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How to turn a hawk into a dove and vice versa: Interactions between emotions and goals in a give-some dilemma game

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Abstract

The present study investigated emotional influences on behavior in a one-shot, simultaneous, give-some dilemma game. In accordance with functional perspectives on the role of discrete emotions, we found fear to reduce, and guilt to increase levels of cooperation. Moreover, we showed individual differences in the effect of induced emotional states. Specifically, results indicated that inducing fear reduced cooperation only for individuals with a pro-social value orientation, and that guilt induction increased cooperation only for individuals with a pro-self value orientation. We also established that both social value orientations could be adequately described in terms of differences in chronically accessible goals (as assessed by value-importance ratings). These results, therefore, seem to support our hypothesis that individual differences in the behavioral consequences of induced emotional states are related to variation in chronic accessibility of general goals associated with a particular emotional state.

Keywords: Emotion; Functional theories; Goals; Social-dilemma's; Social value orientations; Values; Cooperative behavior; Situational influences; Dispositions

Introduction

Emotion research has become an important domain of social-psychological inquiry, resulting in an increasingly wide acceptance of the pivotal impact of emotions on cognitive processes and behavior (e.g., Schwarz, 2000). Recently, the central question guiding emotion research shifted from "what"?—documenting the psychological and biological processes that constitute an emotional episode—to "why"?; investigating how specific emotional states modify psychological processes and behavior.[1] The latter is commonly referred to as the functional approach to emotion (e.g., Ekman, 1993; Izard & Ackerman, 2000; Keltner & Gross, 1999). In the present paper, we investigate emotional influences on behavior in a give-some dilemma game from such a functional perspective.

Functional accounts consider emotions to be solutions to adaptive problems; recurrent conditions that present problems and opportunities for physical and social survival (Cosmides & Tooby, 2000). In general, it is conceived that each emotion (e.g., curiosity[2]) signals the implications of the present situation (reading this paper) to maintain or realize a particular goal (acquiring novel, useful information). To accomplish this goal, psychological processes (e.g., directing attention, activating relevant knowledge from memory) are recruited and action (continue reading) is motivated to achieve this goal. Various studies have indeed shown that emotions exert different influences on

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[1] Unless explicitly stated otherwise, research cited and discussed in this paper concerns specific emotional states and not general (positive or negative) affect or mood states.

[2] Curiosity is chosen for illustrative purposes only. We do not claim curiosity to be an emotion, nor deny this possibility. For a similar functional description of curiosity, however, see Izard & Ackerman, 2000.

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psychological processes like judgment and choice (Gault & Sabini, 2000; Lerner & Keltner, 2001), social information processing (Bodenhausen, Sheppard, & Kramer, 1994), and likelihood estimations (DeSteno, Petty, Wegener, & Rucker, 2000).

In the present study, we extend previous research on the functions of emotions by demonstrating that the behavioral consequences of an (experimentally induced) emotional state may differ between individuals. We argue that these differences are related to variation in the extent to which individuals chronically strive for situation-relevant goals. In the subsequent section we will elucidate this argument by elaborating on the relation between emotions and goals.

Emotions and goals

As stated, functional accounts emphasize the goal-related nature of emotions. They specify the ways in which emotions orchestrate psychological processes to generate an adaptive behavioral response, given the specific concerns imposed by the present situation. Corroborating these premises, research findings indicate that emotions can indeed be discerned by (a) appraisals of concern-relevance implied by the situations in which they arise (Smith & Ellsworth, 1985; Smith & Lazarus, 1993), (b) the ensuing action tendency (Frijda, 1986), and (c) by distinct categories of associated goals (Roseman, Wiest, & Swartz, 1994). Following Roseman's taxonomy of emotion-specific goals, we therefore consider an emotional state to be associated with a temporary increase in accessibility of a certain class of goals.

A goal can be defined as a subjectively valued state-of-affairs or end-state of interactions between people and their (social) environment (Austin & Vancouver, 1996). Irrespective of the way in which goals are conceptualized (e.g., as values, needs, life-goals, etc.), many studies have indicated that behavioral differences are related to the extent to which people chronically (e.g., Bardi & Schwartz, 2003) or temporarily (Bargh & Chartrand, 1999) strive for certain goals.

