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Effects of gain-loss frames on satisfaction with self-other outcome-differences

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Abstract

This research concerned satisfaction with outcome-differences (advantageous inequity, equity, or disadvantageous inequity) as a function of the individual's gain or loss frame, other's gain or loss frame, the cooperative or noncooperative nature of the relationship, and their interactions. After reading a scenario, subjects rated on a satisfaction-dissatisfaction scale a series of outcome-pairs providing themselves and another party with outcomes. Consistent with Equity Theory, results showed that gain framed individuals found equity more pleasing than advantageous inequity, which in turn was preferred over disadvantageous inequity, but only when the decision making context was cooperative rather than noncooperative. In a noncooperative context, gain framed individuals were as pleased with equity as with advantageous inequity. Contrary to Equity Theory, but consistent with Prospect Theory, loss framed individuals were relatively insensitive to outcome-differences and the nature of the relationship. Results finally suggested that advantageous inequity was preferred less when the other party had a loss rather than gain frame, albeit only under cooperative circumstances.

INTRODUCTION

Social decision-making is the process in which individuals make decisions yielding outcomes to themselves and at least one other party (Pruitt and Kimmel, 1977).

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Assuming that individuals usually try to maximize their subjective utility, it follows that a fundamental aspect of social decision-making is the satisfaction, or utility, the individual derives from the obtained or anticipated outcome. In two-person social decision-making, this satisfaction can be thought of as a function of the utility associated with the personal outcome on the one hand, and the utility of the difference between one's own outcome and the other's outcome (outcome-difference) on the other hand (Conrath and Deci, 1969; Loewenstein, Thompson and Bazerman, 1989; Messick and Sentis, 1985). The present research examined variations in individuals' satisfaction with social decision-making outcomes as a function of the self-other outcome-difference, and, more importantly, the individual's representation of their own outcomes as gains or as losses.

Previous research on satisfaction with social decision-making outcomes has centred around Equity Theory (e.g. Adams, 1965; Walster, Walster and Berscheid, 1978). Equity Theory asserts that individual's satisfaction with their personal outcomes depends on the proportionality between their own inputs and outcomes and those of the other party (Walster *et al.*, 1978). For example, suppose two otherwise equal people, Giovanni and Sven, worked on a joint project for a total of \$100. Suppose further than Giovanni and Sven worked 4 and 6 hours, respectively. According to Equity Theory, the most satisfying outcome should occur when Giovanni receives \$40 and Sven \$60 since the proportionalities of inputs to outcomes are equivalent. If both were to receive \$50, inequity would occur. For Giovanni, this outcome would produce advantageous inequity, whereas Sven would experience disadvantageous inequity. Research additionally shows that equity (equivalent proportionalities) is preferred to advantageous inequity, which is preferred to disadvantageous inequity (e.g. Messick and Sentis, 1985). Loewenstein *et al.* (1989) showed this pattern to be especially true in cooperative contexts. In noncooperative settings, such as business disputes, advantageous inequity tends to produce as much satisfaction as equity.

Equity Theory postulates that satisfaction with social decision-making outcomes stems from the utility associated with comparison of parties' outcomes, more so than the utility of one's own outcomes. In the following section, we argue that the relative importance of self-other differences in determining satisfaction with social decision-making outcomes depends on whether the individual represents outcomes as gains or as losses.

GAIN-LOSS FRAMES AND EQUITY

Prospect Theory (Kahneman and Tversky, 1979; Van der Pligt and Van Schie, 1990) proposes that individuals evaluate personal outcomes in reference to an internal standard or reference-outcome, such as their current assets or aspirations. In the case of a *gain frame*, outcomes are related to a relatively low reference-outcome so that they are positively coded and evaluated as gains. In the case of a *loss frame*, by contrast, outcomes are related to a relatively high reference-outcome, so that they are negatively represented and evaluated as losses.

The importance of frames for social decision-making has been demonstrated repeatedly. Research shows that individuals negotiating net profit (gain frame), as compared to individuals negotiating expenses and costs (loss frame), demand less, concede

more, and settle more easily (e.g. Bazerman, Magliozzi and Neale, 1985; De Dreu, Emans and Van de Vliert, 1992a; De Dreu, Carnevale, Emans and Van de Vliert, in press; for a review see Carnevale and Pruitt, 1992). Similarly, in social dilemmas, individuals with a loss frame are less cooperative than gain framed individuals (e.g. Brewer and Kramer, 1986; Friedland, Arnold and Thibaut, 1974; McCusker and Carnevale, in press; but see Rutte, Messick and Wilke, 1987). Thus, mounting evidence suggests that in social decision-making loss framed individuals are more likely to attempt to maximize their personal outcomes than gain framed individuals.

