

Coupling and Decoupling of Unfairness and Anger in Ultimatum Bargaining

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ABSTRACT

Although previous research has demonstrated the importance of emotions in ultimatum bargaining, this research provides a more direct, convergent test of the role of anger in explaining rejections of unfair offers in ultimatum bargaining. First, using appraisal theory of emotions, this research examines the extent to which the cognitive appraisal of unfairness leads to the emotion of anger, which in turn, drives punitive behavior (i.e., rejection of offers). Second, this research explores the possibility of decoupling the emotion of anger from its antecedent appraisal of unfairness in order to attenuate responders' inclination to reject unfair offers. Third, following the current research tradition that goes beyond a valence-based approach, we differentiate between the negative emotions of anger and sadness and examine whether it is the specific emotion of anger that is relevant to the cognitive appraisal of unfairness or the general negative valence of the emotion. Copyright © 2008 John Wiley & Sons, Ltd.

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Although standard economic models typically assume that decision making is a rational, cognitive process, recent research has begun to acknowledge the importance of emotions in decision making (e.g., Camerer, 2003; Hermalin & Isen, 2008; van Winden, 2007). Rational self-interest alone cannot account for observed behavior in relatively simple resource allocation decisions such as ultimatum bargaining (Camerer, 2003; Camerer & Thaler, 1995; Güth, Schmittberger, & Schwarze, 1982). One reason for the vast number of studies on the dynamics of ultimatum bargaining is that it represents the end state of any bargaining and may be viewed as a simple form of a take-it-or-leave-it transaction. In ultimatum bargaining, one individual (proposer) controls an amount of money (say \$10) and makes an offer to another individual (responder) who divides the \$10 between the two individuals. Both individuals know the amount being divided and the rules of the bargaining. The responder can either accept or reject the offer. If the offer is accepted, the sum of money is divided as proposed and the bargaining ends. If the offer is rejected, both individuals receive nothing and the bargaining ends.

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The game-theoretic, sub-game perfect equilibrium, prediction is that a proposer should offer the smallest unit of currency and the responder should accept. The rationale is that an income maximizing individual would accept any offer since something is better than nothing. In contrast to the normative prediction, two robust findings have emerged in the literature (Camerer & Thaler, 1995; Güth, 1995). First, proposers typically offer about 30–40% of the total amount, with a 50–50 split often the mode. Second, responders typically reject offers that represent less than 25% of the total amount. These findings suggest that individuals' behavior is not entirely driven by self-interest (Güth, 1995). Responders' behavior may be more intriguing because bargainers are not only sensitive to their own payoffs, but also to relative payoffs (Bolton & Ockenfels, 2000; Srivastava, 2001; Srivastava, Chakravarti, & Rapoport, 2000; Srivastava & Oza, 2006). Further, the finding that responders are more likely to accept small offers when they come from a random device than from a human agent suggests that individuals punish unfairness and are not merely rejecting inequality (Blount, 1995). The willingness to sacrifice one's own interests (i.e., at a cost to one self) to punish those who are being unfair suggests that emotions may underlie responders' rejection decisions (e.g., Camerer, 2003; Güth, 1995).

Consistent with this view, in a recent neuroeconomics study using fMRI, Sanfey, Rilling, Aronson, Nystrom, and Cohen (2003) show that unfair ultimatum offers activated brain areas related to both emotion (anterior insula) and cognition (dorsolateral prefrontal cortex) and the activity in the insula was more intense for offers that were rejected. In another study, Van't Wout, Kahn, Sanfey, and Aleman (2006) show that skin conductance activity was higher for unfair offers and was correlated with the rejection of the offers. Further, the heightened skin conductance activity was only observed when the offer was generated by a human rather than a computer. Although these studies underscore the importance of emotions in economic decision making by showing that responders experience more emotional arousal when confronted with an unfair offer from a human, it is difficult to attribute the physiological differences in brain activity or skin conductance to any specific emotion.

Taking an emotions specificity approach (e.g., Keltner, Ellsworth, & Edwards, 1993; Lerner & Keltner, 2001), the research reported in this paper examines the extent to which the specific emotion of anger is the underlying reason for rejections of unfair offers in ultimatum bargaining. Although researchers (Güth, 1995; Straub & Murnighan, 1995) have suggested that violation of fairness norms lead to anger and this may be the reason that responders act spitefully and "punish" the proposer by rejecting the offer, relatively few studies test this hypothesis and its implications. An exception, Pillutla and Murnighan (1996) showed that responders felt angry at unfair offers and that anger was a better explanation for the rejections than perceptions of fairness. However, at least two aspects of the Pillutla and Murnighan (1996) study may limit the generalizability of their findings. First, their measures of perceptions of fairness and anger may be somewhat noisy as these were measured indirectly through open-ended responses. Second, the decision to accept or reject was made after responders indicated their reactions and feelings for the offer. The elicited reactions and feelings of the responders may have affected their accept/reject decisions. Taking Pillutla and Murnighan's (1996) findings as the starting point, the present research extends their work to provide a more direct, convergent test of the role of anger in explaining rejections of unfair offers in ultimatum bargaining.