Of particular relevance to the present study, priming research has indicated different sources of construct accessibility (i.e., chronic and temporary) to combine additively (Bargh, Bond, Lombardi, & Tota, 1986), but also to show interactive effects (Higgins & Brendl, 1995). In the latter case, when different sources of accessibility yield the same final level, their effects, for instance at the time of judgment, are not distinguishable (see Higgins, 1996, for an overview). Likewise, temporary accessibility of a goal construct can be expected to affect behavior mainly for people to whom that goal is not already chronically accessible. This idea is corroborated by findings suggesting that both chronic and temporary accessibility of a particular construct affect psychological processes (like person perception) through the same underlying process; the level of construct activation (Bargh, Lombardi, & Higgins, 1988).

Based on these findings, we predict both a main effect of induced emotional states as well as an interactive effect of emotions with the chronic accessibility of associated goals. Specifically, we anticipate emotions to influence behavior mainly in case a person does not already have a chronically accessible goal that is congruent (i.e., overlaps in terms of action tendency) with the general goal associated with that emotional state. We tested this hypothesis in a one-trial, simultaneous, give-some dilemma game (GSDG).

Chronic goals and emotions in social dilemmas

Social dilemmas, like the GSDG, can be considered blueprints constituting the prototypical characteristics of an interaction between two (or more) people (*players*), in which a motivational conflict is presented between a behavioral choice serving one's own interest (*defection*) or serving the collective interest (*cooperation*). In the one-trial simultaneous GSDG, the dilemma concerns the fact that mutual cooperation has a higher payoff than mutual defection but is also risky, for if one of the players unilaterally defects, he or she will receive the entire profit, whereas the other ends up empty handed (for an overview see, Colman, 2003). Traditional explanations mainly relied on principles of rational discount, stressing strategic solutions for behavior in social dilemmas. More recent approaches, however, also seek explanations that take into account the psychological factors involved in decision making (e.g., Camerer, 2003). Two such factors are Social Value Orientations (SVOs) and emotions.

SVOs are defined as individual differences in preference for particular outcome distributions between oneself and the other player (McClintock, 1972). Usually, two types of SVOs are discerned, pro-social and pro-self. Extant evidence indicates these SVOs to account for consistent individual differences in behavior, showing pro-socials to be more cooperative than pro-selves (see, Van Lange, 2000 for an overview). The integrative model (Van Lange, 1999), accounts for these differences by reference to different goals or motivational tendencies underlying SVOs (see also, De Cremer & Van Lange, 2001; Liebrand, Jansen, Rijken, & Suhre, 1986). When engaged in social interactions, people with a pro-self value orientation only have their self-interest in mind, and their goal is to maximize their own payoff, regardless of the gains to the other player. People with a pro-social value orientation on the other hand; strive to maximize both the joint outcome for both players and the equality of this outcome. Hence, their choices in social interactions are also guided by motivational tendencies towards responsibility (considering the other's payoff) and reciprocity (striving for equal payoffs).

Compared to SVOs, relatively little research has investigated the role emotions play in determining choices in social dilemmas. Studies have indicated that mood influences choice strategies (Hertel, Neuhoff, Theuer, & Kerr, 2000). However, only a few emotions have been studied in social dilemmas. Fear and greed appeared negatively

related to the amount of cooperation (Rapoport & Eshed, 1989), whereas experimentally enhanced feelings of empathy showed the opposite effect (Batson & Moran, 1999). Finally, (both naturally occurring and experimentally induced) feelings of guilt, instigated cooperative behavior but only if individuals had previously defected (Ketelaar & Au, 2003).

We investigated whether inducing the emotional states of fear and guilt influenced behavioral choice in a GSDG. Furthermore, we tested whether these influences varied between individuals with different chronic goals (i.e., pro-socials and pro-selves).

Hypotheses

Based on Roseman et al.'s (1994) taxonomy of emotional goals and on results of studies indicating both additive and interactive relations between chronic and temporary accessibility of mental constructs (e.g., Higgins, 1996), we hypothesized that in a neutral (i.e., non-emotional) state, behavioral choice is determined by chronic goals and that pro-social individuals will be more cooperative than pro-selves.

