



Do people have accurate beliefs about the behavioral consequences of incidental emotions? Evidence from trust games



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ABSTRACT

The present study examined people's expectations of how incidental emotions could shape others' reciprocity in trusting situations, whether these expectations affect people's own behavior, and how accurate these expectations are. Study 1 explored people's beliefs about the effects of different incidental emotions on another person's trustworthiness in general. In Studies 2 and 3, senders in trust games faced angry, guilty, grateful, or emotionally neutral responders. Participants who were told about their counterpart's emotional state acted consistently with their beliefs about how these emotions would affect the other's trustworthiness. These beliefs were not always correct, however. There were significant deviations between the expected behavior of angry responders and such responders' actual behavior. These findings raise the possibility that one player's knowledge of the other's emotional state may lead to action choices that yield poor outcomes for both players.

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1. Introduction

The past few years have seen growing research interest in the effects of emotions in interactive decisions (i.e., decisions in which each party's outcome depends in part on the other party's choice). These studies can be roughly classified in three groups. A first group of studies have examined how emotions impact people's own economic decisions when the opponent is a person, as opposed to *nature* (Hoelzl & Loewenstein, 2005; Kugler, Connolly & Ordóñez, 2012; Lerner, Small, & Loewenstein, 2004; Pillutla & Murnighan, 1996). For example, Kugler et al. (2012) found that angry individuals are more risk-prone than fearful individuals when risk is based on a randomizing device such as a lottery wheel, but *less* risk-prone when risk is based on the decisions of another individual. A second group of scholars has drawn on the social communication approach to emotions (Keltner & Haidt, 1999; Van Kleef, 2009), which posits that emotional expressions communicate social intentions

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(Ekman, 1993) and generate incentives and disincentives for other individuals' social behavior (Klennert, Campos, Sorce, Emde, & Svejda, 1983). Van Kleef, De Dreu, and Manstead (2004a) found that negotiators' displays of anger generally elicit concessions from their opponents (but see Van Kleef & Côté, 2007). More recently, researchers have examined the extent to which an individual's knowledge of a counterpart's incidental emotional state—emotion triggered by a prior stimulus unrelated to the decision at hand—influences the former's decision. Andrade and Ho (2007) used an ultimatum bargaining game (Guth, Schmittberger, & Schwarze, 1982) to study the effect of proposers knowing responders' incidental anger and happiness on the offers they made. The study found that proposers who knew that they were facing happy responders were more likely to make unfair offers than were those paired with angry responders.

In this paper, we extend this work in three important ways. First, we ask whether the effect of “emotional knowledge” (i.e., knowing other people's emotional states) on behavior can be extended to other situations, beyond ultimatums. In particular, we focus on the importance of knowing other people's gratitude, guilt, and anger in trust situations. In other words, assuming two players, A and B,² we ask whether Player A's emotional knowledge of B affects A's expectations of B's trustworthiness. Second, we test whether Player A's expectations of Player B's trustworthiness do actually influence A's trusting decisions. This responds to a recent call (Kugler, Kausel, & Kocher, 2012) that interactive decision-making researchers should not only examine overt behavior but also explicitly measure beliefs regarding other players' behaviors. Finally, we will also examine Player B's behavior and compare it with A's expectations. Discrepancies between the two could significantly affect outcomes in interactive decisions (Rothstein, 2000). For example, Players A may expect that angry Bs are not trustworthy, and therefore avoid trusting their money to such individuals. If As hold and act on erroneous expectations substantial losses could accrue to both players.

We examined these issues in a series of three studies. In Study 1, we directly asked participants about their beliefs about the influence of specific emotional states on trustworthiness. Studies 2 and 3 used trust games, which have been widely used as a vehicle to study behavioral trust and trustworthiness (Johnson & Mislin, 2011). In Study 2, we told participants about their counterparts' emotional states and asked them directly, before they made their trusting decision, how they expected others to reciprocate. We also examined how closely these expectations tracked with their counterpart's actual behaviors. Study 3 extended the findings in Study 2 using a binary version of the game.

In the following section we review research on the effects of discrete emotions on decision-related behavior in general. We then discuss trust and trustworthiness, especially as these are embodied in the Trust Game. Finally we review research on anger, gratitude and guilt, and propose hypotheses regarding Player A's expectations and trusting behavior, and Player B's trustworthiness.

1.1. Intrapersonal and interpersonal effects of incidental emotions

Starting with Bodenhausen (1993) several authors have distinguished between integral and incidental emotions (e.g., Cohen, Pham, & Andrade, 2008; Loewenstein & Lerner, 2003). Integral emotions are affective experiences that result from the judgment or choice at hand. For example, people may experience regret when the outcome of a gamble is less than some reference point such as what would have been received if another alternative had been chosen (Connolly & Butler, 2006; Larrick & Boles, 1995; see also Hoelzl & Loewenstein, 2005). The emotion is “inherent” in the sense that it is attached to the actual outcome of the focal decision.