Using appraisal theory which suggests that specific cognitions are important antecedents of specific emotions and thereby specific action tendencies (e.g., Frijda, Kuipers, & Ter Shure, 1989; Roseman, Spindel, & Jose, 1990; Smith & Ellsworth, 1985, 1987), this research examines the extent to which the cognitive appraisal of unfairness leads to the emotion of anger, which in turn, drives punitive behavior (i.e., rejections of offers). Unlike Pillutla and Murnighan (1996) who found that anger provided a better explanation of the rejections than perceptions of fairness, our results suggest that despite the mediating role of anger, unfairness appraisals also have a direct effect on the decision to accept/reject. Second, this research shows that decoupling the emotion of anger from its antecedent cognitive appraisal of unfairness attenuates responders' inclination to retaliate or act punitively. In order to decouple anger from its antecedent unfairness appraisal, an unrelated external event was provided to which responders could attribute their anger due to the unfair offer (e.g., Schwarz & Clore, 1983; Younger & Doob, 1978). The objective was to assess the extent to which

responders misattribute their anger to the unrelated event thus attenuating their punitive behavior toward the unfair proposer, with no concurrent change in their appraisal of unfairness. Third, following the current tradition that goes beyond a valence-based approach (i.e., positive and negative emotions), we differentiate between the negative emotions of anger and sadness and show that it is the specific emotion of anger that is relevant to the cognitive appraisal of unfairness not the general negative valence of the emotion. Based on emotion specificity (Lerner & Keltner, 2001), reduction in punitive behavior should occur only when the cognitive appraisal of unfairness is decoupled from anger, but not when the appraisal is decoupled from sadness. This research thus not only examines the role of anger in explaining rejections of unfair offers but also sheds insight into the conditions under which responders are likely to act spitefully and punish an unfair proposer (Fehr & Gächter, 2000; Wilson, 1995).

CONCEPTUAL BACKGROUND

Viewing ultimatum bargaining via the lens of appraisal theory, cognitive appraisal of an offer by a proposer as unfair elicits anger (Frijda et al., 1989), and a behavioral consequence is that the angry responder is likely to engage in a punitive act directed toward the cause of the emotion as revenge or retribution (Smith & Ellsworth, 1987). In this research, anger is defined as a set of relatively specific feelings, cognitions, and physiological reactions toward the person responsible for the unexpected negative outcome (Berkowitz & Harmon-Jones, 2004; Frijda et al., 1989). Studies show that appraisals of unfairness and injustice elicit the emotion of anger (Frijda et al., 1989; Smith & Ellsworth, 1985). Typically, people feel angry when a negative consequence results from someone else's unfair act (as opposed to one's own or circumstantial). Appraisal theorists argue that anger may be distinguished from other emotions because it is associated with certainty about the situation, strong attributions of human agency and other-responsibility/control (Lerner & Keltner, 2001; Smith & Ellsworth, 1985).

As other emotions, anger is also characterized by action tendencies. A distinctive characteristic of anger is the tendency of "moving against" the agent responsible for the negative outcome or an urge to injure the target (Berkowitz & Harmon-Jones, 2004; Frijda et al., 1989). Said differently, anger prepares the person to attack or punish the agent for his/her unfair act (Smith & Ellsworth, 1987). Tests of appraisal theory leave little doubt of the existence of a strong coupling between specific cognitions, specific emotions, and the resulting behavioral tendencies (e.g., Frijda et al., 1989; Smith & Ellsworth, 1987).

Coupling of unfairness appraisals and anger in ultimatum bargaining

Appraisal theory (e.g., Frijda et al., 1989) suggests that an offer that is appraised as unfair elicits the emotion of anger toward the proposer. When both bargainers are fully informed, there is no uncertainty with respect to the agent being responsible for the unfair offer. Because anger is associated with specific action tendencies, an angry responder is inclined to act against the proposer and thus reject an unfair offer even at the expense of one's self interest (Berkowitz & Harmon-Jones, 2004). Rejecting an unfair offer and depriving the proposer of monetary benefits is akin to an act of retribution. In essence, the emotion of anger serves an adaptive role because anger prepares individuals to redress the unfairness and injustice (Smith & Ellsworth, 1987). The coupling of cognitive appraisals and specific emotions, which incline individuals toward particular action tendencies, suggests that an essential function of emotional responses is to mediate between environmental stimulation and behavior. Specifically, the prediction is that anger will mediate the effect of unfairness on the decision to accept or reject the offer.

Decoupling of unfairness appraisal from anger in ultimatum bargaining

Prior research shows that behavioral response driven by emotions, and anger in particular, can be altered by leading people to believe that the emotion being experienced is caused by an external, unrelated source

(e.g., Ortony, Clore, & Collins, 1988; Schwarz & Clore, 1983; Younger & Doob, 1978). In other words, separating or decoupling of the resultant emotion from its antecedent cognitive appraisal affects the behavioral response. Younger and Doob (1978) found that when a confederate provoked participants with annoying behavior, they reacted aggressively toward the confederate. However, when participants were led to believe that the anger was caused by another unrelated event (a placebo pill that supposedly makes people feel angry), they reacted less aggressively. In another study, Schwarz and Clore (1983) found that participants were less happy when they were asked to vividly describe a recent sad versus happy event in their lives. However, the negative impact of describing a sad event was eliminated when participants were led to attribute their emotions to an external source (e.g., rainy weather). These studies suggest that misattributing the cause of the emotion to an unrelated source leads to decoupling of the antecedent cognitive appraisal from the emotion. This decoupling may eliminate or attenuate the action tendencies associated with the specific emotion.