Two reasons for this frame-effect can be given. First, because losses are more aversive than equivalent gains are pleasing (Budescu and Weiss, 1987; Kahneman and Tversky, 1979; Tversky and Kahneman, 1991), individuals in social settings should be motivated more to avoid a loss than to obtain an equivalent gain. Second, because negative stimuli such as losses, attract more attention than equivalent positive stimuli such as gains (Peeters and Czapinski, 1990; Taylor, 1991), loss framed individuals should pay closer attention to own outcomes, and probably less to those of an interdependent other person. Thus, loss framed individuals are more *own-outcome oriented* than gain framed individuals. In line with this second proposition, De Dreu, Emans and Van de Vliert (1992b) demonstrated that interdependent individuals with a loss frame took more time to make decisions and reported more cognitive activity than gain framed individuals (see also, Dehue, McClintock and Liebrand, 1993). The experiment by De Dreu *et al.* (1992b) did not provide straightforward support for the contention that loss framed individuals are more own-outcome oriented than individuals with a gain frame. Rather, they proposed this as a theoretical account for their results. Moreover, De Dreu *et al.* presented subjects with either negative outcomes (loss frame) or positive outcomes (gain frame), permitting the alternative conclusion that the former took more time simply because they needed to perform a cognitively more complex task (*cf.* Dehue *et al.*, 1993).

The first goal of the current experiment was to obtain more unequivocal evidence for the own-outcome orientation hypothesis. Greater own-outcome orientation implies that satisfaction with outcomes should be better predicted by variations in the own outcomes, than by variations in the difference between one's own and the other individual's outcomes. This is contrary to Equity Theory considerations which imply that variations in outcome-difference should best predict satisfaction. Thus, *hypothesis 1* was that satisfaction with outcomes is better predicted by the utility associated with the personal outcomes when individuals had a loss frame rather than a gain frame. An implication of this first prediction is that the aforementioned tendency to prefer equity to advantageous inequity, which in turn is preferred to disadvantageous inequity, should be stronger for individuals with a gain frame, than for those with a loss frame (*hypothesis 2*).

Our second goal was to further assess the influence of the other party's gain or loss frame. As noted by De Dreu *et al.* (1992b), individuals not only are influenced by their own frame, but by the other party's gain-loss frame as well. Their study indeed showed that especially gain framed individuals cooperated more when the other party anticipated loss rather than gains. Apparently, people with a gain frame, more than those with a loss frame, are willing to help another party to minimize other's losses to a greater extent than to maximize other's gains (*cf.* De Vries, 1991; McClintock and Keil, 1982). In terms of Equity Theory, the implication would be that other's loss frame compared to other's gain frame produces less satisfaction

with advantageous inequity, and probably more satisfaction with disadvantageous inequity

An important limitation to this other's frame-effect may be related to the cooperative or noncooperative nature of the relationship between the parties. Intentions to help someone in interdependent settings are much more likely under cooperative than noncooperative conditions (e.g. Carnevale, Pruitt and Carrington, 1982; Heider, 1958). Thus, we predicted more satisfaction with disadvantageous inequity, and less with advantageous inequity, in the case of other's loss rather than gain frame, but only in the case of a cooperative relationship between the parties (*hypothesis 3*). Following the results of De Dreu *et al.* (1992b), this effect might be particularly strong when individuals have a gain rather than a loss frame themselves (*hypothesis 3a*).

SUMMARY OF THE HYPOTHESES

In sum, this study has two goals. The first relates to the influence of the individual's own gain or loss frame. *Hypothesis 1* was that the satisfaction derived from social decision-making outcomes is better predicted by variation in the level of own outcome in the case of a loss rather than gain frame. *Hypothesis 2* was that equity is preferred to advantageous inequity, which in turn is preferred to disadvantageous inequity, especially in the case of a gain rather than loss frame. Since prior research showed that the higher preference for equity than for advantageous inequity occurs especially under cooperative rather than noncooperative conditions (Loewenstein *et al.*, 1989), it may further be predicted that hypothesis 2 is especially true under cooperative rather than noncooperative conditions. This is *hypothesis 2a*.

