

# Interpersonal effects of expressed anger and sorrow in morally charged negotiation

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## Abstract

The expression of emotion can play a significant role in strategic decision-making. In this study, we hypothesized that emotion expression alters behavior in morally charged negotiation. We investigated the impact of facial displays of discrete emotions, specifically anger and sadness, in a morally charged multi-issue negotiation task. Our results indicate that if a negotiator associated moral significance to the object of the negotiation, displays of anger resulted in reduced concession making whereas displays of sadness increased concession making. Moral significance of the issues fostered an emotional matching mechanism of sorrow, where a sorrow expression from one party elicited a sorrow expression from the other. Taken together, the results indicate that emotional expressions can affect morally charged negotiation in ways that can inhibit as well as promote cooperation.

Keywords: emotion, sacred values, moral decision-making, negotiation.

## 1 Introduction

Recent research into sacred values reveals a consistent pattern: when confronted with possible threats to moral or sacred concerns, people tend to react emotionally (e.g., Ginges, Atran, Medin, & Shikaki, 2007), become uncompromising (e.g., Tetlock, 2003), and act in ways contrary to traditional formalizations of rational self-interest (e.g., Atran, 2010). This article offers some hope in this otherwise gloomy picture. Building on findings from both moral decision-making and the interpersonal effects of emotion, we show that emotion, in certain circumstances, may foster cooperation in value-laden conflicts. We show that well-established interpersonal effects of emotion unfold differently in moral domains. For example, displays of sadness can convey weakness (Tiedens, 2001; Tiedens, Ellsworth, & Mesquita, 2000) and promote exploitation in non-moral negotiations (Van Kleef, De Dreu, & Manstead, 2006). This effect reverses in strategic decision making over sacred issues. Our findings have potential important implications for negotiation and conflict resolution in sa-

cred domains.

In this study, we investigated the impact of facial displays of discrete emotions, specifically sadness and anger, in a morally charged multi-issue negotiation task in which one of the issues entailed the moral matter of saving the life of the negotiator's child. We suggest that interpersonal effects of emotion unfold differently in moral contexts and with morally charged issues in negotiation. This idea stems from work showing that people who have a sacred value tend to reject tradeoffs with other values (especially with secular issues such as money) and express anger when such tradeoffs arise (e.g., Tetlock, Kristel, Elson, Green, & Lerner, 2000).

We based our predictions on the notion that anger connotes a violation of autonomous individual rights (Rozin, Lowery, Imada, & Haidt, 1999), whereas sadness connotes sympathy, need, weakness and concern (Horweg, Oveis & Keltner, 2011). We expected that when an object is perceived as a sacred (or protected) value, with intrinsic moral significance (Tetlock, 2003; Baron & Spranca, 1997), angry or sad facial displays expressed by an opponent will have opposing effects on the negotiator. Thus, we hypothesized that perceiving different emotional expressions in others would influence moral cognition by shifting interpretive-frames. In other words, we suggest that the interpretation of a moral issue can be affected by the emotional expressions conveyed by the opposing negotiator in the negotiation, in addition to the emotion experienced by the negotiator, as shown in past work.

Specifically, we hypothesize that when facing an angry opponent, a negotiator dealing with a sacred-value issue—a morally significant issue—would show rejection

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of tradeoffs and concede very little, as their concerns about their sacred values would be amplified by the anger expressed in the other party. That is, expressed anger would lessen the likelihood of concessions for sacred-value issues. However, when interacting with an opponent who displays sadness, the morality of sympathy, need, weakness and concern become salient, and participants may thus make greater concessions. For non-sacred-value participants we expected to see the known pattern of increased concession due to perceived anger, consistent with findings of Van Kleef and others in non-moral domains (e.g., Van Kleef, et al., 2004; Sinaceur & Tiedens, 2006).

Our hypothesis is built on Horberg, Oveis and Keltner's (2011) theory that different moral concerns get prioritized based on the distinct emotions that are experienced. This theory, rooted in social-functional framework of emotion (Keltner & Haidt, 1999; Frijda & Masquita, 1994), argues that our perception of the permissibility of actions in moral situations is affected by the emotions experienced. For example, disgust has been linked to violations of purity-sanctity (Rozin, et al., 1999); experimentally predisposing individuals to disgust increases their tendency to focus on purity related issues (e.g., sexuality) as opposed to other moral concerns such as justice (e.g., Tapias, Glaser, Keltner, Vasquez & Wickens, 2007). In a related vein, DeSteno, Dasgupta, Bartlett, and Caidric (2004) report that the display of anger can evoke automatic bias directed toward out-groups.