In ultimatum bargaining, it may be possible to decouple the appraisal from its resultant emotion by leading responders to believe that the anger is caused by an external, unrelated source. With no change in the unfairness appraisals, misattribution decouples the unfairness appraisal and anger and consequently responders may be less inclined to act against the proposer leading to fewer rejections of unfair offers. The extent to which unfairness appraisals can be decoupled from anger also highlights the strength of the coupling. Reduction of rejection rates due to misattribution of anger provides unequivocal theoretical evidence that anger mediates the influence of unfairness appraisal on the decision to accept or reject the offer.

Overview of studies

A pilot study bolsters support for the finding that anger underlies rejection of unfair offers in ultimatum bargaining and that it mediates the effect of the unfairness appraisal on the likelihood of rejection. Studies 1 and 2 then explore the extent to which behavior can be altered by decoupling the unfairness appraisal from the resultant emotion of anger. Specifically, holding constant the appraisal of unfairness and anger, Studies 1 and 2 showed, with and without inducing actual anger, respectively, the extent to which misattribution of anger leads responders to accept offers which they would have otherwise rejected. The results show that unfair offers are less likely to be rejected when responders believe that their anger was caused by an external source, even though the unfairness perceptions were unchanged. Study 2 further differentiates between two negative emotions—anger and sadness—and shows that anger is the specific emotion that is elicited with an appraisal of unfairness because misattribution of anger influences responders' behavior whereas misattribution of sadness does not.

PILOT STUDY: MEDIATING ROLE OF ANGER

As a first step, the pilot study provides a direct test of whether offer size and appraisal of unfairness in ultimatum bargaining is indeed associated with varying degrees of anger. Importantly, the pilot study tests whether anger mediates the influence of offer size on the responders' decision to accept or reject an offer.

Method

A total of 141 undergraduate students (52% male) enrolled in a basic marketing course participated in the study to fulfill a requirement for class. They were randomly assigned to two conditions. Participants came to a lab in even numbers and were told that they would be participating in a “proposer–responder bargaining” game. Participants read that in the proposer–responder bargaining, two individuals, the Proposer and the Responder, have to agree on how to divide a given amount of money between them (\$10). The Proposer has to make an offer of \$X, which is less than or equal to \$10, to the Responder in any way s/he chooses to do so. The

Responder can then either accept the offer, in which case s/he will receive \$X and the Proposer will get to keep the balance, that is, $\$(10 - X)$, or the Responder can reject the offer, whereupon both receive nothing. It was emphasized that the Proposer can only make one offer and this offer cannot be withdrawn; the Responder can only respond by accepting or rejecting the offer.

Participants were informed that they would be randomly paired with another student and their opponent would remain anonymous before, during, and after the study. They were told that students have been assigned the role of the proposer or responder based on a coin toss and that they had been assigned the role of the responder. As in Pillutla and Murnighan (1996), although offers ostensibly came from anonymous proposers, the offers were predetermined and all participants were assigned the role of the responder.

The experimenter then announced that the amount to be divided between the proposer and responder was \$10. It was thus common knowledge that the amount to be divided was \$10. The experimenter ensured that all participants understood the task. After a few minutes, the experimenter announced that they were about to receive an offer from the proposer. The experimenter then handed participants a “proposer’s sheet” with the offer. The sheet contained a handwritten offer to ensure that participants believed that the offer was made by another student. The sheet emphasized that if the participants accepted the proposer’s offer, they would get that amount; if they rejected the offer both the proposer and responder would get nothing. Participants first had to either accept or reject the offer and then respond to several questions.

The two offer conditions were created by altering the proposer’s offer in the sheet. Given that the total amount available for division was \$10, the handwritten offer was \$4 in the relatively fair offer condition and \$2 in the relatively unfair offer condition. After receiving the proposer’s offer, participants first indicated whether they would accept or reject the offer on the offer sheet itself. Several other measures were collected on the following pages. Appraisals of offer unfairness were measured by asking “to what extent was the Proposer’s offer fair?” (1 = very unfair; 7 = very fair). Since anger can vary widely from mild irritation to intense fury (Frijda et al., 1989), participants were also asked “to what extent were you irritated with the Proposer’s offer?” (1 = not at all irritated; 7 = very irritated) and “to what extent were you angry with the offer?” (1 = not at all angry; 7 = very angry). Given that the measures of irritation and anger were correlated ($r = .62, p < .001$), an average of these items was used as a measure of anger. The order in which the fairness and anger measures were collected was counterbalanced but did not have any impact. After participants responded to the questions, they were debriefed and paid. Everyone believed that they were interacting with another student.

Results

Table 1 summarizes the dependent measures as function of offer size. As expected, the proportion of offers that participants rejected was significantly higher in the \$2 offer condition than in the \$4 offer condition (56.94 and 18.84%; $\chi^2(1) = 21.65, p < .0001$). As expected, participants’ perceptions of unfairness were significantly higher in the \$2 offer condition relative to the \$4 offer condition ($M_s = 1.76$ and 3.81 ; $F(1, 139) = 111.89, p < .0001$). Participants also expressed a significantly higher level of anger in the \$2 offer condition relative to the \$4 offer condition ($M_s = 4.78$ and 2.84 ; $F(1, 139) = 80.56, p < .0001$). Further

Table 1. Summary of dependent measures for Pilot Study

	\$2 offer	\$4 offer
Rejection rate	56.94% (41/72)*	18.84% (13/69)
Fairness appraisal	1.76 (.89) [†]	3.81 (1.36)
Level of anger	4.78 (1.31)	2.84 (1.25)

*For rejection rate, read 41 out of 72 participants rejected the offer.