Our second goal relates to the influence of other's gain-loss frame. *Hypothesis 3* was that the other's loss frame leads to lower satisfaction with advantageous inequity and higher satisfaction with disadvantageous inequity, but only in the case of a cooperative relationship between the parties. *Hypothesis 3a* was that this pattern might be especially true for gain rather than loss framed individuals.

METHOD

Design

The design was $2 \times 2 \times 2 \times 5 \times 4$ factorial, involving own frame (gain versus loss) and other's frame (gain versus loss), both manipulated between-subjects, relationship (cooperative versus noncooperative), outcome-difference and level of own outcome, all manipulated within-subjects. The order for the relationship variable was counterbalanced but had no effects. Outcome-difference, with two levels for disadvantageous inequity (i.e. -10 and -5), one level for equity (i.e. 0), and two levels for advantageous inequity (i.e. +5 and +10), as well as level of own outcome (65, 75, 85, and 95) were both presented in random order (see also below). The main dependent variable was the subject's satisfaction with outcomes.

Subjects

One hundred and ten male and female undergraduate students at the University of Illinois at Urbana-Champaign participated for course credit. Subjects were assigned to experimental conditions on a random basis.

Procedure

The experiment was conducted in large classrooms each containing about 30 subjects seated in reasonable distance from one another. The experimenter asked the subjects to work for themselves, and to answer questions without looking back to previously given responses. He then distributed a booklet containing various questionnaires. Subjects read a scenario (inducing a cooperative or a noncooperative relationship), expressed their satisfaction with each of 20 outcome-distributions, and answered some manipulation checks. This procedure was repeated for a second scenario (inducing this time either a noncooperative or cooperative relationship). Upon completion of the rating blocks, subjects were informed about the background of the study and dismissed.

Stimulus-materials and independent variables

The booklet consisted of two similar parts. Each part contained a scenario (one for each relationship condition), a questionnaire assessing the satisfaction with social decision-making outcomes, and a brief questionnaire assessing the adequacy of the relationship manipulation. The scenario we used was similar to the one used by Messick and Sentis (1985). Appendix A provides a complete example of the scenario we used.

The first part of the scenario, which was the same in all experimental conditions, read:

'You and another student have been hired by a professor to be readers for a course he is teaching. You and the other student are both seniors in the professor's department and were both chosen because of your good academic records. Having taken the course previously from the same professor, both of you are familiar with the course and your employer's approach to the subject matter'.

Manipulation of relationship

At this point in the scenario, we manipulated the cooperative or noncooperative nature of the relationship between the parties, by informing subjects about their expectations regarding cooperative future interaction. Past studies showed this manipulation to be effective in inducing a cooperative or noncooperative relationship (e.g. Ben-Yoav and Pruitt, 1984). In the *noncooperative relationship* condition, the scenario stated 'You and the other student met once, when you split up the work. After the grading, the other student leaves school; You don't expect to meet the other grader ever again'. In the *cooperative relationship* condition, by contrast, the scenario stated 'You and the other student met once, when you split up the work. After the grading, both you and the other expect to enter graduate school, and during graduate school you expect to have a pleasant and cooperative collaboration with the other student'.

In both conditions, the scenario then continued with the following: 'You spent 10 hours reading and 30 hours grading exams. The other student also spent 10 hours reading and 30 hours grading'.

Manipulation of other's frame

At this point, we manipulated other's frame by varying information about the other party's level of aspiration. In the *other's gain frame* condition, the other party anticipated over \$50 for the job, which was lower than other's potential outcomes (see below). In the *other's loss frame* condition, the other party anticipated \$110 at most for the job, which was always above the other's potential outcomes. Specifically, the scenario stated that 'Yesterday, you overheard someone saying that the other grader expects to receive \$50 at the least' ('\$110 at the most' in the other's loss frame condition).

Manipulation of own frame

Immediately after the manipulation of other's frame, we manipulated the own frame in a similar way. In the *own gain frame* condition, subjects were given a reference-point below their own outcomes, whereas they were given a reference-point above these outcomes in the *own loss frame* condition. Specifically, the scenario read 'You yourself had good reason to believe that the payment will be higher than \$50' ('no higher than \$110', in the own loss frame condition).

In all conditions, the scenario then concluded with 'Today, you return the work and receive the money'. Subjects were then asked to turn to the next page, which contained the assessment of satisfaction with various social decision-making outcomes (see under 'Dependent variables').

