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de Dreu, C.K.W.; Emans, B.J.M.; van de Vliert, E.

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Short Note

Frames of reference and cooperative social decision-making

CARSTEN K. W. DE DREU, BEN J. M. EMANS and EVERT VAN DE VLIERT
University of Groningen, The Netherlands

Abstract

Cooperative decision-making was studied as a function of the decision-makers' own, and the interdependent other party's gain or loss frame. As expected, results showed that (a) an own gain frame produced less cognitive activity than an own loss frame and (b) other's loss frame caused more cooperation than other's gain frame, but only in case of an own gain frame.

INTRODUCTION

The research reported here examined cooperative decision-making as a function of frames of reference, that is the decision-makers' cognitive representation of their potential outcomes. According to Kahneman and Tversky (1984), decision-makers adopt either a gain or a loss frame. In a gain frame, potential outcomes are 'above' one's reference-point and are positively coded. In a loss frame, potential outcomes are 'below' one's reference-point, and are negatively coded. Frames influence decision-making for two reasons. First, positive stimuli attract less attention and produce less cognitive activity than negative stimuli (Peeters and Czapinski, 1990). Compared to a loss frame, a gain frame thus may induce less own outcome-oriented cognitive activity. Second, gains are believed to be less attractive than losses are aversive (Kahneman and Tversky, 1984), resulting in a stronger motivation to minimize losses, than to maximize gains (e.g. Lopes, 1987).

Whereas most research about frames concerned individual decision-making (e.g. Van der Pligt and Van Schie, 1990), we examined the influence of frames on *social* decision-making, where choices affect not only one's own outcomes, but also the outcomes of at least one interdependent other. Many situations of social interdependency are characterized by the fact that, regardless of other's behaviour, one maximizes one's own outcomes by being non-cooperative, whereas joint outcomes are maximized by being cooperative (Pruitt and Kimmel, 1977). Because a gain frame

Addressee for correspondence: C. K. W. de Dreu, Department of Psychology, University of Groningen, Grote Kruisstraat 2/1, 9712 TS, Groningen, The Netherlands.

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may induce less own outcome-oriented cognitive activity and reduces the motivation to maximize outcomes, it may be expected that a gain frame makes social decision-makers less reluctant to sacrifice some own outcomes in order to maximize joint benefits. Indeed, several studies showed that compared to a loss frame, a gain frame produced more cooperative choices (Brewer and Kramer, 1986; Friedland, Arnold and Thibaut, 1974; but see Rutte, Wilke and Messick, 1987) and less contentious bargaining behaviour (e.g. Magliozzi and Neale, 1985; Neale and Bazerman, 1985; Carnevale, Gentile and De Dreu, 1992).

Up to now, the view that gain frames produce more cooperation than loss frames tended to neglect the decision-makers' assumptions and beliefs about *other's frame*. Following research showing that decision-makers are influenced by their assumptions or knowledge regarding the other party's motivations, cognitions and behaviours (Pruitt and Kimmel, 1977), similar processes can be suspected with regard to decision-makers' assumptions about other's frame. Assumptions or knowledge about other's frame may influence the decision-maker's behaviour. People are concerned about others and may be expected to be more helpful and cooperative when the other party presumably anticipates losses, rather than gains (*cf.* Heider, 1958). When the other party anticipates losses, non-cooperation implies that one hurts the other party. Non-cooperation in case of other's gain frame implies only that one fails to help. Because there are more compelling norms 'not to hurt', than 'to help' (e.g. McClintock and Keil, 1982), people will be more cooperative when the other party has a loss, rather than a gain frame (*cf.* De Vries, 1991). Consistent with this proposition are the results of De Dreu, Emans and Van de Vliert (1991) who observed subjects to have more cooperative preferences when the other party had a loss, rather than a gain frame.

In sum, we expected (H1a) an own gain frame to produce less own outcome-oriented cognitive activity than an own loss frame, (H1b) an own gain frame to induce more cooperation than an own loss frame, and (H2) other's loss frame to induce more cooperation than other's gain frame. Because one's own gain frame was expected to induce less own outcome-oriented cognitive activity, we finally expected (H3) the impact of other's frame on cooperation to be especially strong in case of an own gain frame.

METHOD

Design and subjects

An own frame (gains/losses) by other's frame (gains/losses) factorial design was used with cooperation as the main dependent variable. Fifty-six psychology sophomores at the University of Groningen (35 men and 21 women) participated for course credit and were randomly assigned to conditions.

Overview of the procedure

Upon arrival, subjects were placed in separate cubicles in front of a computer which displayed all instructions and questions. The study was introduced as concerned with decision-making under uncertainty. Subjects were told that they would participate in a two-phase study. In phase 2, they would play a 'decision game' for which they needed information, which could be purchased during this phase 2 game. They would earn the money for this in stage 1 (actually, phase 2 never took place), by privately making a series of interdependent choices, each of them resulting in money for themselves and money for another subject. The other would do the same, resulting in money for himself and for the subject. Upon this introduction, both own and other's frame were manipulated, and subjects chose 24 times between a cooperative and a non-cooperative alternative. During this choice task, no feedback whatsoever about actual outcomes or other's choices was provided. Also, before each new decision, it was restated how much money both players had to start with (see also below). After the choice task, subjects answered some questions and were debriefed.