[†]Numbers in parentheses for fairness appraisal and level of anger represent standard deviations.

analysis also revealed a significant negative relationship between the measure of fairness and the emotion of anger ($\beta = -.64$; $t = -9.16$, $p < .0001$). This result clearly demonstrates that unfairness appraisals and the emotion of anger are strongly related.

A series of regressions were estimated to examine whether unfairness mediates the influence of offer size on rejection rate (Baron & Kenny, 1986). Since the decision to accept or reject was a discrete dependent measure, a logistic regression (e.g., Kenny, 2006) was used to demonstrate that offer size had a significant effect on rejection rate ($\chi^2(1) = 19.99$, $p < .0001$). As mentioned earlier, offer size has a significant influence on unfairness appraisals as well. When rejection rate was analyzed as a function of offer size and unfairness appraisals, offer size was not significant ($\chi^2(1) = 2.26$, $p > .15$) whereas the unfairness appraisal was significant ($\chi^2(1) = 6.90$, $p < .008$). Unfairness appraisals thus completely mediated the effect of offer size on rejection rate.

Similarly, when rejection rate was analyzed as a function of offer size and anger, offer size was not significant ($\chi^2(1) = 1.68$, $p > .19$) whereas anger was significant ($\chi^2(1) = 17.05$, $p < .0001$). Given that offer size had a significant influence on the level of anger, these results show that anger fully mediates the influence of offer size on rejection rate. These results show that both fairness and anger individually mediate the effect of offer size on rejection rate.

Another set of logistic regressions revealed that unfairness appraisals had a significant influence on rejection rate ($\chi^2(1) = 19.71$, $p < .0001$), but when anger was also added as an explanatory variable, the influence of unfairness appraisal was only marginal ($\chi^2(1) = 2.96$, $p < .09$) whereas anger was significant ($\chi^2(1) = 14.04$, $p < .0002$). Given that unfairness appraisals and anger have a strong negative relationship, these results demonstrate that the influence of unfairness appraisals on rejection rate is mediated by anger.

In addition, we used path analysis to test whether offer size affects unfairness appraisals, which, in turn, affects the level of elicited anger, which affects rejection rates. We estimated and compared four models using the maximum likelihood criterion and correlation matrices produced for each model. Because we had both continuous and categorical variables in the dataset, we used the "hetcor" package (Fox, 2006) to calculate product-moment correlations between two continuous variables, polychoric correlations between two categorical variables, and point-polyserial correlations between a continuous and a categorical variable.

The first model includes offer size, fairness, and acceptance/rejection ($\chi^2(1) = 1.86$, $p > .05$, GFI = .99, AGFI = .95, CFI = .99, RMSEA = .07). The second model includes offer size, anger, and acceptance/rejection ($\chi^2(1) = 17.28$, $p < .001$, GFI = .93, AGFI = .58, CFI = .64, RMSEA = .33). The third model tests the path among offer size, fairness, anger, and acceptance/rejection, in this order ($\chi^2(3) = 27.43$, $p < .001$, GFI = .92, AGFI = .74, CFI = .85, RMSEA = .23). Finally, the last model includes a direct relationship between fairness and acceptance/rejection to the third model ($\chi^2(2) = 2.12$, $p > .05$, GFI = .99, AGFI = .96, CFI = .99, RMSEA = .02). The models that fit the best are the ones that consider both fairness and anger as antecedents of rejection rate. The χ^2 difference comparison shows that the model which includes the direct relationship between fairness and acceptance rate fits better than the one that includes only the indirect path through anger ($\Delta\chi^2(1) = 25.30$, $p < .001$).

Discussion

In a direct test of the mediating role of emotions on responders' behavior in ultimatum games, the pilot study shows that the specific emotion of anger is strongly coupled with the cognitive appraisal of unfairness. Anger mediates the influence of offer size on rejection rates as well as the influence of unfairness appraisals on rejection rates. Responders appraised the \$2 offer as unfair, felt more anger, and were thus more inclined to reject these offers. Rejection allows responders a mechanism to punish unfair proposers even at one's own expense. Unlike Pillutla and Murnighan (1996) who showed that anger was a better explanation of the rejections than perceptions of fairness, the path analysis suggests that in addition to the indirect influence of

unfairness appraisal on the decision to accept/reject through the specific emotion of anger, unfairness appraisals directly affect the decision to accept/reject.

Since the cognitive appraisal of unfairness results in the discrete emotion of anger, Study 1 explores how misattribution of the anger affects rejection rates. The pilot study suggests that misattribution of the anger to an unrelated source should attenuate, rather than eliminate, the effect of unfairness appraisals on rejection rates.

STUDY 1: DECOUPLING OF UNFAIRNESS APPRAISAL AND ANGER

Because of the strong coupling of unfairness appraisals and anger, Study 1 explores the behavioral implications of decoupling the emotion of anger from its antecedent cognitive appraisal of unfairness. Specifically, if responders are led to misattribute the anger to an unrelated source, they should separate the anger from its unfairness appraisal, reduce their tendency to act punitively toward the proposer, and thus reject fewer unfair offers. Because the misattribution of anger should simply decouple fairness and anger, perceived unfairness and the level of anger with the unfair offer should be constant. The extent to which decoupling anger from its unfairness appraisal decreases rejection rates provides unequivocal evidence that anger mediates the relationship between unfairness appraisals and rejections.