Manipulation of outcome-difference and level of own outcome

The manipulation of our last independent variables, outcome-difference and level of own outcome, are described in detail under 'Dependent variables'.

Dependent variables*Satisfaction with outcomes*

After the scenario, we presented the subjects with 20 pairs of outcomes to themselves and to the other party. For each pair, we asked them to rate how satisfied they would be with this particular pair of outcomes (1 = very dissatisfied, to 7 = very satisfied). The 20 randomly presented pairs were obtained by crossing four levels of outcomes to the subject (65, 75, 85, 95; notice that these outcomes lie symmetrically between the reference-outcomes for the frame manipulations, 50 and 110), and five levels of difference between the subjects' outcomes and those to the other party (-10, -5, 0, +5, +10). Thus, the within-subjects variable *outcome-difference* is construed by averaging the ratings, within each level of difference, over the four levels of own outcomes (cf. Messick and Sentis, 1985); the level of own outcome variable can be construed by averaging ratings within each outcome to self, over the various distributions of outcomes to oneself and the other party.

Manipulation checks

A paper-and-pencil method inevitably makes manipulation checks uninformative (subjects can easily return to the manipulations and then answer correctly the manipu-

lation checks). Because relationship was manipulated within-subjects, we felt that checking this manipulation was needed, nevertheless, and asked subjects after each rating block to what extent they were (1) concerned about their relationship with the other grader, (2) how important it was to them to maintain a positive relationship with the other grader (both 1 = not at all, to 7 = very much), and (3) how likely it was that they and the other grader would meet again, in the future (1 = very unlikely, to 7 = very much). The Cronbach's α was 0.66 in the noncooperative block, and 0.73 in the cooperative block.

RESULTS

Manipulation check for the relationship variable

The averaged ratings on the relationship questions were submitted to a $2 \times 2 \times 2$ (own frame \times other's frame \times relationship) analysis of variance with the last variable within-subjects. This yielded only the expected main effects for relationship, showing that subjects in the cooperative condition were more concerned with the relationship than subjects in the noncooperative condition, $M = 5.36$ versus $M = 3.09$, $F(1, 106) = 238.06$, $p < 0.001$.

Own-outcome orientation

Satisfaction was conceived as a function of the utility associated with one's own outcome, and with the outcome-difference. To account for both linear and quadratic trends, the own outcome and the outcome-difference component both consist of a payoff and a payoff squared parameter (*cf.* Conrath and Deci, 1969). Defining U as satisfaction, $SELF$ as the own outcome, and $DIFF$ as the outcome-difference, the function can be conceived as regression Equation 1:

$$U = c + \beta_1 SELF + \beta_2 SELF^2 + \beta_3 DIFF + \beta_4 DIFF^2 + \epsilon \quad (1)$$

Loewenstein *et al.* (1989) observed that Equation 1 accounts for over 50 per cent of the variance in satisfaction with social decision-making outcomes¹. Hypothesis 1 was that in the case of an own loss frame, U is better predicted by the own outcome component than by the outcome-difference component, whereas this pattern would reverse and thus behave in accordance with Equity Theory in the case of an own gain frame. This implies that the unique variance explained by the $[\beta_1 SELF + \beta_2 SELF^2]$ -component should be significantly greater in the case of a loss rather than gain frame, whereas the unique variance explained by the $[\beta_3 DIFF + \beta_4 DIFF^2]$ -component should be significantly smaller in the case of a loss rather than gain frame.

To test this hypothesis, we performed separate regressions for each subject, and within subjects, for each of the relationship and frame conditions. Because adjusted R^2 s usually do not meet the normal-distribution requirement for analysis of variance,

¹ Loewenstein *et al.* (1989) reported that an equation separating the $DIFF$ component into a $POSDIFF$ (advantageous inequity) and a $NEGDIFF$ (disadvantageous inequity) accounted for even more variance, due to the different slopes in the advantageous versus disadvantageous domain. Our data showed no significant increase for this equation, as compared to the more parsimonious function proposed by Conrath and Deci (1969). Probably this is due to the few levels of inequity we used (two as compared to three in the Loewenstein *et al.* study).

we compared the distribution of cases above and below the median. No effects were found for either other's frame, or relationship (all $\chi^2 < 1$), but the results for own frame were as expected. For the [β_1 SELF + β_2 SELF²]-component 11 out of 56 subjects with an own gain frame had an adjusted R^2 above the median, whereas 41 out of 54 subjects with an own loss frame scored above the median, $\chi^2(2) = 32.71$, $p < 0.001$. For the [β_3 DIFF + β_4 DIFF²]-component this pattern reversed, in the 35 out of 56 subjects with an own gain frame had an adjusted R^2 above the median, whereas only 20 out of 54 subjects with an own loss frame scored above the median, $\chi^2(2) = 6.15$, $p < 0.025$.

