structural cooperation*, see De Cremer, 2002a; Van Vugt & De Cremer, 1999).

Leaders may engender cooperation by monitoring group members' behavior, giving guidance and feedback

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about group members' behavior, and, when necessary, enforcing cooperation by sanctions for uncooperative behavior or rewards for cooperative behavior. Leaders therefore are an important source of positive and negative feedback and positive and negative outcomes for group members. As a result, a crucial concern in group members' reactions to the leader, and therefore in the leader's ability to engender cooperation, is group members' perceptions of the outcomes received and the procedures used to arrive at these outcomes, that is, of outcome favorability and procedural fairness (Brockner & Wiesenfeld, 1996; Lind & Tyler, 1988; Tyler & DeGoey, 1995). Therefore, to enhance our understanding of the psychology of structural cooperation, the purpose of the present research is to examine how an established leader may promote contributions by focusing on the influence of outcome favorability and procedural fairness.

### 1.1. Leadership as a structural change in social dilemmas

Leadership as a structural solution to social dilemmas has received considerable attention by social psychologists who mainly examined under which conditions people prefer to select an autocratic leader who would make decisions on behalf of the group (see Messick, 1984; Wilke, 1991 for overviews). Evidence from these studies shows that under circumstances of group's inefficiency (i.e., overuse of a resource, failure to establish the public good; Messick et al., 1983; Rutte & Wilke, 1984) and inequality in outcomes (De Cremer, 2000; Samuelson & Messick, 1986), group members prefer to elect a group leader rather than to maintain a status quo situation. Thus, people are willing to contribute towards the implementation of a leader structure when they consider a leader to be a better alternative than the status quo situation to promote group efficiency and equality in outcomes (what is referred to as *instrumental cooperation*, see Yamagishi, 1986).

However, it is fair to note that this type of research has not addressed the issue of cooperation once a leader is implemented. Indeed, surprisingly little experimental research on this topic of established leadership has been conducted (for exceptions see De Cremer & van Knippenberg, 2002; De Cremer & Van Vugt, 2002; Van Vugt & De Cremer, 1999), and correlational studies, aside from being mute regarding causality, are typically ambiguous as to whether measures of leadership effectiveness may be interpreted as cooperation in a social dilemma. For a variety of reasons it seems important to examine whether or not people will decide to cooperate when monitored by a leader (i.e., structural cooperation).

First, organizational social dilemmas nearly always take place within a hierarchical structure. Organizations consist of individuals who work interdependently and such situations require coordination of activities by

management (Pfeffer, 1998). Thus, authorities are a salient aspect of groups and organizations and therefore cannot be excluded from collective decision-making situations. Second, although most decisions are made within a hierarchical structure, it seems impossible for leaders to act in an autocratic or sanctioning manner and monitor all decisions made (in contrast to previous research that examined the preference for an autocratic leader). Such leader systems are not viable as they are perceived as undesirable in terms of emotional and productivity consequences (e.g. Tenbrunsel & Messick, 1999), too infringing on people's freedom and too expensive (Hollander, 1985; Rutte & Wilke, 1985; Tyler & DeGoey, 1996). Consequently, autocratic leader systems do not typically exist within our contemporary society and organizations (Cross & Guyer, 1980). As such, even with an appointed leader in social dilemmas the issue of cooperation remains a complex one, because individuals still enjoy some freedom to refrain from contributing to the organizational or collective welfare when monitored by a leader. Thus, it is important to examine which leadership factors determine structural cooperation.

### 1.2. Outcome favorability and procedural fairness as antecedents of structural cooperation

As noted above, when a leader is appointed to induce cooperation in a social dilemma, the leader may affect the outcomes group members receive to a substantial degree. As a consequence, the favorability of the outcomes received as well as the fairness of the procedures used by the leader to arrive at these outcomes may be expected to play a central role in group members' responses to and willingness to cooperate with the leader.

With respect to favorability of *outcomes*, individuals in social dilemmas may be expected to strive for, or at the very least prefer, favorable outcomes. Leaders may play an important role in this respect by rewarding cooperation and sanctioning noncooperation, as such affecting group member outcomes (Van Vugt & De Cremer, 1999). If cooperation provides group members with favorable outcomes, they may be expected to stay cooperative (cf. the win-stay heuristic; Macy, 1995). In a similar vein, if noncooperative behavior results in unfavorable outcomes, such negative feedback may communicate to group members that an increase in contributions is required (cf. the lose-change heuristic; Macy, 1995). Moreover, if leaders act in ways that decrease free-riding by others, group members will be more likely to support these leaders and to engage in cooperative behavior (De Cremer, 2000; Yamagishi, 1986).