Method

Participants were 82 undergraduate business students (52.4% male) who were randomly assigned to one of four conditions of a 2 (anger: control and misattribution) \times 2 (offer: \$1 and \$5) between-subjects design. Participants completed a “life event inventory” task, the proposer–responder bargaining, and two other unrelated studies in a 1-hour long research session in exchange for extra credit. Although the life event inventory task was related to the proposer–responder bargaining, participants were told that they were participating in four different studies that were unrelated to each other. The life event inventory task was used to manipulate the two levels of anger. Participants were told that a life event inventory was being developed for use in future studies and that the task was to read the event that was described. They were instructed to try and experience the event as vividly as possible by imagining what they would feel like and think about and to imagine people they knew as characters in the episode. Participants then read the following scenario, adapted from Keltner et al. (1993). The scenario was pretested using an adapted version of the PANAS scale to ensure that it elicited the emotion of anger only. Participants’ ratings of how they felt after reading the scenario were high for anger only ($M = 4.34$, $SD = .72$) but relatively low for the other emotions (all M s less than 2.34).

You are enrolled in a course that is prerequisite for your intended major. In general, you are finding the course quite interesting and enjoyable, and you feel that you have chosen the right major. However, you do not get along with your TA. In your discussion section you often disagree with what he (she) says, and he (she) frequently scoffs at your comments. Recently, you wrote a big paper for the class that your TA graded. You were really interested in the paper topic, and you wanted to show that you knew what you were talking about. So, you researched the topic very carefully, and put a lot of effort into writing what you believe is one of the best papers you have written. Today at the end of your discussion section the TA hands the papers back, and you see that he (she) has given you a “C”.

After section you seek out your TA to find out why you got such a bad grade, and to see if he (she) would consider regrading the paper. The TA says that you received the grade you did because the research was shoddy, and the paper was poorly written.

During the next discussion section, the TA says that he (she) received a number of questions about what he (she) was looking for in the papers. To clarify things, he (she) passes out copies of two of the papers, one good and one bad, and proceeds to critique them in detail. Your paper is handed out as the “bad” example.

Although you are not mentioned by name, it's obvious by his (her) frequent looking at you who wrote the paper, and you feel like everyone is staring at you.

To bolster the induction of anger, participants were then asked to describe in as much detail as possible a similar real life experience which really made them angry. In the misattribution of anger condition, participants were provided with a "warning of possible side effect." Participants read "you have just engaged in a task to help us build the life event inventory. Based on similar studies, we have observed that engaging in this task has caused participants to actually feel the emotions triggered by the events described. Many participants have reported experiencing varying degrees of anger. The anger does dissipate, however, within 15–20 minutes and does not affect the participants afterward in any way. Your participation in this research is very important and we really appreciate your cooperation. While participating in other activities for the next 15–20 minutes, please try your best to ensure that these feelings do not influence you." In the control condition, participants were not provided with this warning.

After participants had completed the life event inventory study, they participated in the proposer–responder bargaining. The description and procedures were identical to those used in the pilot study except that the fair and unfair offers were \$5 and \$1, respectively.

Unfairness appraisals were measured by averaging responses of two items ($r = .81, p < .0001$): "To what extent was the proposer's offer fair?" (1 = very unfair; 7 = very fair) and "to what extent was the proposer's offer exploitative?" (1 = not at all exploitative; 7 = very exploitative). The second item was reverse scaled. Level of anger was measured by averaging responses of the two items used in the pilot study ($r = .84, p < .0001$). An average of three items (Cronbach's $\alpha = .83$) was used to measure the extent to which responders believed that their decision was driven by their emotions: "My final decision about accepting or rejecting the offer was driven by" (1 = my thoughts/rational side of me; 7 = my feelings/emotional side of me) and "to what extent do you think your feelings influenced your decision to accept or reject the offer?" (1 = not at all; 7 = very much).

Results

As Table 2 shows, analysis of the rejection rate revealed that in the control condition, no responder (0/16) rejected the fair \$5 offer, but 93.33% (14/15) rejected the unfair \$1 offer ($\chi^2(1) = 27.23, p < .0001$). In the misattribution condition, where responders were led to believe that the anger was caused by an unrelated event, no responder rejected the \$5 offer (0/24), but only 59.26% (16/27) rejected the \$1 offer ($\chi^2(1) = 20.72, p < .0001$). Consistent with the decoupling argument, when responders were explicitly told that the anger is caused by a previous task, they rejected significantly fewer unfair offers relative to the control condition

Table 2. Summary of dependent measures for Study 1

	\$1 offer	\$5 offer
Control condition		
Rejection rate	93.33% (14/15)*	0% (0/16)
Fairness appraisal	1.37 (.44) [†]	6.44 (.81)
Level of anger	5.20 (1.33)	1.28 (.77)
Misattribution of anger		
Rejection rate	59.26% (16/27)	0% (0/24)
Fairness appraisal	1.81 (1.40)	6.42 (.96)
Level of anger	4.43 (2.01)	1.31 (.73)

*For rejection rate, read 14 out of 15 participants rejected the offer.

[†]Numbers in parentheses for fairness appraisal and level of anger represent standard deviations.

($\chi^2(1) = 5.45, p < .01$). These results demonstrate that when unfairness appraisal and anger are decoupled (i.e., there is a reason to discount the anger due to the unfair offer), there are fewer rejections of unfair offers.