However, the research on emotion-related moral appraisals has been for the most part limited to the intrapersonal effects of emotion in decision-making. In contrast, research on negotiation and conflict resolution has considered both the intrapersonal as well as the interpersonal effects of emotion (e.g., Carnevale, 2008; Carnevale & Isen, 1985; O'Quin & Aronoff, 1981). Carnevale and Isen (1985) found that positive mood had an impact on negotiation, that is, it increased problem solving and cooperation, but not when a physical barrier separated the negotiators so that they could hear but not see one another, thus preventing them from seeing one another's facial expressions. This suggests that intrapersonal emotion may influence interpersonal emotion via facial expression or some other visually signaled expression of emotion.

The interpersonal effect of emotion, for example, the impact of an adversary's facial expression of emotion, might reflect in part appraisal theory mechanisms of emotion: that is, emotional expressions by one party can provide information about how they construe the situation. This can influence the other party by shaping how they, in turn, construe the situation from their own perspective, and thereby influence their emotions and decisions (Ames & Johar, 2009; de Melo, Carnevale, & Gratch, 2014; Sinaceur & Tiedens, 2006; Van Kleef, De Dreu & Manstead, 2010). Several studies indicate the impact of an

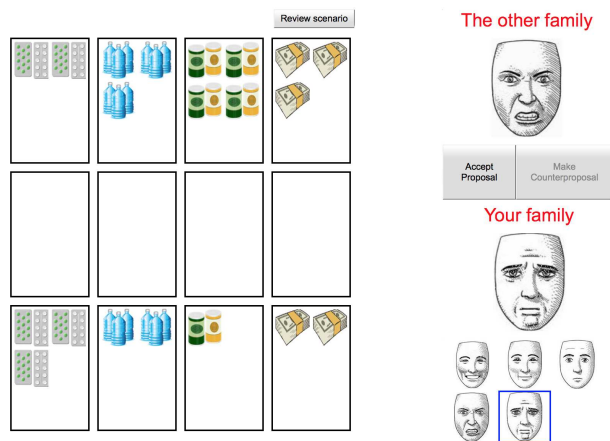
emotional display. For example, Van Kleef, De Dreu and Manstead (2004) showed that negotiators conceded more to an angry opponent than to a happy one and further provided evidence that participants used expressed emotion to infer the other party's limits and adjusted their offers accordingly. This line of research argues that anger communicates that a party has high aspirations and that concessions are thus required to reach an agreement.

Although less studied than other emotions, sadness is another emotion that naturally arises in intergroup conflicts. Sadness can communicate weakness or low status (Tiedens, 2001; Tiedens, Ellsworth & Mesquita, 2000). From a functional perspective, sadness can serve as an appeal for support (Tomkins, 1963) that aims to elicit empathy and helping behavior (Yee & Greenberg, 1998). However, there is no clear consensus on the impact of sadness on negotiations. As a signal of weakness, one might expect sadness to provoke tough stances by the other party to strengthen their negotiation position (Tiedens, 2001; Van Kleef, De Dreu & Manstead, 2006). On the other hand, as an elicitor of support and sympathy, sadness might trigger feelings of compassion and greater concessions. Few studies have examined this issue directly, although one line of studies by Van Kleef and colleagues (2006) suggests that displays of disappointment (which in some contexts relates to sadness) will tend to elicit greater concessions in non-sacred domains.

In contrast to the large volume of research into both moral-decision making and the interpersonal function of emotions in negotiations (mainly focusing on issue that may be of interest to people but have no sentimental or moral significance to them), almost no studies exist in the intersection of these two fields. Yet several new findings hint that studying this intersection may provide new insights into the mechanisms underlying emotion's impact on social behavior. For example, Harinck and Van Kleef (2012) found that an expression of anger can have opposite effects on reactions to an authority who denied a request depending on the value-context of the request.<sup>1</sup> Before

<sup>1</sup>Harinck and Van Kleef (2012) found that the expression of anger had opposite effects on reactions to an authority who denied a request depending on the value-context of the request. They had participants play the role of a "Junior Trainee" who made a request to an "HR employee," in a hypothetical scenario, for either "30 days vacation" or "30 days off to take care of mother [who recently broke her leg]." The HR person responded either "This request makes me really angry... take 15 days..." or was neutral (identical text minus the anger statement). When the context was self-interest only (no mother involved), the participants reacted no differently to the anger response and the neutral response. However, when the context had care-value, participants indicated that they would escalate the matter (e.g., "I would contact my boss's supervisor") more when there was anger expressed than when no anger. Although the Harinck study is interesting in showing a boundary condition of the impact of anger, there are important differences in method, results, and interpretations between that study and the present study that are worth noting. First, the domain was not negotiation but was reactions to an authority that made a decision. This might explain why the often-found effect in

Figure 1: Screenshot of the board where negotiation takes place.



discussing our experiments and results, we first describe the negotiation task that we used.