Several theoretical perspectives converge on the conclusion that the fairness of the *procedure* used by the leader to affect group members' outcomes also plays a key role in determining group member cooperation

(De Cremer & Van Vugt, 2002). Procedural fairness may (a) suggest that long term self-interest is served by accepting the leader's decisions and directives (cf. self-interest theory, Thibaut & Walker, 1975), (b) make it more difficult to imagine alternative outcomes that exceed the ones received and thus may render group members more likely to respond positively to the leader's decision (cf. Referent Cognitions Theory; Folger, 1993), (c) lead group members to attribute the outcomes received to their own behavior (i.e., rather than to unfair procedures) and thus to expect similar behavior to result in similar outcomes in the future (attributional explanation, cf. Brockner & Wiesenfeld, 1996), or (d) confirm group members' standing and respect within the group and thus engender cooperation (cf. Tyler & Lind, 1992). Indeed, research has shown that when procedures are perceived to be fair, people are more likely to engage in citizenship behavior (Moorman, 1991) and to perform better in their job (Konovsky & Cropanzano, 1991).

There is converging evidence that the effects of procedural fairness are most strongly observed when outcomes are unfavorable (Brockner & Wiesenfeld, 1996). Whereas favorable outcomes may generally satisfy people, unfavorable outcomes elicit a greater need for explanation (Folger, 1986; Weiner, 1985) and thus focus attention more strongly on the procedures used to arrive at the outcome. Accordingly, under the latter circumstances, procedural fairness will have a greater impact on people's responses, like cooperation, to the decision.<sup>1</sup> Also, as suggested by the win-stay and lose-change heuristics (Macy, 1995), when own behavior seems to result in favorable outcomes there is no need to reconsider own behavior, but when own behavior seems to result in unfavorable outcomes, one needs to determine if and how behavior may be changed to elicit more favorable outcomes.

In this respect, when outcomes are unfavorable, procedures may be highly informative. What type of information may they communicate? First of all, if the leader is perceived as using fair procedures (e.g., relying on an accurate assessment of cooperative and noncooperative behavior; cf. Leventhal, 1980), an unfavorable outcome will communicate to group members that they themselves may be responsible for the obtained outcome

and therefore will have to change their initial behavior (e.g., increase contributions; see Brockner, 2002; Folger, 1993). Secondly, the use of fair procedures may also increase leaders trustworthiness implying that increased cooperation will not be exploited by the leader (e.g., Brockner, Ackerman, & Fairchild, 2001; Lind, 2001). On the other hand, if the leader is perceived as using unfair procedures (e.g., relying on an inaccurate assessment of contributions), an unfavorable outcome may be interpreted as a sign that their outcome is due to the use of unfair procedures. As a consequence, group members may expect that a change of behavior will have little or no effect on the favorability of their future outcomes. As a result, group members will not be motivated to increase contributions, because it is uncertain if more cooperative behavior will result in more favorable outcomes (i.e., leader's trustworthiness will be low; cf. Lind, 2001). Also, as shown in previous studies, the disrespect implied by the unfair treatment may result in resentment (Folger, 1993) and a lowered willingness to cooperate with the authority (Tyler & Blader, 2000).

Therefore, we predict that the favorability and procedural fairness of leaders' outcome decisions interact to affect cooperation. When group members receive favorable outcomes, they are likely to maintain the same cooperative level whether the procedures used to arrive at the outcome are perceived to be fair or not (although it is conceivable that people are more likely to stay cooperative when procedures are fair, applying the win-stay heuristic in social dilemmas suggests that when outcomes are favorable group members will stay cooperative even when procedures are unfair). However, when group members receive unfavorable outcomes, group members will be more likely to increase contributions when procedures are fair rather than unfair. In addition, to the extent that people consider the unfavorable outcome due to their own actions people will be committed to change their behavior and consequently may even overcompensate, that is, increase contributions in a rather drastic manner (cf. Brewer & Schneider, 1990).

### 1.3. *The present research*

To summarize, then, following from the assumption that people in social dilemmas will look for additional information to guide their decisions when a lose-change heuristic is at play, it is expected that procedural fairness only affects cooperation when outcomes are unfavorable. Under favorable outcome conditions, no difference in contributions is expected between fair and unfair procedure conditions. However, if outcomes are unfavorable, it is expected that contributions will be greater when procedures are fair rather than unfair. These predictions were tested in two social dilemma experiments.