A 2×2 ANOVA on unfairness appraisals revealed a significant main effect of offer size ($F(1, 78) = 393.25, p < .0001$). As expected, appraisals of unfairness were significantly higher in the \$1 offer condition relative to the \$5 offer condition ($M_s = 1.72$ and 6.43). Importantly, there were no other significant effects (all $p_s > .15$) indicating that the unfairness appraisals did not vary across the control and the misattribution conditions. Similarly, a 2×2 ANOVA on the level of anger with the offer revealed a significant effect of offer size ($F(1, 78) = 118.46, p < .0001$) as responders were significantly more angry when they were offered \$1 versus \$5 ($M_s = 4.81$ and 1.29). No other effects were significant (all $p_s > .25$) indicating that anger level did not vary significantly across the control and misattribution conditions.

Given that unfairness appraisal and the level of anger with the \$1 offer did not vary reliably across the control and misattribution conditions, the extent to which rejection rate is reduced in the misattribution condition is evidence for the decoupling of the cognitive appraisal of unfairness from anger. Further insight into the underlying process is obtained by analyzing the extent to which participants thought their emotions influenced the decision to accept or reject the offer. The analysis revealed a significant effect of offer size ($F(1, 78) = 18.82, p < .0001$) as the belief that the final decision was driven by emotions was significantly higher in the \$1 offer condition than in the \$5 offer condition ($M_s = 3.7$ and 2.17). The main effect of offer size is qualified by a significant two-way interaction ($F(1, 77) = 5.80, p < .02$). In the control condition, participants' belief that their decision was driven by emotions was significantly higher in the unfair \$1 condition relative to the fair \$5 condition ($M_s = 4.40$ and 2.02). However, these beliefs did not differ significantly when they misattributed the anger ($M_s = 3.00$ and 2.32 for the \$1 and \$5 offer, respectively).

Discussion

Study 1 demonstrates that responders are less likely to reject unfair offers when unfairness appraisal and anger are decoupled. It is noteworthy that the influence on responders' behavior occurs despite the fact that there is no concurrent change in their unfairness appraisals. Further, misattribution of anger did not influence the level of anger with the unfair offer, but the discounting of the anger is clearly reflected in the drastic drop in the rejection rate from about 93% in the control condition to only about 60% in the misattribution condition. The results show that cognitive appraisals can be decoupled from their resultant emotions and this has significant implications for consequent behavior.

Although self-reported, the extent to which participants thought that emotions influenced their decision to accept or reject suggests that the role of emotions is more dominant when the offer is unfair than when it is fair. The finding suggests that, at the very least, participants seem to recognize the presence of emotions and its influence more when the offer is unfair than when it is fair. Note that despite conventional wisdom that emotions should not color one's "rational" decision making, participants do not appear to correct for their emotions unless explicitly asked to do so. However, when explicitly asked to account for their emotions from an unrelated task, participants tend to discount the emotions elicited by the unfair offer.

In Study 1, participants felt anger not only due to the unfair offer but also experienced actual anger induced via the scenario. In addition, participants were explicitly instructed to not allow the experimentally induced anger to influence other tasks. Although the unfair offer elicited anger as well, it is too much to expect participants to partition the anger from the two different tasks and suppress only one part. It is therefore unclear whether participants misattributed the cause of their anger to another source (i.e., decouple unfairness appraisal and anger) or just followed explicit instructions to suppress their scenario-induced anger. Study 2 addresses this issue by not inducing actual anger and not providing any instructions regarding suppression of anger. If participants spontaneously misattribute the anger due to the \$1 offer to an unrelated cause and decouple the unfairness appraisals and anger, the results of Study 1 should replicate.

Study 2 also examines whether it is the overall negative valence of the emotion elicited by unfair offers that is the underlying cause for the rejection or whether it is the specific emotion of anger. Study 2 thus contrasts two specific negative emotions, anger, and sadness.

STUDY 2: DIFFERENTIATING BETWEEN NEGATIVE EMOTIONS

Study 2 has two main objectives. First, we intended to ascertain whether it is the specific emotion of anger or the overall negative valence of the emotion that affects responders' behavior. We test this by employing the misattribution paradigm for two negative emotions, anger and sadness. Given that we argue that it is the specific emotion of anger that results from the unfairness appraisal, misattribution of sadness should not differ from the control condition, whereas misattribution of anger should lead to fewer rejections of the unfair offer. Differences across the two negative emotions, anger and sadness will lend support to appraisal theory because anger is tied to a specific agent whereas sadness is tied to situational forces (Keltner et al., 1993). Second, given that anger was actually induced in Study 1, Study 2 examines the extent to which the findings can be replicated without inducing actual anger, but by only making participants *believe* that anger was induced by an unrelated cause (Younger & Doob, 1978).

Method

One hundred and twenty-eight undergraduate business students (51.6% male) were randomly assigned to one of six conditions in a 3 (conditions: control, misattribution of anger, and misattribution of sadness) \times 2 (offer: \$1 and \$5) between-subjects design. The procedures and dependent measures used were identical to those used in Study 1.

Participants were told they would be participating in two separate unrelated studies and received a booklet in which the first study was the "life event inventory." Unlike Study 1, in which a scenario was described first, participants were asked to think of three to four events in life that are very ordinary or mundane and then describe them briefly. Participants were told that "this would be the kind of event that happens fairly often and you don't normally give much thought to nor have strong feelings about." An examination of the descriptions provided by the participants confirmed that such descriptions were unlikely to induce any kind of emotions. After participants had completed writing the descriptions, they were asked to respond to a few questions that related to the description.