## 2 Objects Negotiation Task

Medin and Atran (2004) argued that research on morally motivated decision-making relies heavily on a “narrow empirical base” in regards to the subject populations as well as to the stimuli used in the experiments. Samples used in these studies mostly comprise undergraduates at major research universities; the scenarios and the stimuli materials used mainly focus on single-shot trade-offs scenarios in which participants judge the permissibility of set hypothetical actions (e.g., killing one person instead of five). However, many real-life moral situations unfold over repeated interactions, sometimes spanning years, such as intractable socio-political conflicts involving sacred values, e.g., the Israel-Palestine conflict (Ginges et al., 2007) and the Iran nuclear conflict (Dehghani, et al., 2009, 2010).

To overcome some of the above shortcomings, we developed a web-based multi-round negotiation task involving a participant and an opponent (computer-agent), with

the negation literature of anger enhancing concession making did not occur in the Harinck study. Second, the request from a “Junior Trainee” for a 30 day vacation may have been seen as inappropriate; thus, the less harsh reaction to denial of the request in the no-mother condition. Third, the anger expression was text; the present study used an anger facial expression; there may be similarities and differences between the two, in particular with regard to reciprocity of emotion expression and apparent sincerity. Fourth, unlike Harinck, the present study used a comparison to another emotion, sorrow, which has a basis in moral compassion, and for which we expected, and found, an effect on negotiation that is distinct from the effect of anger. Hence, we see some relevance, but also some disconnect, between the Harinck study and the present study, in particular in terms of its connection to the dynamics of achieving agreement in negotiations that involve sacred values.

different objects placed on a board and the participant and the agent take turns in taking ownership of some of the objects and giving others away (Figure 1). Participants move items around the board by grabbing them with a mouse and cursor and placing the items either on their own side or on the opponent’s side. After each offer by the participant, the agent evaluates the offer, expresses an emotional reaction to the offer and decides whether to accept the offer or propose a new offer. Participants can express emotional reactions at any point by choosing one of the emotional facial displays at the bottom right corner of the screen (Figure 1). This task is an objects-based form of the more abstract, computerized, negotiation task common in the negotiation literature and used in past studies of negotiation and emotion expression (e.g., Hilty & Carnevale, 1993).

Aspects of this task are easily configurable for a variety of experiment questions. In our case, all items appeared in the middle section of the board and were up for grabs. The negotiation consisted of 6 rounds with each player taking turns making or receiving offers six times. When a participant made an offer, the computer opponent decided to accept or reject the offer based on a pre-programmed strategy unknown to the participant. If the opponent decided to reject the offer, it made a new proposal that the participant could in turn accept or reject.

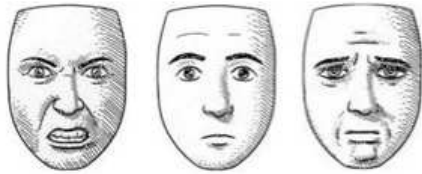
### 2.1 Agent Offers

All agents in this study followed the same strategy—a fixed, non-contingent series of offers that was designed to simulate resistance to making concessions. In pilot testing, participants perceived this policy to be tough but plausible. There are four different groups of items involved in the negotiations (medicine, water bottles, food cans, money), with three items per group. The negotiation strategy of the agent is as follows ([medicine, water, food, money]): Round 2: [0, 0, 0, 0]; Round 4: [0, 0, 0, 1]; Round 6: [0, 0, 0, 1]; Round 8: [0, 1, 0, 1]; Round 10: [0, 1, 0, 1]; Round 12: [0, 2, 0, 2], where the numbers in the brackets represents how many items in each group the agent chooses to give to the participant. In the decision-making algorithm of the agent, the items are given the following qualitative payoff values: [50, 10, 5, 1]. These payoff values are only used for internal calculations and are not shown to the participants. The agent accepted a participant’s offer if it had a higher or equal overall utility than the offer that the agent was about to make. Otherwise, it rejected it and made its next offer.

### 2.2 Agent Expressions

In the first experiment, agents followed one of three possible facial display policies depending on the condition.

Figure 2: Facial displays used in the experiments (Anger, Neutral, Sorrow).



The angry agent followed a fixed, non-contingent policy, displaying anger on rounds 2, 6 and 10, and returned to a neutral face after five seconds (i.e., the policy is the same no matter what the participant offered). The sad agent followed the same policy but displayed sadness rather than anger. In all other rounds, both agents displayed a neutral face. In the second experiment, in addition to sadness and anger we had a neutral condition in which the agent displayed a neutral face throughout the negotiation. Figure 2 shows the expressions<sup>2</sup>.

### 3 Experiment 1

In this experiment, participants engaged the Objects Negotiation Task with an opponent that followed either angry or sad facial display policies. We predicted that participants who view an object of the negotiation as sacred would show the typical rejection of tradeoffs and concede less, as seen in past work (e.g., Tetlock, et al., 2000), but only when the opponent displayed anger. However, when participants with a sacred value face an opponent who displayed sorrow, we expected them to concede more.

#### 3.1 Method

##### 3.1.1 Participants

332 American Amazon-Turk workers (age: 33.27, gender: 51% female) were paid \$1 each to participate in our study. On average it took each participant 5 minutes and 49 seconds to complete our task.