Furthermore, we expected fear induction to reduce the level of cooperation. Fear is associated with the general goal to avoid personal risk. Translated to choices in a GSDG, this implies a goal to avoid exploitation or loss. This will result in an action tendency to make a risk-aversive (i.e., a less cooperative) choice, as this is the only means to attain that goal. We expected this main effect to be qualified by an interaction, indicating fear to exert this influence mainly among pro-socials, as pro-selves already chronically strive to avoid exploitation and loss.

Feelings of guilt on the other hand, activate the goal to make up to someone, which in a GSDG will result in an action tendency to make a more cooperative decision in order not to harm or even benefit the other player. As pro-socials already strive to maximize joint outcomes, guilt induction will mainly increase cooperation for pro-selves. Hence, beside main effects of the induced emotional state, we expected interactive effects between SVO and both fear and guilt induction on the amount of cooperation in a GSDG.

Preliminary study

To bolster our interpretation of results in terms of Emotion × Goal interactions, we performed a preliminary study in which we explicitly linked SVOs to general goals. Here to, we assessed differences between pro-socials and pro-selves in importance ratings of values. Values can be regarded as motivational constructs that specify abstract goals guiding people's actions across context and time (Schwartz, 1994). The most popular catalogue of values is Schwartz' Value Survey (SVS), a comprehensive list of ten types of general value constructs differentiated by their motivational goals.

In this study, participants were 214 undergraduate students (160 females and 54 males with a mean age of 19.4 years) at the University of Maastricht. We assessed SVOs and administered the SVS in a single session following a lecture. The order of measurements was randomly alternated.

The Triple-Dominance measure was used to determine SVOs (see Van Lange, Otten, De Bruin, & Joireman, 1997 for details). This measure consists of a series of nine decomposed games in which participants have to indicate their preference for one (out of three) prescribed distributions of points between themselves and a fictional "other". Each distribution of points corresponds to one of the main interpersonal orientations discerned by the integrative model of SVOs (Van Lange, 1999), i.e., pro-social, competitive, and individualistic. The latter two are usually combined as pro-self orientation. Participants were classified as pro-self ($n = 82$) or pro-social ($n = 84$) based on at least six (out of nine) consistent choices on the Triple-Dominance Measure. Forty-nine participants could not be classified.

We asked participants to rate the importance of the (56) value-items of the SVS (Schwartz, 1994) on a scale ranging from 1 (*unimportant*) to 10 (*extremely important*). As alpha coefficients derived from the present data were sufficiently high (see Table 1), item scores for each higher order value type were averaged into single measures.

Preliminary analysis of variance did not reveal order effects on mean importance ratings of values. We investigated differences in mean scores for each of the 10 value constructs of the SVS between pro-selves and pro-socials by a one-way analysis of variance (see Table 1). Results indicate that both groups differed on five value constructs, suggesting that the two groups can be well distinguished in terms of their chronically accessible goals. More importantly, the differences between pro-socials and pro-selves in mean importance ratings on the SVS, corroborate other conceptualizations of SVOs, indicating that value orientations can indeed be characterized by differences in chronic goals. First, in accordance with the integrative model of

Table 1
Mean importance ratings of value constructs for pro-socials and pro-selves

Values	α	Pro-self	Pro-social
Power**	.78	5.8	5.2
Achievement***	.74	7.1	6.9
Self-direction	.56	7.1	7.1
Stimulation	.77	6.9	6.7
Hedonism**	.74	7.9	7.5
Benevolence*	.82	7.3	7.6
Universalism*	.73	6.7	7.0
Tradition	.62	5.4	5.6
Conformity	.54	6.5	6.5
Security	.80	6.9	6.9

* $p < .05$.
** $p < .01$.
*** $p < .10$.

SVOs, the tendency of pro-socials towards reciprocity and responsibility is mirrored by higher ratings on the value constructs of Universalism (related to the appreciation of the equality and welfare of all people) and Benevolence (related to the enhancement of close others). Pro-selves adhere more importance to Power values (expressing the pursuit of self-interest). Also, they tend to rate Achievement values (related to a strive for competence) of greater importance, which reflects the preference of pro-selves to maximize their own outcome and to judge behavior in social dilemmas primarily in terms of might (strength vs. weakness) (Liebrand et al., 1986). Finally, pro-selves rated Hedonism values (related to the pursuit of pleasure and sensuous gratification) more important than pro-socials. This substantiates the finding that pro-socials exercise more personal restraint in social dilemmas (Kramer, McClintock, & Messinck, 1986).