In Study 1, procedural fairness was manipulated by varying the accuracy of the procedure used to arrive at

<sup>1</sup> A recent paper by Brockner (2002) showed that the nature of the interactive relationship between outcome favorability and procedural fairness depends upon, among other things, the nature of the dependent measure. Our prediction in the present paper that procedural fairness will influence cooperation more when outcome fairness is low rather than high will only occur when, following Brockner (2002), the dependent measure consists of attitudes and behaviors related to the organization (e.g., organizational commitment, organizational cooperation). However, when the dependent measure consists of a self-evaluation (e.g., self-esteem), then procedural fairness will be more positively related to self-evaluations when outcome favorability is high rather than low.

the outcome decision. Accuracy of information is one of Leventhal's (1980) conceptions of procedural justice and has been used successfully in previous social justice research (e.g., Koper, van Knippenberg, Bouhuijs, Vermunt, & Wilke, 1993; Van den Bos, Bruins, Wilke, & Dronkert, 1999). In Study 2, the manipulation of voice was used to operationalize procedural fairness. A great number of studies has demonstrated that the extent to which people are allowed voice constitutes a strong manipulation of procedural fairness (see e.g., Brockner et al., 1998; Lind, Kanfer, & Earley, 1990), and it has been argued that voice is the most accepted and most frequently used manipulation of procedural fairness (e.g., Brockner et al., 1998).

## 2. Study 1

### 2.1. Method

#### 2.1.1. Participants and design

Eighty-one undergraduate students (60 females and 21 males, which were distributed roughly equally over conditions) at Maastricht University, aged between 18 and 24, participated in this experiment. They were paid 10 Dutch Guilders (approximately \$5 US). Each participant was randomly assigned to one of four experimental conditions, using a 2 (Procedure: Accurate vs. inaccurate)  $\times$  2 (Outcome: Favorable vs. unfavorable) between-participants factorial design. Cell sizes varied from 19 to 21 participants.

### 2.2. Procedure

Upon arrival in the laboratory, each participant was seated in a separate cubicle that contained a computer, table, and chair. All instructions were given via the computer. Before explaining the purpose of the study, each participant was assigned a letter. Each of the participants (five per session) believed that he or she would get a unique letter (A,B,...). In reality, each participant got the letter B.

#### 2.2.1. Introduction to the public goods dilemma

After participating in an unrelated study, participants were introduced to the present study. It was explained that the purpose of the study was to examine how people make contribution decisions facing situations in which money could be earned for themselves and for the group. Specific instructions about the task, which had the formal properties of a linear public goods dilemma (Komorita & Parks, 1994), were given to the participants at this point.

More specifically, each participant was told that there would be several contribution sessions (six in total) and that they all would receive an endowment of 300 cents at

the beginning of each session (approximately \$1.5 US). Each participant was free to choose any amount they wanted to contribute (ranging from 0 to 300 cents). It was explained that the total amount contributed by the group would be multiplied by two and then divided among all group members. If the group as a whole contributed a large portion of their endowments, group members would thus receive more, but it might be tempting not to contribute that much, because everyone would receive part of the group's bonus, plus the money they decided to keep for themselves. All of this was illustrated with various examples of possible outcome distributions.

#### 2.2.2. Introduction of a leader

After this, participants were told that in groups leaders are quite often necessary to uphold efficiency. Therefore, in this study one of the group members would be appointed as group leader. The computer would randomly select who would serve as leader by identifying the letter of the leader. Participants were told that the leader would monitor the group contributions and make decisions on how to distribute the outcomes among the group members. Group members were reminded again of their experimental letters (all B), and then the computer selected the letter who would act as the leader. In reality, E was always the letter of the group leader.

After this selection, participants were told that the leader would know all the decisions made and that after three contribution sessions he or she would evaluate how well the group was doing. More specifically, this evaluation would constitute decisions about the performance of each of the group members. In doing this, participants would not receive any feedback with respect to the contributions made by their fellow group members. This evaluation would be communicated to the participants by means of e-mail messages.

#### 2.2.3. Contribution sessions 1–3

The first three contribution sessions then started, and each time participants were asked how much of the endowment (between 0 and 300 cents) they were willing to contribute. After the third contribution session, participants were informed that at this moment the leader was receiving an overview of all the decisions made. It was explained how the leader would use this information to make evaluations and decisions about the performance of the group and its members.

#### 2.2.4. Procedure manipulation

After the third contribution session, participants were informed that the leader would decide for each group member whether or not he or she acted in a pro-social manner (in comparison to one another). In the *accurate procedure* condition, the participants were told that the leader would take into account all three contribution sessions to determine how pro-socially they acted. In the

*inaccurate procedure* condition, it was communicated to the participants that the leader would only take into account one contribution session (see Koper et al., 1993; for a similar procedure manipulation).