##### 3.1.2 Design and procedure

The study employed a between subject 2 X 2 X 2 full factorial design, where the first factor was agent’s expressed emotion (anger/sadness), the second factor was the experimental scenario (deadly-infection scenario/minor-cold scenario, Figure 3), and the last factor was whether or not participants held a sacred value for the medicine package. The main dependent variable in our experiment was the

<sup>2</sup>These drawings have been used with the artist’s permission. Please visit <http://www.scottmcloud.com/> for more information about his work.

Figure 3: In Experiment 1, participants were presented either with scenario A (deadly-infection) or scenario B (minor-cold).

Imagine the following hypothetical scenario:

There has been an earthquake in the town you live in and many have been injured. All roads to your town have been blocked and as a result aid is coming in very slowly. Because of this every family has to split packages of aid sent using helicopters with another family.

You and the family that have to split the aids with each other, both have babies who have [A: been injured and have developed infections] [B: have caught minor colds]. [A: The only way to control the spread of infection, which if not stopped will become lethal, is to use penicillin] [B: In order to relieve the cold you can give your child acetaminophen]. You are also running low on food, but have enough clean water that would last you for several days. All the shops in the town are closed, so it is uncertain whether you can use the money to purchase goods.





Given the circumstances, you know that no other aid package will be received for another week. The aid packages include medicine including [A: penicillin] [B: acetaminophen], canned food, some money and water bottles.

In the task that follows, you have to negotiate how these items have to be split between your family and the other household. You do not know how much food and water the other family has.

The negotiation is done in a sequence of alternating offers. You will make the first offer. The other negotiator may or may not accept your offer. If it does not accept it, that is, if it rejects your offer, it will send you a new offer. You can either accept or reject its offer. If you accept it, you will get to keep the items that you did not give them. If you reject their offer, you can make another offer and submit it to them. If after 6 rounds there is no agreement, the negotiation will end in no agreement. In this case, you both will only receive one of each item and the rest will be given away.

Try to get as many items as you can.

In the task, to review, you will negotiate with the other family over the aid packages that include:

1. Medicine (penicillin): 
2. Water Bottles: 
3. Money: 
4. Canned Food: 

amount of concession in the negotiation (demand at round one subtracted from demand at the last round of negotiation).

Participants first received one of the two scenarios described in Figure 3. In the deadly-infection scenario, the scenario stated that both their child and the other family's child were injured and developed infections and the only way to control the spread of infections, which if not stopped would become lethal, was to use penicillin included in the medicine package. In the minor-cold scenario, the scenario stated that both their child and the other family's child had caught minor colds and to relieve the cold they could give their child acetaminophen included in the medicine package. Both scenarios stated that they were running low on food, but had enough clean water that would last several days. They further learned that all shops in the town closed, so uncertain whether they could use any money to purchase goods.

After reading one of the scenarios, we assessed participants' values regarding the medicine package using Baron and Spranca's (1997) measure of sacred value. In line with this measure, we asked participants "How do you feel about giving up the medicine package?" and they received the following four choices:

- a. I think this definitely needs to happen.
- b. I do not object to this.
- c. This is acceptable only if the benefits of trading the medicine are great enough.
- d. This should not be done no matter how great the benefits.

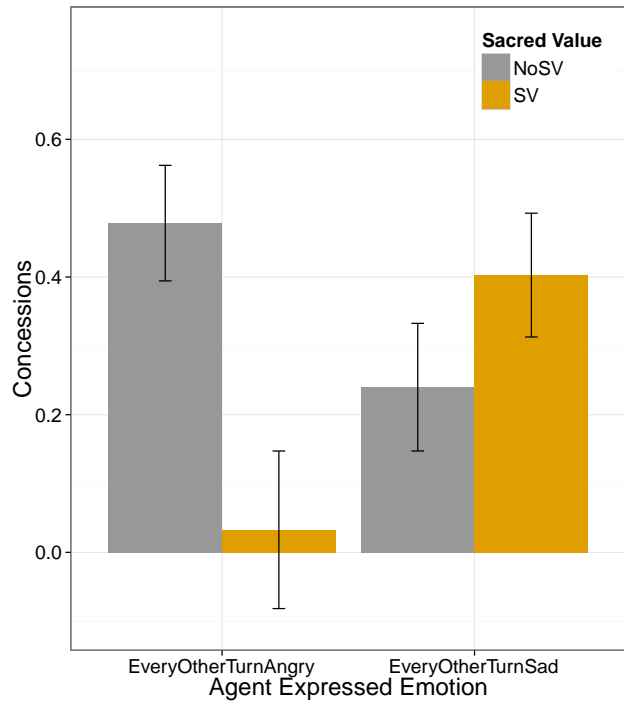
We defined a participant who selected "d" as having a sacred value for the medicine package. Participants then played the Objects Negotiation Task, in this case with one of the objects was construed to be sacred.