In the misattribution of anger (sadness) condition, participants read the following warning after responding to the questions related to the first task. They read "In a similar study conducted earlier, participants unfortunately reported experiencing varying degrees of anger (sadness) because of this assignment. Some would comment that they came to participate in a research experiment and did not want to do this boring and strange task, and they were quite mad. (Many participants commented that in completing the assignment many of the events they described made them nostalgic and sad). The anger (sadness) does dissipate, however, within a few minutes and does not affect the participants afterward in any way. Your participation in this research is very important and we really appreciate your cooperation." A pretest ensured that the instructions did not elicit any specific emotions. In the control condition, there was no warning after the life inventory task. After the first task, an experimenter collected all the materials and a different experimenter then started the proposer-responder bargaining.

The proposer-responder bargaining was described as in the pilot study and participants, playing the role of the responder, had to accept or reject one of two offers randomly assigned to them. As in Study 1, the unfair offer was \$1 and the fair offer was \$5 (out of \$10).

Table 3. Summary of dependent measures for Study 2

	\$1 offer	\$5 offer
Control condition		
Rejection rate	80% (16/20)*	0% (0/18)
Fairness appraisal	2.13 (1.01) [†]	6.36 (1.02)
Level of anger	4.83 (1.87)	1.39 (.70)
Misattribution of anger		
Rejection rate	50% (10/20)	4.76% (1/21)
Fairness appraisal	2.37 (1.49)	6.60 (.87)
Level of anger	4.21 (1.66)	1.33 (.77)
Misattribution of sadness		
Rejection rate	77.78% (21/27)	0% (0/23)
Fairness appraisal	1.89 (1.00)	6.85 (.37)
Level of anger	5.24 (1.32)	1.26 (.69)

*For rejection rate, read 16 out of 20 participants rejected the offer.

[†]Numbers in parentheses for fairness appraisal represent standard deviations.

Results and discussion

Table 3 displays the summary of the main dependent measures by experimental conditions. Analysis of the rejection rate revealed that in the control condition, no responder (0/18) rejected the fair \$5 offer, but 80% (16/20) rejected the unfair \$1 offer ($\chi^2(1) = 24.87, p < .0001$). In the misattribution of anger condition, where responders were told that the unrelated task causes anger, one responder rejected the \$5 offer (1/21), but now only 50% (10/20) rejected the \$1 offer ($\chi^2(1) = 10.68, p < .0001$). Consistent with the findings of Study 1, in the misattribution condition, the rejection rate drops by 30% relative to the control condition where the anger is presumably elicited only due to the unfair offer ($\chi^2(1) = 3.96, p < .05$). These results demonstrate that participants spontaneously misattribute the anger due to the \$1 offer to the unrelated cause. Adding support to Study 1 findings, the reduction in the rejection rate due to the misattribution suggests that the cognitive appraisal of unfairness can be decoupled from anger.

In the misattribution of sadness condition, where responders were led to believe that sadness was caused by the unrelated event, no responder rejected the \$5 offer (0/23), but 77.78% (21/27) rejected the \$1 offer ($\chi^2(1) = 30.84, p < .0001$). Consistent with the argument that an unfair offer elicits the specific emotion of anger and that our findings cannot be attributed to the overall negative valence of the resultant emotion, there was no difference in the rejection rates of the \$1 offer across the control and misattribution of sadness conditions ($\chi^2(1) = .38, p > .55$).

A 3×2 ANOVA on unfairness appraisals revealed a significant effect of offer size ($F(1, 122) = 634.61, p < .0001$). As expected, responders in the \$1 offer condition appraised the offer to be significantly less fair relative to responders in the \$5 offer condition ($M_s = 2.13$ and 6.60). No other effects were significant (all $p_s > .13$) indicating that unfairness appraisals did not vary across the control and the two misattribution conditions. Another 3×2 ANOVA on the level of anger at the offer revealed a significant effect of offer size ($F(1, 122) = 190.81, p < .0001$) as responders were significantly more angry when they were in the \$1 offer condition than in the \$5 offer condition ($M_s = 4.76$ and 1.33). No other effects were significant (all $p_s > .10$) indicating that anger at the offer did not vary significantly across the control and misattribution conditions.

Study 2 replicates the findings of Study 1 by demonstrating that responders reject fewer unfair offers when they are led to believe that anger was caused by an unrelated event. However, misattributing sadness does not lead to fewer rejections relative to the control condition. These results provide additional support for the idea that anger is the specific emotion that an unfair offer generates and that our finding is not due to simply affect

transfer as the overall negative valence of the emotion would suggest. Study 2 also shows that unlike Study 1, it is not necessary to induce actual anger in order to misattribute the anger that is elicited by an unfair offer.

GENERAL DISCUSSION

Using appraisal theory of emotions, this research provides a direct test of the role of anger in explaining responders' rejections of unfair offers in ultimatum bargaining (cf. Pillutla & Murnighan, 1996). With the link between cognitive appraisals and resultant emotions well established (e.g., Smith & Ellsworth, 1985), this research also explores the behavioral implications of decoupling the emotion of anger from its antecedent cognitive appraisal of unfairness and thus identifies conditions under which responders punish proposers by rejecting unfair offers. Three studies show that it is the specific emotion of anger that mediates the influence of unfairness appraisals on responders' decision to accept or reject the offer. A pilot study shows that anger is a result of the perceived (un)fairness of an offer and leads to higher rejection rates. Despite the strong coupling of unfairness appraisals with its resultant emotion of anger, our direct test findings are in contrast to Pillutla and Murnighan's (1996) finding that anger provides a better explanation of the rejections. Our results suggest that appraisals of fairness not only have an indirect influence on rejection rates through anger but also affect rejection rates directly. It is thus the interplay of cognitions and emotions that provide a complete explanation for why responders reject unfair ultimatum offers.