### 2.2.5. Outcome manipulation

Participants were then told that based on the performance evaluation (i.e., how pro-socially they acted) their outcomes would be determined. In the *unfavorable outcome* condition, participants were informed that they did not behave in a pro-social manner and therefore they would receive less than the equal part of the total contribution sum (i.e., the whole amount contributed by the group multiplied by two). In the *favorable outcome* condition, it was communicated to the participants that they acted in a pro-social way and therefore they would receive more than the equal part of the total contribution sum.

Before starting the other contribution sessions, participants were asked the following questions. To check the effectiveness of the procedure manipulation, participants were asked how accurate (1 = very inaccurate, 7 = very accurate) and fair (1 = very unfair, 7 = very fair) they considered the procedure used in the evaluation process. Participants' responses on these two questions were averaged into one score ( $r = .66$ ,  $p < .001$ ). The effectiveness of the outcome manipulation was checked by asking participants how satisfied and happy (1 = not at all, 7 = very much so) they felt about the outcome of the evaluation process. Participants' responses on these two questions were averaged into one score ( $r = .87$ ,  $p < .001$ ).

### 2.2.6. Contribution sessions 4–6

After these questions, participants were told that a second block of three sessions would begin. As in previous rounds, participants were asked to contribute any amount between 0 and 300 cents per session. Participants were reminded that the leader would still monitor the group sessions and would evaluate again the performance of the group and its members. After the sixth contribution session, participants were informed that the experiment was finished. Subsequently, they were paid and fully debriefed.

## 2.3. Results

### 2.3.1. Manipulation checks

The average score of the procedure questions was subjected to a 2 (Procedure)  $\times$  2 (Outcome) ANOVA revealing only a main effect for procedure,  $F(1, 77) = 21.67$ ,  $p < .001$ : an accurate procedure was evaluated as more positive in terms of fairness, happiness, and accuracy than an inaccurate procedure ( $M_s = 4.31$  vs. 3.06,  $SD_s = 1.32$  and 1.02; respectively). There were no further significant main or interaction effects. This shows that the procedure manipulation was successful.

Table 1  
Contributions as a function of procedural fairness and outcome favorability (Study 1)

Procedure	Outcome	
	Favorable	Unfavorable
Accurate	<b>127.52</b> (51.98)	<b>179.28</b> (76.62)
Not accurate	<b>121.97</b> (51.26)	<b>132.65</b> (86.39)

*Note.* Entries in bold are contributions which could range from 0 to 300 cents, with higher values indicating higher contributions; entries within parentheses are standard deviations.

A 2 (Procedure)  $\times$  2 (Outcome) ANOVA on the average outcome score revealed only a main effect for outcome,  $F(1, 77) = 83.91$ ,  $p < .001$ . Participants felt more satisfied and happy when they received a favorable rather than unfavorable outcome ( $M_s = 5.07$  vs. 2.92,  $SD_s = 0.94$  and 0.98; respectively). There were no other significant main and interaction effects. This shows that we successfully manipulated outcome favorability.

### 2.3.2. Contribution decisions

A 2 (Procedure: Accurate vs. inaccurate)  $\times$  2 (Outcome: Favorable vs. unfavorable) ANCOVA on the average score of the second block of contribution sessions (i.e., session 4–6, Cronbach's  $\alpha = .93$ ) was conducted, with the average score of the first block of contribution sessions (i.e., session 1–3, Cronbach's  $\alpha = .85$ ) serving as a covariate. First of all, a significant main effect for the covariate was found,  $\beta = .76$ ,  $F(1, 76) = 114.88$ ,  $p < .001$ . Further, main effects for both Procedure,  $F(1, 76) = 7.09$ ,  $p < .01$ , and Outcome were observed,  $F(1, 76) = 10.58$ ,  $p < .005$ . These effects were qualified by the predicted interaction between Procedure and Outcome,  $F(1, 76) = 4.56$ ,  $p < .05$  (see Table 1). When the outcome was unfavorable, contributions were higher when an accurate rather than inaccurate procedure was used,  $F(1, 76) = 11.25$ ,  $p < .001$ . In contrast, when the outcome was favorable, no significant difference in contributions was found when an accurate rather than an inaccurate procedure was used,  $F(1, 76) < 1$ . Furthermore, when an accurate procedure was used, contributions were higher when the outcome was unfavorable rather than favorable,  $F(1, 76) = 15.35$ ,  $p < .001$ , whereas when an inaccurate procedure was used, no significant difference was found,  $F(1, 76) < 1$ .