### 3.2 Results

Participants who dropped out of the negotiation before Round 3 (made only one or two offers and were exposed to the emotional displays of the agent only once) were excluded from the analysis (N = 32, 9.6% of the sample). 44% of the participants reported having a sacred value for medicine.

We first analyzed the differences in concession rates between the groups. We used demand difference (number of packages demanded in the first offer deducted from last offer) for medicine as a dependent variable in a 2 X 2 X 2 ANOVA where the first factor was the displayed emotional reaction (sadness/anger), the second factor was the presence or absence of sacred values and the third factor was scenario (deadly infection vs. minor cold). The scenario manipulation did not have an effect on the course of the negotiation ( $p = 0.824$ ). There was a significant interaction between sacred value and the agent's displayed

Figure 4: Concessions for medicine as a function of Agents' emotional expressions and Sacred Value (SV). The range for the Y-axis is from 3 to -3.



emotion  $F(1, 292) = 8.774, p = .003, \eta_{partial}^2 = 0.029$  (Figure 4). As expected, anger ( $M = 0.478$ ) resulted in higher concessions, compared to sadness ( $M = 0.240$ ) for non-sacred-value participants  $t(165) = 1.905, p = 0.058, r^2 = 0.021$ . However, sacred value participants who interacted with the sad agent ( $M = 0.403$ ) conceded significantly higher than sacred value participants who interacted with the angry agent ( $M = 0.033$ )  $t(131) = 2.576, p = .011, r^2 = 0.048$ . Interestingly, sacred value participants who interacted with the angry agent ( $M = 0.033$ ) conceded much less on medicine than non-sacred-value participants interacting with the same agent ( $M = 0.478$ )  $t(151) = 3.2067, p = .0016, r^2 = 0.064$ .

We also analyzed the participants' expressed emotion throughout the length of the negotiation. There was a significant difference in expressed anger between sacred value participants who interacted with the angry agent ( $M = 1.623$ ) and non-sacred-value participants interacting with the same agent ( $M = 1.143$ ) with sacred value participants expressing more anger  $t(151) = 2.234, p = .027, r^2 = 0.032$ . Also, sacred value participants who interacted with the agent that displayed sad facial expressions ( $M = 0.875$ ) expressed more sadness than sacred value participants who interacted with the angry agent ( $M = 0.541$ )  $t(131) = 1.934, p = .055, r^2 = 0.028$ .

### 3.3 Discussion

The data from Experiment 1 indicated that, for the medicine package, the amount of concession made by participants depended on the agent's displayed emotion and whether they viewed the item as sacred. As predicted, sacred value participants who interacted with the agent that displayed anger made significantly smaller concessions compared to sacred value participants who interacted with the sad agent.

## 4 Experiment 2

We designed Experiment 2 to address several limitations to the first experiment and to shed light on the mechanism associated with the effects. First, Experiment 1 lacked a neutral-emotion control condition, meaning that we did not know whether expressed anger or sorrow, or both, were critical for the impact of emotion on negotiation. Therefore, in Experiment 2, in addition to anger and sadness, we investigated the effects of an emotionally neutral agent on the negotiation.

Second, given that in Experiment 1 we asked the sacred value question only about the medicine package, we could not investigate the interplay between emotions and possible sacred values for other items. In Experiment 2, we asked the sacred value question for each item. This additionally provided the opportunity to test our assumption that medicine to alleviate illness is a sacred value more than other issues. Some issues in negotiation, for example, negotiations over a human life, or a family heirloom, are often seen sacred (Atran & Axelrod, 2008). Of course, the sacredness of an issue in negotiation is associated with the general value placed on the issue at the outset of negotiation. Indeed, at the outset of negotiation, a sacred issue can be defined as one in which the negotiator refuses to even consider being an issue that can be conceded in negotiation. In the present study, this is how we defined a sacred value issue, following the procedure developed by Baron and Spranca (1997) by assessing the negotiators' likelihood of concession on the issue at the start of negotiation and agreement with the statement "[... concession on this issue] shouldn't be done no matter how great the benefits." This fits with our view that issues in negotiation that relate to matters of life and death are particularly sacred. Indeed, the recent US national poll conducted by Gallup, Inc. revealed that of the moral issues that drive disagreement in the US, many are about creation of human life or its termination, for example, cloning, abortion, the death penalty (Saad, 2010).

Thus, we expected medicine to save a life, as an issue, to be sacred in the negotiations, more so than the other issues in the negotiation. Moreover, one issue that should typically not be sacred is money. Money held for purposes

Figure 5: Scenario used in Experiment 2.

Imagine the following hypothetical scenario:

There has been an earthquake in the town you live in and many have been injured. All roads to your town have been blocked and as a result aid is coming in very slowly. Because of this every family has to split packages of aid sent using helicopters with **another family**.