Methods

Participants and design

A total number of 277 undergraduate students (223 females and 54 males with a mean age of 20 years) participated in the main study. Participants received a monetary reward of € 5. The experimental design included two between-subject factors, SVO (pro-self vs. pro-social) and Emotion (Fear vs. Guilt vs. Control).

Procedure

Participants came to the lab in groups of 4–6 people. On entering they were welcomed by a male experimenter. They were told that they would participate in several studies from different researchers who had pooled together their questionnaires. Participants first received the SVO questionnaire. Subsequently, they were subjected to the emotion induction task. Then they received instructions for, and played the one-shot, simultaneous GSDG. Finally, they were probed for understanding of the GSDG as well as for suspicion concerning the relation between the induction task and the GSDG, after which they were debriefed, thanked for participation and paid.

Measures and manipulations

SVO. SVOs (pro-self: $n = 147$, pro-social: $n = 101$, 29 unclassifiable) were assessed using the Triple-Dominance Measure as described in the preliminary study.

Emotion induction

Participants were randomly assigned to one of the emotion conditions. We used an autobiographical recall procedure (cf. Strack, Schwarz, & Gschneidinger, 1985) to induce emotions. The task was introduced as a study on "memory and information processing." Participants were asked to describe "in as much as possible detail" a recent incident due to which they had felt very much afraid or guilty. Participants in the control condition were asked to describe an ordinary day in their lives.

Two judges independently determined the adequacy of this manipulation. Hereto, all reports were evaluated for (a) the level of detail, (b) the recency of the event, and (c) the likelihood by which the event was considered to induce the targeted emotion. Thus, all three criteria were directly derived from the instructions that were given to the participants.

A total number of 15 subjects for whom the manipulation was considered inadequate by *both* judges were excluded from the analysis. Of these excluded cases, four claimed they could not remember an adequate episode and one reported a childhood event, which was not considered sufficiently recent. Two reported fictional episodes (a first-person account of the fairy tale "Little Red Riding hood" and a ride in a ghost train), which were considered unlikely to really induce fear. Furthermore, two reports, both in the Guilt condition, were excluded because the incidents were not due to the participants' own responsibility. Own responsibility is considered a crucial appraisal for guilt (e.g., Smith & Ellsworth, 1985). It could therefore be questioned whether these participants had the required conception of guilt. Finally, six participants in the Fear condition were excluded for their reports involved the concern for the welfare of close others (e.g., an ill relative), which does not correspond to the fear pertaining *personal* risk that we aimed to induce. Concern for others may even increase, rather than reduce, levels of cooperation, given the other-directed focus of these feelings.

Cooperation in the GSDG

Subsequently, participants received instructions for the one-shot,[3] simultaneous GSDG (cf. Van Lange et al., 1997, Study 3). The instructions read that each participant would receive four chips representing lottery tickets. (This lottery was actually held at the end of the study.) Participants were given an opportunity to increase their number of tickets in an exchange-game[4] that was part of a study on "decision making." They could earn more tickets by a onetime exchange of any desired number of chips (i.e., zero, one, two, three, or four) with another participant to whom they would be randomly paired. Any chips exchanged yielded two tickets to the recipient, but were lost to the donor. Chips kept for oneself yielded just one ticket. A matrix of all possible outcomes of the exchange was provided with the instructions. It was made clear that neither oneself, nor the other participant would know beforehand the number of chips the other had decided to exchange. Participants were told to make sure these rules were clear to them (or otherwise ask the experimenter for extra

[3] We used a one-shot GSDG to rule out strategic considerations influencing players' choices.

[4] We carefully avoided terms (like cooperation, helping, and giving) that could convey socially desirable connotations to any type of choice.

instruction), before they put the number of chips they wanted to exchange in an envelope, which they handed back to the experimenter along with the instructions.

Control measures

Next, participants were handed another envelope, containing 2 chips, ostensibly received from the other participant. They were also asked to calculate, based on their own and the other participants' payoff, the number of tickets each had earned, which served as a measure of understanding of the rules of the GSDG.

Results

Due to the exclusion of participants for whom the manipulation was considered inadequate ($n = 15$), the final sample at was reduced from 248 to 219 participants.