## 3. Study 2

The results of Study 1 provide supportive evidence for our predictions. As predicted, individual contributions were influenced by the fairness of procedures enacted by the group leader, but only when outcomes were unfavorable. The present results thus suggest that when outcomes are unfavorable in social dilemma settings,

people make use of a lose-change heuristic and therefore need to make sense of the situation at hand in order to inform their future decisions. The type of information that they require is provided by the fairness of procedures (Van den Bos et al., 1999). In essence, the findings of Study 1 show that under unfavorable outcome conditions, the fairness of procedures becomes an important determinant of group member cooperation. These findings add important insights to our understanding of the effect of leadership on cooperation in social dilemmas. Because this is, to our knowledge, the first time this effect has been demonstrated, it is important to replicate these findings. This was the objective of Study 2.

To determine the robustness and generalizability of our findings, we used another manipulation of procedural fairness in Study 2. Procedural fairness was manipulated by providing or not providing participants an opportunity to voice their opinions in decision-making processes. This “voice” manipulation (Folger, 1977) is the most commonly used manipulation of procedural fairness in experimental studies. The use of a different manipulation of procedural fairness also allowed us to address a potential concern associated with the manipulation of accuracy as a procedural fairness manipulation. For obvious reasons, the manipulation of accuracy not only affected perceptions of fairness, but also the perceived accuracy of monitoring. Indeed, the manipulation should affect perceptions of procedural fairness precisely because it affects perceptions of the accuracy of the procedure (Leventhal, 1980)—the correlation between the fairness and the accuracy items testifies to this;  $r = .66$ ,  $p < .001$ . However, this also leaves open the possibility that the effect of the accuracy manipulation on contributions was not an effect of procedural fairness but rather an effect of the accuracy of monitoring: participants in the accurate condition may have feared that low contributions would be detected and therefore contributed more in the last three trials of the study. Therefore, to examine the robustness of our findings and to eliminate this alternative explanation, we decided to use a procedural fairness manipulation in Study 2 that is not associated with accuracy concerns, that is, a manipulation of voice vs. no voice.

Study 2 also allowed us to address a second potential concern. Two different aspects may have been at work during our outcome manipulation. The first aspect is that they were told whether they received more or less than the equal part of the total contribution sum. The second aspect was the information that participants received about whether or not they acted in a pro-social way. Of course, within organizations people’s level of performance is often strongly related to the outcomes they receive and these outcomes can be situated both at the level of financial bonuses (e.g., receiving more or less) and how one is perceived within the organization (e.g., as pro-social or not). However, making explicit the

link with one’s own level of pro-social behavior may have enhanced the outcome effect. Therefore, to further determine the robustness of our results, in Study 2, we manipulated outcome favorability by solely providing participants outcome information relevant to their decisions in a social dilemma setting, that is, the valence of the outcomes they will receive (more or less than the equal part).

### 3.1. Method

#### 3.1.1. Participants and design

One hundred and eleven undergraduate students from different majors from the University of Amsterdam (40 men and 71 women which were distributed roughly equally over conditions; mean age 20.68) were randomly assigned to the conditions of a 2 (Procedure: Voice vs. no voice)  $\times$  2 (Outcome: Favorable vs. unfavorable) between-subjects factorial design. Cell sizes varied from 27 to 29 participants.

#### 3.1.2. Procedure

Upon arrival in the laboratory, each participant was seated in a separate cubicle that contained a computer, a table, and a chair. All instructions were given via the computer. Before explaining the purpose of the study, each participant was assigned a letter. Each of the participants (five per session) believed that he or she would get a unique letter (A, B, C, D, or E). In reality, each participant got the letter D.

The study was introduced as a study of small group decision-making. Participants were explained that many social interactions in real-life include some conflict between personal and collective interest. To examine this, they would, in a five-person group, participate in a collective decision-making task in which they would be asked several times to contribute toward the establishment of a public good. More specifically, each participant was given an endowment of 100 points, worth each 5 euro cents (approximately 7 US dollar cents), at the beginning of each contribution session, and they were free to choose any amount they wanted to contribute (ranging from 0 to 100 points). It was explained that the total amount contributed by the group would be multiplied by two and then divided equally among all group members. All of this was illustrated with various examples of possible outcome distributions. Thereafter, participants decided how much they wished to contribute.