Study 1 shows that unfairness appraisals and anger can be decoupled by having responders misattribute the anger to an unrelated source that induces anger. Because misattribution undermines the link between anger and appraisals of unfairness, the behavioral tendency associated with anger toward the unfair proposer is attenuated. As a consequence, responders are less punitive and tend to accept offers that they would have otherwise rejected. Study 2 replicates the findings of Study 1 and shows that it is the specific emotion of anger that leads to less retaliatory behavior rather than the overall negative valence of the emotion. In addition, Study 2 shows that rejection rate reduces even if the unrelated source does not induce actual anger. These results provide insight into the conditions under which responders' inclination to punish unfair proposers at one's own cost can be attenuated. Importantly, the change in behavior occurs without a concurrent change in the cognitive appraisals and the emotion.

Before discussing the implications, the potential limitations of this research bear comment. The methodology used in all three studies involved deception. Participants were told that they would be assigned to roles of proposer and responder randomly, when in reality they were all assigned the role of the responder. Although deception has been used in prior studies (e.g., Pillutla & Murnighan, 1996), there is an ongoing debate in the literature regarding the use of deception (Bonnetti, 1998; Hey, 1998). However, no prescriptive resolutions appeared to have emerged from this dialog. A major concern with using deception is that it raises suspicion and participants may talk to other potential participants about the study thus contaminating the participant pool. In all our studies, participants were thoroughly debriefed and any concerns they had were completely addressed. They were requested not to reveal any aspect of the research to anyone until after the study was completed. The data collection for each of the studies was completed over 2 days. Further, participants across the three studies were different and the data were collected over different campuses at different times. These aspects of our methodology serve to minimize the potential of contaminating the participant pool. Notwithstanding the potential limitation, a major strength of our methodology was that we examined the influence of cognitive appraisals and emotion on actual behavior. Further, given that we were interested in responders' punishment behavior and that prior research has show differences in behavior when an unfair offer comes from a human versus a random device (Blount, 1995), it was important to ensure that participants believed that they were bargaining with a human rather than a computer.

Prior research on ultimatum bargaining has focused on violation of fairness norms as the underlying reason for the rejection of unfair offers or on generally recognizing that emotions play a role in the rejection decisions. This research extends this literature by empirically supporting the notion that the influence of unfairness on behavior

occurs to a great extent via the specific emotion of anger. In other words, the cognitive appraisals of unfairness lead to anger preparing responders to retaliate against unfair proposers. The implication is that decoupling the unfairness appraisal from anger may reduce responders' punitive behavior, even though they still perceive the offer to be unfair. Our findings also indicate that it is the specific emotion of anger that causes variation in behavior and not the overall negative valence of the emotion. While other emotions may play a role in decision making, we focused on the specific emotion of anger because appraisal theory suggests that anger is a direct consequence of the appraisal of unfairness of a situation caused by a known agent. Sadness can also be caused by appraisals of unfairness (Frijda et al., 1989), but the situation is usually caused by uncontrollable circumstances rather than an external, identifiable agent (Roseman et al., 1990).

The implications of our findings go beyond ultimatum bargaining to the extent that such bargaining provides a model for social interaction, particularly in the context of basic transactions or even more complex, negotiated transactions (Camerer & Thaler, 1995). Our findings highlight the ubiquity of emotions in decision making. Although studies have begun to highlight the role of emotions in economic decision making (e.g., Reuben & van Winden, 2008; Wilson, 1995), many of these studies examine the influence of emotions on behavior where emotions are external to the decision making task (e.g., Wilson, 1995). In contrast, we examine the role of emotions that are endogenous to the decision making task. As such, our findings explain why responders punish unfair proposers by rejecting their offers even at a cost to oneself as well as the conditions under which the punishment behavior can be attenuated.

Our results are consistent with the idea that affective states or emotions have an informative function and are used in decision making when the emotions are relevant for the decision at hand (Pham, 1998; Schwarz & Clore, 1983). However, our results go one step further by explicitly decoupling appraisal and emotion and showing that the effect of emotion on behavior might change. Misattribution makes participants aware of the potential influence of the emotion, but they only discount it when the emotion is perceived as diagnostic of that situation (when they misattribute anger and not when they misattribute sadness).

Our findings have implications for the emotion regulation literature as well. While the importance of emotions in decision making is well recognized, the understanding of when emotions influence behavior deserves more consideration in future research. Research shows that different strategies to regulate emotions have different implications for the experience of emotions and, consequently, for its influence on subsequent behavior (e.g., Gross & Thompson, 2007; Kirk, Carnevale, & Gollwitzer, 2006; Richards & Gross, 2000). For example, the goal of controlling one's emotion leads to fewer rejections in ultimatum bargaining (Kirk et al., 2006). We show that decoupling a specific emotion from its antecedent appraisal does not change the experience of the emotion, but the influence of the emotion on behavior is attenuated. Future research can examine the effects of understanding the causes of an emotion as an emotion regulation strategy. For example, would our results differ if participants were told to misattribute the cause of their anger or told to suppress their anger? Would individual differences in emotion regulation ability produce different results? These questions are worth investigating.

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