Cooperation in the GSDG

The amount of cooperative behavior, indexed by the mean number of chips exchanged, is shown in Fig. 1. A 2 (SVO: pro-self vs. pro-social) × 3 (Emotion: Control vs. Fear vs. Guilt) ANOVA indicated significant main effects of SVO, $F(1,227) = 28.7$, $p < .001$, $\eta^2 = .11$, and Emotion, $F(2,227) = 6.6$, $p = .002$, $\eta^2 = .06$, on the amount of cooperation in the GSDG. As expected, pro-social individuals were more cooperative than pro-selves. Protected (LSD) post hoc tests further indicated fearful participants to be less cooperative than participants in the Guilt condition ($p < .001$), and also (though marginally) than participants in the Control group ($p = .07$). Guilty participants also proved more cooperative than participants in the Control group ($p = .05$).

The main effects were further qualified by a significant SVO x Emotion interaction, $F(2,227) = 4.8$, $p = .009$, $\eta^2 = .04$. Simple effects analysis, showed the level of cooperation to differ between Emotion conditions among pro-socials, $F(2,227) = 7.1$, $p = .001$, $\eta^2 = .06$, and also (though marginally) among pro-selves, $F(2,227) = 2.5$, $p = .08$, $\eta^2 = .02$. Protected (LSD) post hoc tests, revealed that for pro-socials, as expected, fear induction significantly reduced the level of cooperation ($M = 1.4$, $SD = 1.1$), compared to the neutral Control group ($M = 2.3$, $SD = 1.3$, $p = .002$). Guilt induction, however, had no effect ($M = 2.4$, $SD = 1.0$) compared to the Control group ($p = .634$). For pro-selves, on the other hand, guilt induction indeed appeared to increase the level of cooperation ($M = 1.5$, $SD = 1.2$) compared to the Control group ($M = 1.0$, $SD = 0.8$, $p = .03$), whereas no difference was found after fear induction ($M = 1.2$, $SD = 1.1$, $p = .343$).

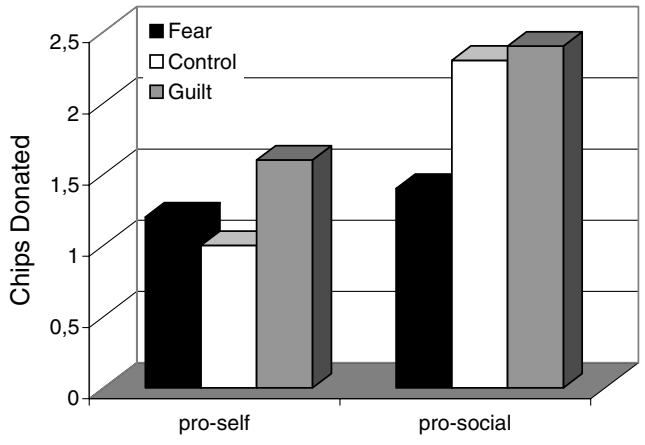

Fig. 1. Mean number of chips donated in Control, Fear, and Guilt groups for people with pro-social and pro-self value orientations.

Discussion

Generally, the results appeared to support our hypotheses. We showed that emotional states (fear and guilt) influence behavior in a GSDG in accordance with the general goals associated with these emotions. As predicted, however, the effects were not the same for individuals with different SVOs. In line with our expectations, fear reduced the level of cooperation only for pro-socials, whereas guilt increased cooperation only for pro-selves. We also asserted that describing pro-socials and pro-selves in terms of differences in chronic goals (as assessed by SVS ratings), match common conceptualizations of these value orientations (e.g., Van Lange, 1999).

These results, therefore, may indeed suggest that emotions affect behavior mainly if a person does not already have a chronically accessible goal (SVO) that is congruent (in terms of action tendency) to the temporarily accessible goal related to the emotional state. Fear is associated with the goal to avoid risk, which in a social dilemma induces a tendency to avoid exploitation or loss. This can be achieved by making more defective choices (i.e., to behave less cooperatively). Fear reduces cooperation, however, only if people are not already chronically motivated to do so (i.e., not for pro-selves). Guilt is associated with the goal to take someone else's concerns into account, hence increases cooperation in a social dilemma, but not for pro-socials, to whom this goal is already chronically accessible.