After participants made their decision, they were informed that for the following rounds of decision-making, one of the group members would be appointed as group leader. To determine which group member would be the leader, participants were asked to open the envelope that was lying next to them, and which included a note saying whether they would be the group leader or a

follower (in reality all participants were told that they would be a follower rather than the leader). Participants were asked, after reading this note, to indicate on the computer which role they were to fulfill during this study. It was said that during the next contribution sessions, the task of this leader would be to decide each time how to distribute the total sum contributed to the group (i.e., total sum multiplied by two). To determine how the leader should distribute the outcomes in the first following contribution session, participants were told that the leader would use their decision in the prior group decision-making game as a reference point (the leader was given some time to check these prior decisions). In addition, it was emphasized that the leader would make this distribution decision again each session, meaning that depending on their own decisions, people's received outcomes could change from contribution session to contribution session.

### 3.1.3. Voice manipulation

Then, the voice manipulation was introduced. It was explained that the leader had the possibility to provide each group member a chance to explain to him the reasons for their decision in the prior group decision-making game. It was told that the leader would inform them soon whether he would grant them this possibility or not. In the *voice* condition, participants were told (via an e-mail) that the leader would like to listen to their story before deciding how to distribute the outcomes for the following session. Immediately after this message, participants were provided the opportunity to briefly write down their story via the computer (which all of them did). In the *no-voice* condition, participants were told that the leader was not interested in listening to their story and that he would make a decision about the distribution of the outcomes immediately.

### 3.1.4. Outcome favorability

After this message, participants were informed in both conditions that the leader had decided to distribute the outcomes in a variety of ways. In the *unfavorable* outcome condition, participants were told that they would receive less than the equal share of the total contribution sum. In the *favorable* outcome condition, it was said that they would receive more than the equal share of the total contribution sum.

Then, the dependent measures of Study 2 were solicited. To check the manipulation of outcome favorability, participants were asked to indicate whether they received more (1) or less (2) than other group members. The manipulation of voice was checked by asking participants, "to what extent they thought the leader listened to them" (on a 7-point scale, ranging from not at all [1] to very much so [7]). Then, participants were asked how much they wished to contribute (ranging from 0 to 100 points).

## 3.2. Results

### 3.2.1. Manipulation checks

Fifty-five of 57 participants in the low outcome condition correctly indicated that they received less than others, whereas 52 out of 54 participants in the high outcome condition indicated that they received more than others.

Analysis of the voice manipulation check yielded the expected main effect of Procedure,  $F(1, 107) = 14.65$ ,  $p < .0001$ : participants in the voice condition thought the leader listened to them more than participants in the no voice conditions ( $M_s = 3.47$  vs. 2.47; respectively). In addition, participants in the favorable outcome condition indicated that they thought the leader had listened more to them than participants in the unfavorable outcome condition ( $M_s = 3.52$  vs. 2.42),  $F(1, 107) = 17.62$ ,  $p < .0001$ , and a Procedure  $\times$  Outcome Favorability interaction emerged,  $F(1, 107) = 5.88$ ,  $p < .017$  (low outcome, no voice:  $M = 2.24$ ; low outcome, voice:  $M = 2.61$ ; high outcome, no voice:  $M = 2.70$ ; high outcome, voice:  $M = 4.33$ ). Apparently, voice mainly resulted in the perception that the leader listened to them when the outcome was favorable—most likely, the specific wording of the question elicited responses not only based on the opportunity for voice but also on the perceived effect of voice (i.e., high outcomes).

### 3.2.2. Contributions

Contributions were analyzed in a 2 (Procedure)  $\times$  2 (Outcome favorability) ANCOVA with time one contributions as a covariate ( $\beta = .66$ ,  $F(1, 106) = 89.00$ ,  $p < .0001$ , for the regression). The predicted interaction was significant,  $F(1, 106) = 3.92$ ,  $p < .05$  (see Table 2), whereas the main effects of Procedure,  $F(1, 106) = 1.83$ ,  $p < .18$ , and Outcome favorability,  $F(1, 106) = 3.57$ ,  $p < .07$ , were not.

As expected, procedural fairness only affected contributions when outcomes were unfavorable. When outcomes were favorable, contributions were relatively high regardless of whether participants received voice or not,  $F(1, 106) = 0.21$ , *ns.*, whereas when outcomes were unfavorable, participants contributed significantly more when they received voice than when they did not receive

Table 2  
Contributions as a function of procedural fairness and outcome favorability (Study 2)

	Outcome	
	Favorable	Unfavorable
Voice	<b>57.32</b> (14.32)	<b>57.89</b> (28.11)
No voice	<b>60.46</b> (17.47)	<b>41.82</b> (34.16)

*Note.* Entries in bold are contributions ranging from 0 to 100 points, with higher values indicating higher contributions; entries within parentheses are standard deviations.



voice,  $F(1, 106) = 5.71$ ,  $p < .05$ . In the same vein, the simple main effect of Outcome was significant in the no voice condition,  $F(1, 106) = 7.70$ ,  $p < .007$ , but not in the voice condition,  $F(1, 106) < 1$ , *ns*.