Incidental emotions, in contrast, are affective experiences whose source is unconnected to the decision or judgment at hand. In an early study demonstrating such effects, Razran (1940) found that participants who had just received a free lunch (presumably a positive experience) judged political slogans more positively than those who evaluated the slogans in a room inundated by a unpleasant odor (presumably a negative experience). In a series of studies, Johnson and Tversky (1983) found that mood induced by newspaper reports had a large impact on risk estimates in a variety of domains ranging from unemployment to accidental falls. Similarly Isen (1987) showed that positive affect induced by such incidental events as receiving a small bag of candy can affect a range of cognitive processes and social behavior.

Most early studies followed this “valence only” approach, focusing on the overall positive or negative tone of the emotional state rather than on its specific content (e.g., Baron, 1990). More recent research suggests that specific, discrete emotions, even those of similar valence, have different effects on decisions and judgments. Anger, for example, may affect behavior quite differently from sadness, though both emotions are experienced as negative. Discrete incidental emotions have been shown to affect judgments involving trust (Dunn & Schweitzer, 2005), risk (Lerner & Keltner, 2001) and job preferences (Raghunathan & Pham, 1999), as well as decisions involving valuation of objects (Lerner et al., 2004), ultimatum bargaining (Capra, 2004), and advice taking (Gino & Schweitzer, 2008).

All of these studies focused on the *intrapersonal* effects of emotions: how an individual's own emotional state affects how he or she behaves. A recent study by Andrade and Ho (2007) investigated the *interpersonal* effects of incidental emotions. In an ultimatum bargaining game (Guth et al., 1982), Andrade and Ho (2007) investigated how Player B's incidental emotion can affect Player A's decision. In the traditional ultimatum game, Player A offers an allocation of a sum of money to Player B, who either accepts or rejects the offer. If Player B accepts, he or she gets the money offered, and Player A gets the rest. If

² Throughout the paper, we refer to the participant who has information about the other participant's emotional state as Player A (or just “A”); we refer to the participant who experiences the emotional state as Player B (or just “B”).

Player B rejects, both participants get nothing. Andrade and Ho conducted a binary ultimatum game, where Players A could only propose two possible divisions: 50% and 50% (a *fair* offer) or 75% and 25% (an *unfair* offer). The manipulation of emotional knowledge was within-subjects. Players A were confronted simultaneously with 7–10 Bs and were told that some of them had watched an angry movie clip or a happy sitcom, and the Bs' average emotion levels. Results showed that 52% of Players A's offers were unfair when they were informed that responders had watched a happy sitcom. Unfair offers increased to 69% when they were informed that responders had watched an angry movie clip.

Andrade and Ho's (2007) procedure is substantially different from studies related to the influential Emotions and Social Information (EASI) model (Van Kleef, 2009, 2010). These have focused on integral rather than incidental emotions, in keeping with the behavioral ecology view (Niedenthal, Krauth-Gruber, & Ric, 2006), in which the expression of emotions makes most sense when it occurs in conjunction with other cues from the environment (Carroll & Russell, 1996; Goldberg, 1951). In the EASI approach the interpersonal effects of affect have been investigated by coupling an individual's past behavior with the counterpart's emotion (Sinaceur & Tiedens, 2006; Van Kleef & Côté, 2007; Van Kleef, De Dreu, & Manstead, 2004b; Van Kleef, De Dreu, & Manstead, 2006; Van Kleef et al., 2004a). The individual can infer from the counterpart's reaction how his or her behavior is perceived. For example, if a subordinate performs a task and the supervisor reacts by displaying anger, the subordinate may infer that the supervisor thinks the performance was poor, and should be improved (Van Kleef et al., 2009). However, if the supervisor's anger is incidental—that is, disconnected from the decision at hand—such inferences are unreliable and the subordinate has to rely on general beliefs about how emotions influence others' behavior.

Andrade and Ho's (2007) study of the effects of incidental emotion focused exclusively on participants' behavior, with no probing of their expectations. This left their results open to alternative interpretations. On the one hand, a rational interpretation is that Players A made less unfair offers to angry Bs because they feared a negative reaction, which could result in a payoff of zero for As. On the other hand, an altruist interpretation is that Players A made less unfair offers to angry Bs because they did not want to upset further people who were already experiencing negative affect. Asking Players A about their expectations of Bs' behavior could have clarified this mechanism. As Bicchieri (1988) argued, "in interactive situations, such as those treated in game theory, what it is rational to do depends on what one expects that other agents will do" (p. 135).