These results support hypothesis 1 that loss framed individuals are more own-outcome oriented than those with a gain frame. Table 1 summarizes the main statistics, including the mean variance explained by the two components. As shown in column 3 of Table 1, the function proposed by Conrath and Deci (1969) accounted, on average, for 52 per cent of the variance, a result highly compatible with that observed by Loewenstein *et al.* (1989).

Table 1. Mean adjusted R^2 s, standard deviations ($S.D.$), and proportion of subjects scoring above the median, broken down for own frame

	SELF-component (self + self ²)	DIFF-component (diff + diff ²)	Equation Total Equation 1
Own gain frame			
Mean ($S.D.$)	0.09 ^a (0.17)	0.43 ^c (0.31)	0.53 ^d (0.29)
Above median	19%	62%	
Own loss frame			
Mean ($S.D.$)	0.32 ^{bc} (0.34)	0.20 ^a (0.23)	0.52 ^d (0.25)
Above median	76%	37%	

Cell entries in the first and third row represent variance explained by the different components, with the DIFF-column given the additional variance explained after the SELF-component has been partialled out. Entries not sharing equal superscripts differ at $p < 0.01$. The overall median for the SELF-component was 0.02, that for the DIFF-component was 0.41.

Equity considerations

The above analysis showed that the own frame influences the *amount* of variance explained by the various components of the utility function. These analyses do not provide insight in how individuals value various forms of (in)equity. Hypotheses 2 through 3a dealt with the mean satisfaction under various levels of self-other outcome-difference. To test these predictions, we averaged ratings of satisfaction over the four levels of own outcome (Cronbach's $\alpha > 0.95$), and submitted these data to a $2 \times 2 \times 2 \times 5$ (own frame by other's frame by relationship by outcome-difference) analysis of variance with the last two variables within-subjects².

² We did not include the level of own-outcome (65, 75, 85, 95) into this design because we had no particular hypotheses regarding its effects. An exploratory analysis revealed an interaction between own frame and level of own outcome, $F(3, 306) = 13.02$, $p < 0.001$, showing that in the case of a gain frame the level of own-outcome affected satisfaction ($M = 5.04$; 5.16; 5.31; and 5.34) less than in the case of a loss frame ($M = 2.37$; 2.63; 2.93; and 3.25). This effect might be interpreted as support for Prospect Theory's postulate that losses are more aversive than equivalent gains are attractive.

Main effects were found for outcome-difference, $F(4, 408) = 102.99, p < 0.01$, showing that equity is preferred over both levels of advantageous inequity ($M = 4.83$ versus $M = 4.42, p < 0.01$), which in turn is preferred over both levels of disadvantageous inequity ($M = 3.25, p < 0.01$), and for own frame, showing that outcomes were less satisfying to loss framed individuals than to gain framed individuals, $M = 2.82$ versus $M = 5.21; F(1, 102) = 168.10, p < 0.01$.

There was a two-way interaction between own frame and relationship, $F(1, 102) = 10.12, p < 0.01$, showing that outcomes were less satisfying under cooperative rather than noncooperative conditions, but especially in the case of a gain frame ($M_{\text{coop}} = 5.08$ versus $M_{\text{noncoop}} = 5.35, p < 0.05$) rather than in the case of a loss frame ($M_{\text{coop}} = 2.84$ versus $M_{\text{noncoop}} = 2.76, \text{n.s.}$). A second two-way interaction between relationship and outcome-difference, $F(4, 424) = 7.81, p < 0.01$, further revealed that the two levels of disadvantageous inequity produced about the same satisfaction in the case of a cooperative ($M_{-10} = 3.05$, and $M_{-5} = 3.31$) as in the case of a noncooperative relationship ($M_{-10} = 3.14$, and $M_{-5} = 3.42$), that equity yielded more satisfaction in the case of a cooperative rather than noncooperative relationship ($M = 4.91$ versus $M = 4.71, p < 0.05$), and that the two levels of advantageous inequity yielded less satisfaction in the case of a cooperative ($M_{+5} = 4.32$, and $M_{+10} = 4.25$) rather than noncooperative relationship ($M_{+5} = 4.54$, and $M_{+10} = 4.46, ps < 0.05$). This pattern is consistent with the one observed by Loewenstein *et al.* (1989).