Manipulation of frames

In order to manipulate both players' frame independently, subjects were told that for each choice possible own outcomes ranged from 0 to 60 guilders. They were led to believe that a random computer procedure had assigned some participants with 60 guilders for each choice, and other participants with 0 guilders for each choice. Subjects were told that 'as in many real life situations' some players were about to gain money, whereas other's were about to lose money. Specifically, subjects were told that they had 0 guilders for each choice and had to gain money (own gain frame), or that they had 60 guilders for each choice and that had to lose money (own loss frame). Subsequently, they were told that the other player had 0 guilders for each choice and was about to gain money (other's gain frame), or that the other had 60 guilders for each choice and was about to lose money (other's loss frame).

Dependent variables

The main dependent variable was the cooperation rate over 24 randomly presented decomposed games (DPG), adopted from Liebrand (1984). A DPG constitutes a choice between two alternatives containing an outcome to oneself and an outcome to the other party. One alternative is cooperative, in that it maximizes joint outcomes, whereas the other alternative is non-cooperative; it maximizes some other social goal (e.g. maximizing own outcomes, or maximizing relative difference). Each DPG provided the subject with an outcome somewhere between 0 and 30, and the other player with an outcome between 0 and 30. Subjects thus anticipated outcomes between 0 and 30 from their own choices, and between 0 and 30 from other's choices (making a total range between 0 and 60). Some examples of DPGs, as used in the present study are (between brackets are the negatively framed outcomes): [1] Self 28.0 (−2.0)/other 22.5 (−7.5) versus self 29.5 (−0.5)/other 18.9 (−11.1). [2] Self 25.6 (−4.4)/other 4.4 (−25.6) versus self 22.5 (−7.5)/other 2.0 (−28.0). [3] Self 22.5 (−7.5)/other 28.0 (−2.0) versus self 25.6 (−4.4)/other 25.6 (−4.4). [4] Self 2.00 (−28.0)/other 22.5 (−7.5) versus self 4.4 (−25.6)/other 25.6 (−4.4). The full set of used DPGs can be obtained from the first author, or derived from Liebrand (1984).

The manipulation of own and/or other's frame was unconfounded with the actual numbers in the 24 DPGs because, over the 24 games, both the outcomes to oneself and the outcomes to the other fell within the same range from both the minimum outcome for self and/or other, and the maximum outcome for self and/or other. Also, own outcomes are theoretically uncorrelated with other's outcomes. Adding

up the chosen amounts separately for self and for other provides estimates of the weights assigned to own, and other's outcomes, respectively. This allows for testing whether differences in cooperation as a function of frames are due primarily to variations in allocation to oneself, and/or to the other party (see also Liebrand, 1984).

To test for the presumption that an own gain frame induces less own outcome-oriented cognitive activity (Hla), we assessed (1) the time required to make choices, (2) ratings on the question 'how much did you think about different aspects and consequences of your choices during the choice task' (1 = very little, to 7 = very much).

RESULTS

Manipulation checks

The adequacy of the own frame manipulation was checked by asking subjects whether they were losing (1) or gaining money (7). As expected, a loss frame produced a stronger feeling of losing money ($M=2.8$) than a gain frame, $M=4.6$, $F(1,52)=30.6$, $p<0.001$. The intended main effect for other's frame was significant on the manipulation check for other's frame, indicating that subjects reported the other player to lose money to a greater extent when the other had a loss frame ($M=3.1$), than a gain frame, $M=4.6$, $F(1,52)=13.7$, $p<0.001$.

Cognitive activity

Consistent with Hla, subjects reported that they had more thoughts during the decision-making when they had a loss frame ($M=3.7$), rather than a gain frame, $M=2.5$; $F(1,52)=9.34$, $p<0.001$. Also, they needed more decision time when they had a loss ($M=5.5$) than gain frame, $M=5.2$; $F(1,52)=7.1$, $p<0.005$ (means are log-transformed because of the skewed distribution of latency data). Both measures are strongly correlated, $r(56)=0.51$, $p<0.0001$. Additionally, a significant negative correlation between thoughts and mean cooperation, $r(56)=-0.22$, $p<0.05$, supports the idea that cognitive activity is primarily own outcome-oriented.