#### 4. Discussion and conclusion

We examined the effectiveness of established leadership in promoting cooperation in public goods dilemmas (structural cooperation; De Cremer, 2002a) across two experimental studies. Previous social dilemma research has typically focused on examining the conditions under which people prefer to establish a leader (Messick et al., 1983; Rutte & Wilke, 1984), and thus revealed little information about people's willingness to cooperate with a leader. Thus, the present research is among the first to examine this important cooperation issue. Moreover, the present research extends earlier studies of structural cooperation in important ways by not only examining the influence of procedures, but also outcome favorability on cooperation with leaders (cf. De Cremer & Van Vugt, 2002; Van Vugt & De Cremer, 1999). The present findings are of crucial importance for our understanding of a leader's ability to engender cooperation in social dilemmas, because they provide the first experimental demonstration that procedural fairness and outcome favorability interact in determining performance.

Findings from both studies support our hypotheses, showing that individual contributions were influenced by the fairness of procedures enacted by the group leader, but only when outcomes were unfavorable (or, put differently, that outcome favorability only affected contributions when procedures were unfair). As elaborated in detail by Brockner and Wiesenfeld (1996), a number of processes may cause this interaction—and may indeed operate in conjunction. What all these processes seem to have in common, however, is the suggestion that unfavorable outcomes motivate individuals to search for information to clarify how likely it will be that future outcomes will be unfavorable again, that is, information about future expectations of outcome distributions. This type of information is provided by the fairness of procedures. More specifically, if procedures are fair, they indicate that the leader can be trusted to serve people's outcomes well, consequently increasing group-oriented behavior such as cooperation (De Cremer & Van Vugt, 2002; Tyler & Blader, 2000; Tyler & DeGoey, 1995). In contrast, if procedures are unfair, people will trust the leader less to serve their outcomes well, consequently reducing the motivation to contribute.

This line of reasoning fits well with recent thinking on why procedures interact with outcome favorability. In a recent review, Brockner, Ackerman, and Fairchild (2001) describe studies demonstrating that the fairness of pro-

cedures communicates trustworthiness about the authority at hand (see Brockner, Siegel, Daly, Tyler, & Martin, 1997). Therefore, they clearly make the point that it is "the degree of trust elicited by procedural elements that interacts with outcome favorability to influence people's reactions" (p. 194). Thus, this idea supports our argument that the fairness of procedures communicate trust information that can be used to direct one's actions, that is, in the present setting, to cooperate or not. Moreover, this explanation seems to be most applicable to the decisions people have to make in social dilemmas, because trust is considered to be one of the major important psychological constructs to solve social dilemma conflicts (e.g., De Cremer, Snyder, & Dewitte, 2001; Kramer, 1999). Having said this, it is also important to note that the above explanation reflects very much an "instrumental perspective" on why people care about procedural fairness (i.e., procedural fairness as a likelihood that future outcomes will be favorable or unfavorable). As Lind and Tyler (1988) suggest, in addition to instrumental concerns, also relational concerns like people's need for respect and inclusion influences the extent to which they care about procedural fairness. Future research is required to examine the extent to which both instrumental and relational concerns may account for the interactive effect of procedural fairness and outcome fairness in social dilemmas (see De Cremer, 2002b).

It has to be mentioned that although both studies demonstrated that procedural fairness has only a significant impact when outcomes are unfavorable, the findings from Study 1 showed that participants in the unfavorable outcome condition overcompensated when fair procedures were used, whereas this was not the case in Study 2. How to account for this difference? A possible explanation may lie in our use of different manipulations of procedural fairness in both studies (which we did to rule out the possibility that the obtained interaction effect could only be attributed to accuracy perceptions and not fair perceptions). In Study 1 an accuracy manipulation was used, which is an operationalization of procedural fairness that may be perceived as closely linked to assessment of performances (cf. Gilliland, 1994). As a result, due to such assessment concerns (recall that they were also told that this assessment would lead to evaluations of being pro-social or not, something we controlled for in Study 2), participants may have been strongly motivated to do well next time when assessed accurately, and consequently overcompensated. Thus, it could be suggested that in Study 1, an accurate procedure in the case of an unfavorable outcome might have been motivating higher levels of performance, because participants may have reacted to the diagnosticity of the information they received from the accurate leader (i.e., do a better job next time!). A manipulation of voice, on the other hand, may not be associated with such strong perceptions of

assessment, but rather with people's relational concerns of finding out whether or not one is a respected and valued group member (see group-value model, Tyler & Lind, 1992). As a consequence, under such circumstances, people will not be motivated to overcompensate, but rather be motivated to withdraw from the situation when treated unfairly by, for example, contributing less. As such, the findings of Study 2 reflect the more traditional procedural fairness effect that obtaining an unfavorable outcome via an unfair procedure makes people withdraw from the group (Brockner & Wiesenfeld, 1996).