Finally, there was a two-way interaction between own frame and outcome-difference, $F(4, 408) = 15.88, p < 0.01$. Consistent with hypothesis 2, equity was preferred over advantageous inequity, which in turn was preferred over disadvantageous inequity, but especially in the case of a gain rather than loss frame (see also Figure 1).

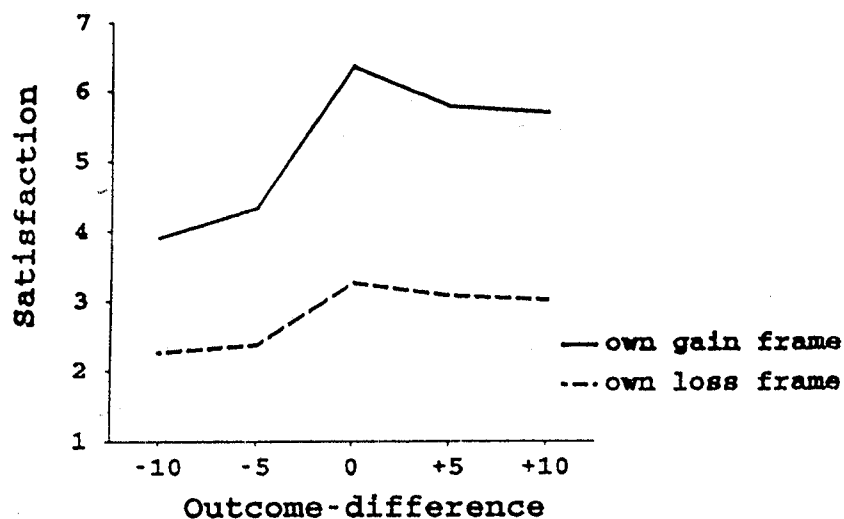


Figure 1. Satisfaction as a function of outcome-difference and own frame

The above effects were all qualified by a three-way interaction between own frame, relationship and outcome-difference, predicted under hypothesis 2a, $F(4, 424) =$

3.87, $p < 0.01$, and a three-way interaction (hypothesis 3) between other's frame, relationship and outcome-difference, $F(4, 424) = 2.32$, $p < 0.060$. The predicted four-way interaction (hypothesis 3a) between own frame, other's frame, relationship and outcome-difference was not significant, $F(4, 424) < 1$, n.s.

Figure 2 shows the nature of the interaction between own frame, relationship and outcome-difference. Cell means are given in Table 2. In all conditions, disadvantageous inequity yielded lower satisfaction than equity. Similarly, advantageous inequity produced lower satisfaction than equity, albeit only in the cooperative relationship conditions. Relationship influenced satisfaction especially in the gain frame condition: a cooperative relationship made advantageous inequity less satisfying than a noncooperative relationship.

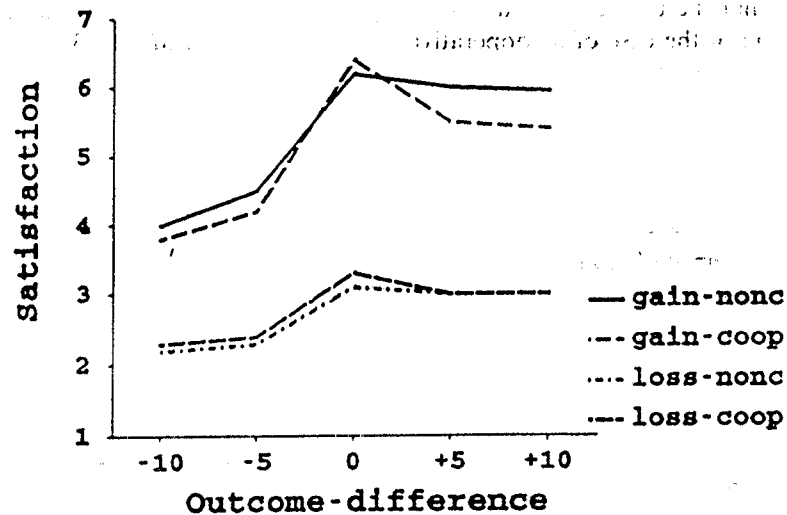


Figure 2. Satisfaction as a function of outcome-difference, relationship and own frame