We focus on both trust and trustworthiness. Trust has been linked to emotions in both theoretical and empirical models (Dunn & Schweitzer, 2005; Jones & George, 1998). Furthermore, trust is also largely based on expectations of trustworthiness or reciprocity (Mayer, Davis, & Schoorman, 1995), and thus Player A's emotional knowledge of B should affect his or her behavioral trust.

1.2. Trust, trustworthiness, and the trust game

Trust-related behaviors have received a great deal of attention in the decision making and behavioral economics literatures (e.g., Camerer, 2003; Evans & Krueger, 2009; Ostrom & Walker, 2005). Trust has been linked to efficiency of human economic systems via several mechanisms: by lowering costs at different levels of analyses, from turnover (Dirks & Ferrin, 2002) and monitoring costs (Frank, 1988) in organizations, to transaction costs at the societal level (Fukuyama, 1995). Indeed, research shows that differences in trust levels across countries predict their economic growth (Whiteley, 2000).

Trust is inexorably related to trustworthiness, as in the definition cited earlier: "a psychological state comprising the intention to accept vulnerability based upon an expectation of reciprocity" (Rousseau, Sitkin, Burt, & Camerer, 1998, p. 395). An act of trust involves some vulnerability, risk or chance of a negative outcome; but the definition also suggests that people are more likely to trust if they believe that the risk is worth taking and that others will reciprocate with trustworthy actions (Evans, Athenstaedt, & Krueger, 2013; Gunnthorsdottir, McCabe, & Smith, 2002; Kanagaretnam, Mestelman, Nainar, & Shehata, 2012). Perceived trustworthiness may be beneficial for individuals, because it increases the chance that they will be trusted, regardless of whether they reciprocate or not (Johanson-Stenman, 2008; Neo, Yu, Weber, & Gonzalez, 2013). Examples include borrowing money, having more freedom in a job, and selling a used car.

Trust and trustworthiness have been modeled in laboratories using the Trust Game (also referred to as the Investment Game: Buchan, Croson, & Solnick, 2008), developed in different versions by Berg, Dickhaut, and McCabe (1995), and by Dasgupta (1988; see also Kreps, 1990). For a meta-analysis, see Johnson & Mislin, 2011. The Trust Game models a common dilemma (Evans & Krueger, 2011). Should an agent (Player A) trust his or her funds to another agent (Player B) in hopes of gaining a larger amount of money? The game is played as follows: Player A receives an initial cash endowment and can send any part of it to an anonymous counterpart, Player B. Any amount sent is multiplied (typically tripled) by the experimenter before delivery to Player B and both players know this. Player B can then return to Player A any part of the money he or she received (i.e., the tripled amount sent by Player A). The game thus models both trusting behaviors (in Player A) and reciprocity or trustworthiness (in Player B; Song, 2009).

1.3. Player A's expectations

We examined the effects of three incidental emotions—anger, guilt, and gratitude—on expectations of trustworthiness. There is a growing literature on the effects of anger in negotiation. For example, Van Kleef et al. (2004a) found that negotiators who inferred from early negotiation rounds that their counterparts were angry expected them to be "tougher" (less cooperative) in subsequent rounds than negotiators who thought that their counterparts were happy. (Note that Van Kleef et al. were concerned with integral emotions, those arising from the decision process itself, so that emotional state

potentially carried information about the opponent's reaction to earlier offers. Our procedure induces the target emotion "incidentally" by means of a separate task, thus removing the informational component of the emotion from the emotion itself.) Van Kleef (2010) theorized that anger signals aggression; therefore, people perceive it as not conducive to fruitful collaboration.

We also examined the effects of guilt to compare the effects of different emotions with the same valence (i.e., anger and guilt). Several authors have proposed that guilt serves to facilitate smooth social relations (e.g., Baumeister, Stillwell, & Heatherton, 1994; Tangney, 1991; Tangney & Dearing, 2003). Van Kleef (2010) argued that, in cooperative situations, guilt signals appeasement and caring, and thus improves relationships.

Gratitude is "an emotional response to another person's moral action on one's behalf" (McCullough, Kilpatrick, Emmons, & Larson, 2001, p. 252). A number of recent studies suggest that grateful individuals trust more (e.g., Dunn & Schweitzer, 2005; Gino & Schweitzer, 2008). Furthermore, Grant and Gino (2010) found that expressions of gratitude enhance prosocial behaviors in others. Thus, we hypothesized:

Hypothesis 1.1. Players A expect *angry* Players B to be *less* likely to reciprocate (i.e., be trustworthy) than *neutral* Bs.