The aid packages that have arrived include: 1. Medicine (penicillin), 2. Water bottles, 3. Some money and 4. Canned food. In the task that follows, you will negotiate how these will be split between your family and the other family.

It is important to realize that given the circumstances, no other aid package will be received for another week. And all the shops in town are closed, so it is doubtful that money can be used to purchase goods.

You are running low on food and clean water, so this aid is valuable. You do not generally know about the situation that the other family is in.

**However, there are two important things that you do know for sure: 1. You need penicillin for your family, and 2. You have just learned that the other family needs penicillin. Both families have a baby, and both babies have been injured and have developed serious infections. The only way to control the spread of these infections, which if not stopped will cause their baby and your baby's death, is to use penicillin. You, and they, both need a lot of penicillin.**

In the task, to review, you will negotiate with the other family over the aid packages that include:

1. Medicine (penicillin): 
2. Water Bottles: 
3. Money: 
4. Canned Food: 

of exchange should not rise to the level of a sacred value. Evidence for this comes from work on the value of tokens, held for making trades, which do not show an endowment effect (Kahneman, Knetsch, & Thaler, 1990). Thus we expected negotiators to rate money as least sacred.

In this experiment, we also assessed differences in moral concerns with the Moral Foundation Questionnaire (Haidt, Graham & Joseph, 2009) to investigate whether interacting with different agents can shift participants' moral concerns. We expected that the angry or sad emotional expressions displayed by the other during the negotiation might have an impact on participants' moral appraisals. Specifically, we predicted that, for participants with sacred values, display of sadness in others might increase their sensitivity towards fairness.

## 4.1 Method

### 4.1.1 Participants

Seventy-two University of California at Los Angeles students (age=20.82, gender: 36.11% female) were recruited through the California Social Science Experimental Laboratory at UCLA. Each participant received \$15 for participating in this experiment.

### 4.1.2 Design

This experiment employed a mixed-design with sacred values as the within subject factor and the agent's expressed emotion (anger/neutral/sadness) as the between subject factor. The experimental scenario used in this experiment was a modified version of the deadly-infection scenario (Figure 5). After reading the scenario, we assessed participants' values regarding all the packages using Baron and Spranca's (1997) measure described in Experiment 1. After the negotiation, the participant filled out the Moral Foundations Questionnaire (Haidt, Graham & Joseph, 2009).

## 4.2 Results

Similar to Experiment 1, participants who dropped out of the negotiation before Round 3 were excluded from the analysis ( $N = 8$ ). One additional subject was excluded because the subject's demand difference (DV) was over twice the standard deviation from the mean.

The data on the ratings of the four issues for sacredness (the Baron and Spranca 4-level measure) indicated that, as expected, none of the participants (0%) rated money to be a sacred value. However, most saw the medicine package as a sacred value (57.14%), and this is a significantly higher level than the other three items (compared to money:  $\chi^2 = 47.640$ ,  $p < .001$ ; food:  $\chi^2 = 30.036$ ,  $p < .001$ ; water:  $\chi^2 = 16.163$ ,  $p < .001$ ). The other negotiation items were less likely rated sacred (for the water package: 19.05%; for the food package, 7.93%). These rating levels were different from money (water:  $\chi^2 = 12.351$ ,  $p < 0.001$ ; food:  $\chi^2 = 4.375$ ,  $p = 0.036$ ) but not statistically different from each other. 60.56% of participants rated at least one item as a sacred value.

Unlike Experiment 1 where we categorized sacredness based on the sacred value measure for medicine, in this experiment we investigate the interplay between emotions and all items categorized as sacred value. The data were analyzed using a mixed-design ANOVA with one within-subject factor (sacred value /no sacred value), and one between subject factor, the agent's expressed emotion (sadness/neutral/anger). The DV used in this analysis was the mean number of conceded items (i.e., one mean for

items categorized as sacred values and one for those categorized as non-sacred). For example, if a participant rates medicine and food as sacred, the average demand difference for these two items and the average demand difference for money and water would be used as DVs corresponding to the two levels of the within-subject factor. There were a number of missing data points, and we excluded them case-wise for this analysis.

As predicted, there was a significant interaction between sacred values and displayed-emotion  $F(2, 36) = 3.400$ ,  $p = 0.044$ ,  $\eta_{partial}^2 = 0.075$ . Similar to previous findings, display of anger resulted in higher concessions for non-sacred values ( $M = 0.432$ ) compared to expression of neutral emotion ( $M = 0.127$ )  $t(38) = 2.011$ ,  $p = 0.051$ ,  $r^2 = 0.096$ . However, display of anger for sacred values ( $M = 0.166$ ) resulted in lower concession compared to sadness ( $M = 0.643$ )  $t(24) = 2.112$ ,  $p = 0.045$ ,  $r^2 = 0.157$ , but not compared to neutral expressions ( $M = 0.243$ )  $t(23) = 0.408$ ,  $p = n.s.$ . Replicating the results of the first experiment, participants with one or more sacred values who interacted with the sad agent ( $M = 0.643$ ) had higher concessions compared to those without a sacred value in the same condition ( $M = 0.321$ ,  $t_{paired}(13) = 1.945$ ,  $p_{one-tailed} = 0.037$ ), and also to participants in the neutral conditions (sacred value neutral:  $M = 0.243$ ,  $t(25) = 2.012$ ,  $p = 0.055$ ; non-sacred value/neutral:  $M = 0.127$ ,  $t(31) = 2.843$ ,  $p = 0.008$ ), but not compared non-sacred values in the anger condition ( $M = 0.443$ ),  $t(85) = 1.39$ ,  $p = n.s.$  (Figure 6).