Table 2. Satisfaction as a function of own frame, relationship and outcome-difference

	Outcome-difference (self-other)				
	-10	-5	0	+5	+10
Own gain frame					
Cooperative	3.80 ^e (1.73)	4.18 ^d (1.67)	6.44 ^b (0.83)	5.56 ^{ef} (1.18)	5.45 ^f (1.20)
Noncooperative	4.04 ^{cd} (1.75)	4.51 ^c (1.68)	6.25 ^{ab} (0.99)	6.00 ^a (1.04)	5.94 ^a (0.94)
Own loss frame					
Cooperative	2.30 ^a (0.93)	2.44 ^a (1.00)	3.37 ^c (1.36)	3.08 ^b (1.21)	3.04 ^b (1.28)
Noncooperative	2.23 ^a (0.92)	2.32 ^a (1.04)	3.17 ^{bc} (1.16)	3.08 ^b (1.22)	2.99 ^b (1.25)

Means not sharing equal superscripts per row or column differ at $p < 0.01$. Standard deviations are given between brackets.

Thus, in line with hypothesis 2a, loss framed individuals were less sensitive to variations in outcome-difference than gain framed decision makers; the latter in

particular behaved in accordance with Equity Theory, in that they preferred equity over advantageous inequity over disadvantageous inequity especially under cooperative conditions.

Table 3 shows the means for the marginal significant interaction between other's frame, relationship and outcome-difference. As can be seen, disadvantageous inequity was aversive, irrespective of experimental manipulations. Equity was most preferred, again irrespective of experimental conditions. Finally, advantageous inequity was more pleasing in the noncooperative than cooperative relationship conditions, albeit especially when the other party had a loss rather than a gain frame. This partially supports hypothesis 3 that the influence of other's frame is limited to cooperative settings. As predicted, only under cooperative conditions other's loss frame induces less satisfaction with advantageous inequity. Contrary to predictions, however, there were no indications that under cooperative conditions, other loss frame also induces less dissatisfaction with disadvantageous inequity. Apparently, other's losses may lead people to give up relative advantage more readily than to accept relative disadvantage. Contrary to hypothesis 3a, finally, this effect was not moderated by the subject's own frame.

Table 3. Satisfaction as a function of other's frame, relationship and outcome-difference

	Outcome-difference (self-other)				
	-10	-5	0	+5	+10
Other's gain frame					
Cooperative	3.07 ^{ab} (1.42)	3.37 ^c (1.47)	5.07 ^f (1.81)	4.42 ^{de} (1.59)	4.33 ^{de} (1.55)
Noncooperative	3.24 ^b (1.54)	3.57 ^c (1.76)	4.88 ^{ef} (1.83)	4.53 ^{de} (1.79)	4.53 ^c (1.76)
Other's loss frame					
Cooperative	3.08 ^{ab} (1.76)	3.29 ^{bc} (1.78)	4.79 ^{ef} (2.00)	4.25 ^d (1.88)	4.22 ^d (1.88)
Noncooperative	3.05 ^{ab} (1.80)	3.28 ^{bc} (1.81)	4.60 ^{ef} (1.93)	4.55 ^c (1.87)	4.52 ^c (1.99)

Means not sharing equal superscripts differ per row or column at $p < 0.01$. Standard deviations are given between brackets.

CONCLUSIONS AND DISCUSSION

This study dealt with the effects of gain-loss frames on equity considerations in cooperative and noncooperative settings. The experiment showed how important elements of Prospect Theory (Kahneman and Tversky, 1979) relate to, and qualify basic postulates of Equity Theory (Adams, 1965; Walster *et al.*, 1978). Several contributions of the present study deserve further attention.

Based on the well-documented observation that negative stimuli such as losses, attract more attention than equivalent positive stimuli such as gains (Peeters and Czapinski, 1990; Taylor, 1991), we argued that individuals with a loss frame are more own-outcome oriented than individuals with a gain frame (*cf.* De Dreu *et al.*, 1992b). Results indeed showed that the individuals's satisfaction with social decision-making outcomes was better predicted by variations in the personal out-

comes in the case of a loss rather than gain frame. Hence, the first conclusion of the present study is that individuals with a loss frame are more own-outcome-oriented than individuals with a gain frame. As such, this study contributes to the understanding of frame effects in many forms of interdependence, such as conflict management and negotiation, and social dilemmas. The repeated observation that loss framed individuals are more likely to attempt to maximize their own outcomes than gain framed individuals may at least partly be explained by the former's greater own-outcome orientation. Also, the present study provides more unequivocal evidence that the higher own-outcome orientation for loss framed individuals is not solely due to the more complex task they are presented with in most experimental research. Because we manipulated reference-points rather than the sign of the outcomes, it seems less plausible that in the present study loss framed subjects were engaged in a cognitively more complex task than gain framed subjects.