The effects of guilt induction were more modest than those of inducing fear. Several explanations may account for this difference. First of all, it may be more difficult to induce guilt than fear. Whereas both feelings are negative, guilt is also a self-related emotion. People generally engage in ego-defensive reactions to avoid the profoundly negative state resulting from such feelings (e.g., Lazarus & Folkman, 1984), which may have diluted the impact of inducing guilt. Secondly, functional accounts of self-evaluative emotions, particularly in relation to behavior in social dilemmas (e.g., Frank, 2004), stress that such feelings provoke individuals to forego their immediate self-interest in order to pursue a more effective long-term strategy. Perhaps in a multiple-trial social dilemma (e.g., Ketelaar & Au, 2003), people are more susceptible to guilt. As participants in the present studies were aware that they were involved in

a onetime exchange, this may have caused them to actively avoid long-term considerations, thereby counteracting the effect of guilt. Finally, emotions may exert integral or incidental influences. The former concern the influence of experiences that are relevant to the situation at hand (e.g., feeling regret when a gamble has been lost). In our studies, we obviously investigated incidental effects, which refer to influences of feelings that are irrelevant to the present situation. Emotions may differ in their ability to produce such incidental effects. Fear, contrary to guilt, can occasionally be a "free-floating" emotion (Oatley & Jenkins, 1996), which means its source is not necessarily salient to the person experiencing it. By nature, free-floating emotions may be relatively more likely to produce incidental effects than non-free-floating emotions, as people may be more perceptive to the (irrelevant) source of the latter. According to well-established findings, influences of induction dissipate once people become aware that the source of their feelings is irrelevant (Higgins, 1996). This may also account for the weaker impact of guilt. In general, we emphasize that feelings in our studies were the result of experimental manipulation and are apt to be relatively weak compared to actual emotions in real-life.

Implications and limitations

The present study contributes to a recent line of investigation, documenting the influence of subtle, situational stimuli on behavior in social dilemmas. These studies have indicated that temporarily activating psychological concepts like "might" and "morality" (Smeesters, Warlop, Van Avermaet, Corneille, & Yzerbyt, 2003), affects behavior in social dilemmas. Of particular interest is the view emanating from these studies that, whereas pro-socials ("doves") appear to change their behavior in accordance with the nature of the activated concept (i.e., they become more cooperative after a *morality* and less cooperative after a *might* prime), pro-selves ("hawks") behave less cooperative after either prime. Such results warrant against trying to change the behavior of pro-selves. Our results, however, show that by affecting their emotional states, hawks may easily be turned into doves, and vice versa.

Beyond that, the renewed appreciation of the pervasive influences of emotions in our daily lives has instigated research resulting in increasingly refined conceptions of the various mechanisms by which emotions affect psychological processes (Schwarz, 2000). For instance, feelings provide a heuristic cue to complex judgments by providing an additional source of information on one's preferences (Schwarz & Clore, 1988). Recent studies have also demonstrated this influence to extend to specific emotional states (DeSteno et al., 2000). In a series of elegant studies, Lerner and Keltner (2001) have shown that emotions also affect judgment and choice in an indirect fashion, by altering the cognitive dimensions along which people appraise a particular situation. The present studies suggest yet another—though not necessarily conflicting—mechanism by which emotions pervade psychological processes: Through temporarily enhancing the accessibility of goals, and as such, interacting with dispositional differences in goal accessibility.

Nevertheless, as stated in the introduction, emotions have received relatively little attention in past research on social dilemma's and SVOs. Our interpretation, therefore, remains provisional as the current data provides only indirect support for this framework. Specifically, several assumptions require further testing. First of all, future studies should explicitly test the proposed mechanism by investigating if a particular emotion indeed enhances the accessibility of associated goals, and whether similar interactions will be found between (different) emotions and other indices of chronic goal accessibility. Second, it would be interesting to explore whether such interactions extend to other types of social games (e.g., repeated games) or even different behavioral settings. Finally, follow-up research should also exclude alternative explanations of the present results. For instance, the present data could also be accounted for by arguing that pro-socials are more prone to fear, whereas pro-selves are more susceptible to guilt and that as a result, the manipulation has differently affected both groups. Still, we believe these results contribute to drawing an ever more sophisticated map of our emotional lives.

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