Cooperation and allocations

The mean cooperation score over 24 DPGs (0 = perfectly non-cooperative; 1 = perfectly cooperative) was used to test for Hlb, H2 and H3. This measure of cooperation proved to be internally consistent (no differences between conditions emerged, overall mean was 62 per cent; see further Liebrand, 1984). Contrary to Hlb, an own gain frame did not produce more cooperation than an own loss frame, $F(1,52)=1.4$, $p<0.14$. Consistent with H2 is the main effect for other's frame, showing that subjects were less cooperative when the other had a gain frame ($M=0.64$) than when the other had a loss frame, $M=0.72$; $F(1,52)=3.7$, $p<0.05$. The predicted interaction between frames (H3) approached significance, $F(1,52)=2.9$, $p<0.06$. As can be seen in Table 1, other's frame influenced cooperation significantly when oneself had a gain frame, but not when oneself had a loss frame.

Two allocation-indices were obtained by summing separately the mean allocations to self and to other. Both indices could range from 0 (nothing allocated to self, or to other) to 30 (the maximum allocated to self, or to other). A 2 × 2 MANOVA revealed a main effect for other's frame, $F(2,51)=3.5$, $p<0.025$, and an interaction between frames, $F(2,51)=4.4$, $p<0.01$. At the univariate level, only allocations to other differed as a function of frames. Subjects allocated more to the other when the other had a loss frame ($M=21.24$) rather than a gain frame, $M=15.72$; $F(1,52)=2.9$, $p<0.05$. This main effect was qualified by an interaction between frames, $F(1,52)=7.24$, $p<0.025$. From the cell means in Table 1, it can be seen that subjects in the own gain/other's loss frame condition allocated more to the other party than in any of the other three conditions.

Table 1. Means for cooperation and allocation to other as a function of own and other's frame

	Own frame			
	Gains		Losses	
Other's frame	Gains	Losses	Gains	Losses
Cooperation	0.63[a]	0.75[b]	0.66[a]	0.68[a]
Allocation to other	12.8[a]	26.7[b]	18.7[a]	15.5[a]

[a,b]Cell means per row with different superscripts are significantly different ($p<0.05$).

CONCLUSIONS AND DISCUSSION

The experiment corroborates most of the hypotheses: an own gain frame induces less own outcome-oriented cognitive activity than an own loss frame, and consistent with prior research (e.g. De Dreu *et al.*, 1991), other's loss frame induced more cooperation than other's gain frame, though only in case of an own gain frame. The results for allocation indicated that these effects were primarily due to relatively high weights accorded to other's (negative) outcomes. In sum, this suggests an interesting *two-phase process*. In the first phase, one's own frame determines the amount of own outcome-oriented cognitive activity. A loss frame induces more own outcome-oriented cognitive activity than a gain frame. In the second phase, other's frame influences cooperative motivation and behaviour. Because an own loss frame produces more own outcome-oriented cognitive activity than a gain frame, decision-makers with a gain frame enter more easily the second phase. Then, other's loss frame increases cooperation, probably because decision-makers are motivated to reduce perceived frame asymmetries or because people are more helpful with people anticipating losses than with people anticipating gains (*cf.* Heider, 1958; McClintock and Keil, 1982).

The prediction that an own gain frame would produce more cooperation than an own loss frame received no support, perhaps because of the strong impact of other's frame, overruling the needs and desires dictated by one's own frame. It may also be that the previously observed frame effect is not very robust. In fact, Rutte *et al.* (1987) also failed to detect differences in cooperation as a function of own frame, and Carnevale *et al.* (1992) observed effects of own frame to decrease as social decision-making (i.e. negotiation) proceeds. Further research should address these questions in particular.

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Short Note

Preferential treatment of women and psychological reactance theory: An experiment

ANNEKE VRUGT
Vakgroep Sociale Psychologie, Faculteit der Psychologie, Roetersstraat 15, 1018 WB Amsterdam, The Netherlands

Abstract

Male academic staff members received a Low- or High-threat (freedom restricting) description of measures for the preferential treatment of women in job selection for academic staff functions. The High-threat condition evoked more psychological reactance than the Low-threat condition. Persons with high self-esteem manifested a more negative attitude in the High-threat than in the Low-threat condition. Social position did not interact significantly with threat.

INTRODUCTION

Affirmative action is defined as any race- or sex-conscious practices devised with the intention to redress past racial and gender imbalances and injustices (Blanchard and Crosby, 1989). Affirmative action programmes often include preferential treatment for members of a targeted class of people, for example preferential treatment of women in recruitment and selection for academic staff functions.

In spite of the current pro-equality and apparently non-sexist and non-racist ideology, the implementation of preferential treatment can cause a lot of debate (Gaertner and Dovidio, 1986). This was the case at the University of Amsterdam. In 1989, the board of the University simply promulgated the preferential treatment of women in job selection as the only effective way to extend the percentage of women in academic staff functions. Opponents claimed that this limited the choice to candidates scraping through the selection: women. They implied that the impossibility of choosing the best candidate would impair the quality of research and education. Without taking sides on this issue, it can be stated that the recruiting department determines the qualifications required for any position, thereby safeguarding the quality.

Whatever the case may be, the debate evoked by the promulgation of preferential treatment suggests that the presentation of the measure had a contrary effect: it activated psychological reactance. Psychological reactance theory asserts that when persons believe themselves free to engage in a given behaviour and their freedom

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