A consequence of the loss framed individual's greater own-outcome orientation is that basic postulates and predictions of Equity Theory are more valid when individuals have a gain rather than a loss frame. Results showed that especially gain framed individuals prefer equity to advantageous inequity, which in turn is preferred to disadvantageous inequity (see also, Loewenstein *et al.*, 1989; Messick and Sentis, 1985). These results both underscore the robustness of this pattern of results, but qualify it as well. The second conclusion of the present study is that gain framed individuals differentiate between various states of equity and inequity more than loss framed individuals.

The second contribution of the present study thus is that it demonstrated that Equity Theory may be limited to situations in which individuals represent their own outcomes as gains, and not as losses. This may have important implications for various forms of social decision-making in which distribution rules play an important role. For example, in negotiations principles of allocative justice such as equity should be less important to the negotiator in the case of a loss than gain frame. That is, splitting the difference, a satisficing heuristic to settle the dispute (Pruitt and Rubin, 1986), may be less frequently used when disputants have a loss rather than gain frame. Consequently, negotiators wishing to settle their dispute quickly should adopt a gain frame.

Prior research on frames in social decision-making dealt primarily with process rather than outcomes. The present research augmented aspects of the process, but also indicates what outcomes gain and loss framed individuals in social decision-making are striving for. Whereas loss framed individuals attempt to maximize outcomes, gain framed individuals appear more concerned about reaching a fair distribution of outcomes. Future research might address this difference in actual decision-making. Such further research also might address a potential limitation of the current study. That is, we studied equity considerations provided that both parties invested the same amount of time and effort. Hence, we cannot exclude that gain framed individuals are more equality rather than equity oriented than loss framed individuals. Future research might address this question by manipulating both own and other's input and output.

The third contribution of the present study is that it extends our knowledge about the influence of the other person's gain-loss frame. We augmented the observation by De Dreu *et al.* (1992b) by showing that the other person's frame not only affects cooperative behaviour in social dilemmas, but also equity considerations. That is,

other's loss frame decreases satisfaction with advantageous inequity. As mentioned, that subjects did not report less dissatisfaction with disadvantageous inequity might be due to the fact that it is easier to give up relative advantage, than to incur relative disadvantage.

Perhaps more important, however, the current study shows that this other's frame-effect dissipates in rather noncooperative situations. Intentions to help the other party reducing other's losses may be less salient in more competitive disputes, such as most negotiations. An implication of these data is that social decision makers may influence their opponent's cognition and behaviour by strategic manipulation of information about their own frame. However, for this to be effective, the individual should also encourage a cooperative rather than noncooperative context.

Contrary to the study by De Dreu *et al.* (1992b), we did not find the other's frame effect to be contingent upon the own frame variable. This may call into doubt the robustness of the interaction reported by De Dreu *et al.* It should be noted that in the present study, other's frame accounted for a relatively small portion of the variance in people's equity considerations. Probably, other's frame impacts cognition and behaviour more when real outcomes are at stake, rather than when hypothetical situations are presented.

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APPENDIX A. EXAMPLE OF THE SCENARIO PRESENTED PRIOR TO THE RATING TASK

'You and another student have been hired by a professor to be readers for a course he is teaching. You and the other student are both seniors in the professor's department and were both chosen because of your good academic records. Having taken the course previously from the same professor, both of you are familiar with the course and your employer's approach to the subject matter. You and the other student met once, when you split up the work. After the grading, the other student leaves school; you don't expect to meet the other grader ever again. You spent 10 hours reading and 30 hours grading exams. The other student also spent 10 hours reading and 30 hours grading.

Yesterday, you overheard someone saying that the other grader expects to receive \$50 at the least. You yourself had good reason to believe that the payment will be higher than \$50. Today, you return the work and receive the money'.

This is the complete scenario presented in the own gain frame/other's gain frame/noncooperative relationship condition.