We also analyzed the participants' expressed emotions. There was no within-subject factor for this analysis; we used sacred value for medicine and agent's expressed emotion as between subject factors. A 3 (agent's expressed emotion: sadness/neutral/anger) X 2 (sacred value / no sacred value for medicine) ANOVA with frequency of participants expressed sadness as dependent variable revealed a significant interaction between agent's expressed emotions and sacred value  $F(2, 57) = 4.043$ ,  $p = 0.023$ ,  $\eta_{partial}^2 = 0.500$ . Participants who did not indicate a sacred value for medicine and interacted with the angry agent ( $M = 1.778$ ) expressed sadness more frequently than participants who indicated a sacred value for medicine and interacted with the same agent ( $M = 0.750$ )  $t(19) = 2.555$ ,  $p = 0.019$ ,  $r^2 = 0.255$ . More importantly, replicating the findings of the previous experiment, participants who indicated a sacred value for medicine and interacted with the sad agent ( $M = 1.571$ ) expressed more sadness than participants who held medicine as a sacred value but interacted with the angry agent ( $M = 0.750$ )  $t(24) = 1.763$ ,  $p_{one-tailed} = 0.045$ ,  $r^2 = 0.115$ . There were no reliable differences in the frequency of expressed anger (Figure 7).

We then analyzed participants' answers to the Moral Foundations Questionnaire. There were not any significant differences across conditions, except for a non-significant trend where participants who interacted with

Figure 6: Concessions as a function of Agents' emotional expressions and Sacred Value (SV). The range for the Y-axis is from 3 to -3.

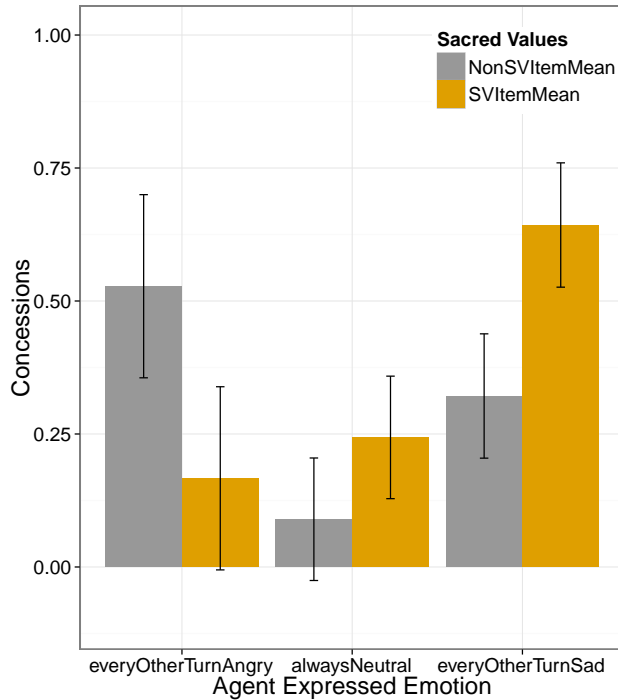
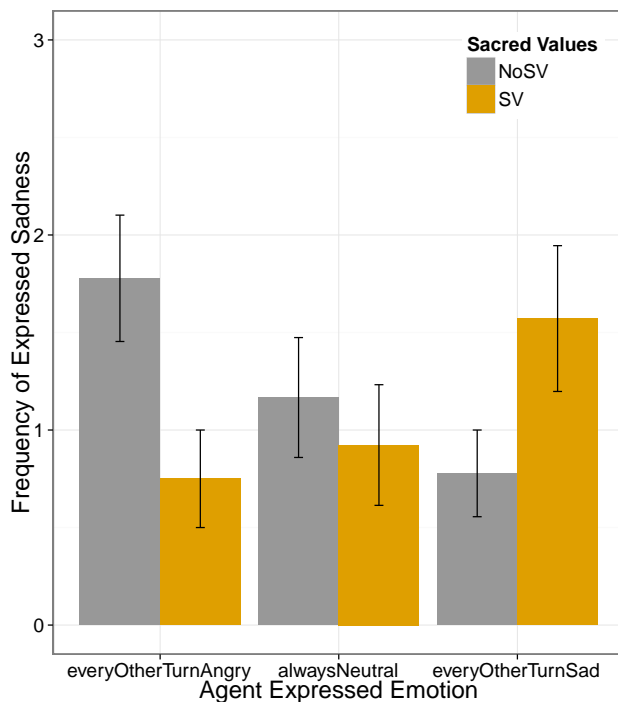


Figure 7: Frequency of expressed sadness as a function of Agents' emotional expressions and Sacred Value (SV).



the sad agent ( $M = 4.608$ ) expressed higher concern in the moral domain of fairness compared to the sacred value participants who interacted with the angry agent ( $M = 4.264$ ).