Another interesting fact of both studies was that participants were highly interdependent with the group leader, who was responsible for distributing outcomes among the group members. This manipulation allowed us to enhance the chance that the specific behaviors of the leader affected people's decision behavior. As such, this salience of interdependence fits well with Lind's (2001) recent claim that fairness of procedures will be particularly important when people are concerned about potential problems with social interdependence; a situation that he referred to as the fundamental social dilemma. The reason for this is that in situations of high interdependence, the possibility of exploitation by the relevant authority is high (i.e., in the present research, the extent to which the leader could be expected not to serve one's own outcomes well), consequently making information about fairness and trustworthiness more important (cf. Lind, 2001). Note that in the present research, the leader was clearly in charge of distributing the outcomes, as such allowing the use of procedures to directly influence participants' perceptions of how trustworthy the allocation decisions would be. Following from this, it would be interesting for future research to manipulate the degree of interdependence between the group leader and the other group members in a social dilemma setting to see if such variations in interdependence will also reveal variations in perceptions of trustworthiness and levels of cooperation. In addition, in our studies, the leader only influenced outcomes of the others (enhancing the importance of leader's trustworthiness), but did not have the possibility to influence own outcomes. Because within organizational contexts leaders often have a personal stake in the contributions of his or her group, it would be interesting for future research to manipulate, in addition to the degree of interdependence, also the degree of leader's personal stake in the group's outcome. Examining this would enable us to see if having such a personal stake, makes self-serving attributions, in the eyes of the followers, come into play when evaluating the trustworthiness of the leader (i.e., the leader may then be perceived as pursuing own interests).

The present results are also important when the present study is seen more generally as a study on social and

organizational justice. As this is the first experimental demonstration of the interaction of procedural fairness and outcome favorability in social dilemmas, it is important to note that these findings are in line with previous procedural justice studies showing that procedural fairness effects are particularly strong when outcomes are unfavorable. Consequently, the present findings support recent arguments that outcomes and procedures have to be studied in combination for a proper understanding of social and organizational justice (Brockner & Wiesenfeld, 1996; Van den Bos et al., 1999). When viewed more generally as a study of social dilemmas, an important contribution of our study is the demonstration that procedures as well as outcomes are important in determining contributions to the public good. That outcomes matter is not surprising, as previous research has demonstrated that people in social dilemmas are particularly concerned about the fairness of their individual payoffs (e.g., Wilke, 1991). Moreover, social dilemma research on leadership preferences demonstrated that leaders are adopted to ensure positive outcomes (cf. Yamagishi, 1986). Extending this earlier work, the present study demonstrates that outcomes and the procedures used to arrive at these outcomes affect cooperation in social dilemmas. When outcomes are unfavorable, cooperation is contingent on procedural fairness.

Another important strength is that the same interaction effect emerged when using two different types of procedural fairness manipulations. Both studies clearly showed that procedural fairness matters most in social dilemmas when outcomes are unfavorable. In Study 1, a manipulation of accuracy was used (e.g., Koper et al., 1993), whereas in Study 2 we used the manipulation of voice (e.g., Folger, 1977). According to Leventhal (1980) a number of rules exist that people use to derive procedural fairness information; among them accuracy and voice. Therefore, the fact that we found the same interaction effect across different well-defined procedural fairness manipulations testifies to the generalizability and robustness of our findings. In fact, using different manipulations of procedural fairness could benefit research on social and organizational justice immensely, because it can help to rule out alternative explanations derived from the use of one specific procedural fairness manipulation (see our use of voice in Study 2 to illustrate that not only perceptions of accuracy can explain the interaction between outcome favorability and procedural fairness in social dilemmas).

To conclude, the present findings also have clear practical implications. Management in organizations has to deal with motivating employees to work together on interdependent tasks and to go beyond formal task requirements (Organ, 1988; Pearce & Gregersen, 1991). Therefore, the issue of cooperation is important for the internal functioning of organizations (Smith, Carroll, & Ashford, 1995). In line with our findings, it is suggested

that in the management of organizational cooperation and citizenship behavior both outcomes and procedures play a role. Given that it is unfeasible, and indeed undesirable, that employees receive positive outcomes in all circumstances, it is essential that managers adopt fair decision-making strategies and procedures to be influential.

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