### 4.3 Discussion

In this experiment, we replicated and extended the results of Experiment 1. Consistent with findings of Van Kleef and others (e.g., Van Kleef et al., 2004; Sinaceur & Tiedens, 2006) in non-moral domains, anger expressions for Non-sacred value participants resulted in higher concession rates. However, similar to the first experiment, sacred value participants interacting with the angry agent showed the typical rejection of tradeoffs, while expression of sadness resulted in significantly higher concessions. Of note, Experiment 2 found that none of the participants ranked money as a sacred value. This suggests that sorrow displays may not be effective in negotiation over money matters.

Moreover, in both experiments we found that sacred value participants who interacted with the sad agent expressed more sadness themselves, whereas non-sacred value participants who interacted with the angry agent expressed more sadness than participants who interacted with the sad agent. This is an indication that expression of sadness is interpreted differently depending on whether or not the items of the negotiation are valued as sacred.

We had predicted that witnessing sad facial displays would affect the decision-making of sacred value participants by heightening the salience fairness (Horweg, Oveis & Keltner, 2011). However, more explicit measures of fairness are needed to validate this. We speculate that the MFQ might not be a suitable measure for capturing ephemeral effects because of its length (32 questions).

## 5 General Discussion

Overall, the contribution of our work is two-fold. First, our results are consistent with the general view that social context and emotion expression interact in their impact on behavior (Elfenbein, 2007). Second, we showed that expressing anger may not be the best strategy to achieve higher concession rates in negotiation, a result that complements other studies that also show boundary conditions of the effects of anger displays in negotiation (Côté et al., 2013; Sinaceur, Adam, Van Kleef & Galinsky, 2013; Van Dijk, Van Kleef, Steinel, & Van Beest, 2008; Van Kleef & Côté, 2007). For example, anger expressions have been shown to be more successful in getting concessions when the recipient has poor alternatives (Sinaceur & Tiedens, 2006), when anger expressions are perceived as threats



(Sinaceur et al., 2011), when the recipient of the expressions is in a low-power position, or when the expression of anger is perceived as appropriate by a high-power negotiator (Van Kleef & Côté, 2007). Moreover, anger has been shown to promote conflict resolution (e.g. Halperin, 2011). Our result demonstrates that displays of anger may result in lower concessions if one of the parties associates moral significance to the objects of the negotiation. With moral significance, a sorrow display may be a more effective strategy to elicit concessions. Our results complement findings about the role of symbolic offers in tradeoffs involving sacred values (Ginges, et al. 2007, Atran & Ginges 2012). We speculate that symbolic offers produce concession because they express sympathy.

The data also suggest an interesting link between sacred values and the reciprocation of emotion in negotiation: sacred value participants who interacted with the angry agent expressed more anger than did non-sacred value participants interacting with the same agent. And the sacred value participants who interacted with the agent that displayed sad facial expressions expressed more sadness. In Experiment 2, non-sacred value participants who interacted with the angry agent were more likely to mismatch emotion, that is, to express sadness.

An interesting question for future research might consider the mechanism associated with sacred values in negotiation that lead negotiators to reciprocate the other's emotion, and the interesting possibility that interfering with that mechanism, in the case of anger with the sacred value, might foster cooperation. This is akin to the "barrier effect" in negotiation, which is well known by professional mediators, where separating the parties in hostile contexts can facilitate cooperation (Carnevale & Isen, 1986). Also, it would be interesting to investigate changes in saliency of different moral concerns based on experienced interpersonal emotions using more explicit measures of morality.

Sacred values play important roles in many cultural and political conflicts (e.g., Ginges et al., 2007; Dehghani et al., 2009, 2010; Sheikh, Ginges & Atran, 2013). We suggest that moral concerns can shift within negotiation in ways that promote cooperation and concession making. It is interesting to speculate that U.S. President Jimmy Carter orchestrated this sorrow-matching effect when he brought Israeli President Begin and Egyptian President Sadat the Gettysburg Battle Field Cemetery during the 1978 Camp David negotiations, which resulted in considerable concession making (Carnevale, 2005). One real-world implication of this research is that, in negotiation involving sacred values, displaying anger might lead to anger reciprocation, and lead conflicts to escalate. With sacred values, sympathy signals may result in better negotiation outcomes.

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