Hypothesis 1.2. Players A expect *guilty* Players B to be *more* likely to reciprocate (i.e., be trustworthy) than *angry* Bs.

Hypothesis 1.3. Players A expect *grateful* Players B to be *more* likely to reciprocate (i.e., be trustworthy) than *neutral* Bs.

1.4. Player A's behavior

Our predictions involving Players A's decisions are corollaries of hypotheses 1.1–1.3, since expectations and behaviors are strongly related in the trust game. For example, Ashraf, Bohnet, and Piankov (2006) measured Player A's expectations that B would return money, and found that these expectations were strongly related to trusting behavior (i.e., amount sent). If Player A is sure that Player B will honor A's trust, then he or she is better off sending all her or his endowment (see Evans et al., 2013). If Player A is sure that Player B will abuse A's trust, then A's most profitable decision is keeping all the money. Therefore, any information that A might acquire regarding B's trustworthiness—perhaps including B's emotional state—may influence A's behavior in this context.

Thus, our three hypotheses involving Player A's behavior are:

Hypothesis 2.1. Players A interacting with *angry* Bs trust *less* (i.e., send less money) than those interacting with *neutral* Bs.

Hypothesis 2.2. Players A interacting with *guilty* Bs trust *more* (i.e., send more money) than those interacting with *angry* Bs.

Hypothesis 2.3. Players A interacting with *grateful* Bs trust *more* (i.e., send more money) than those interacting with *neutral* Bs.

1.5. Player B's behavior

Our last set of predictions focused on Players B's behavior—trustworthiness. Recall that, in our experiment, Player B is induced into an emotional state of anger, guilt, or gratitude. A number of studies have shown that anger leads to non-cooperative behaviors (e.g., Allred, Mallozzi, Matsui, & Raia, 1997; Knapp & Clark, 1991; Pillutla & Murnighan, 1996). For example, Allred et al. (1997) found that angry negotiators had less concern for others' interests (see also Small & Lerner, 2008). All these studies, however, induced integral anger.

Despite these findings, perhaps surprisingly, there is evidence that people experiencing negative incidental emotions (e.g., anger) reciprocate *more* than others experiencing positive or neutral emotions. For example, Capra (2004), using a trust game, found that Players B experiencing negative emotions tended to reciprocate more than Bs experiencing positive emotions. Kirchsteiger, Rigotti, and Rustichini (2006) used a gift-exchange game and found that players in a bad mood reciprocated more than players in a good mood. A plausible account is that reciprocating functions as a "good deed" and helps to repair the bad mood associated with anger or sadness (Cialdini & Kenrick, 1976).

A different explanation of these results stems from a study conducted by Andrade and Ariely (2009), which involved an emotion manipulation and repeated economic games. The authors found that people induced to feel anger were more likely to reject unfair offers in an ultimatum game than those in a neutral emotional state. However, when they switched roles and had to make offers themselves, they were more likely to make *fairer* offers. The authors suggest that this is because angry players, in rejecting unfair offers, had invoked a set of beliefs related to fairness. Then when participating in the second game, they used this set of beliefs to make fair decisions.

Unfairness has been found to be a major theme in anger (Lazarus & Lazarus, 1994), not only when the unfairness is towards oneself, but also when it targets others (Batson et al., 2007). For example, Fehr and colleagues (Fehr & Fischbacher,

2004; Fehr & Gächter, 2002; see also Nelissen & Zeelenberg, 2009) have proposed that anger is the proximal mechanism underlying third-party sanctions. Thus feelings of anger may trigger a fairness (or *doing the right thing*) mindset, which would result in reciprocating acts of cooperation. In trust games, this would lead angry Players B to return an amount of money that equalizes outcomes across the two players.

Given the somewhat equivocal nature of earlier studies regarding anger and cooperation, we offer no formal hypothesis, but simply pose the question:

Research Question 1. Will angry Bs be more trustworthy or reciprocal (i.e., send back more of the money they receive) than neutral Bs?

Theoretical accounts of guilt propose that this emotion promotes behaviors to repair previous wrongdoing (Baumeister et al., 1994; Tangney, Stuewig, & Mashek, 2007). Guilt has been shown to stimulate concern about harming others, which leads to helping behaviors to avoid these worries (Grant & Wrzesniewski, 2010). This led us to hypothesize that:

Hypothesis 3.1. Guilty Bs will be more trustworthy or reciprocal (i.e., send back more of the money they receive) than angry Bs.

Research suggests that incidental gratitude also promotes cooperative behaviors. Dunn and Schweitzer (2005) found that people experiencing incidental gratitude tended to trust more in others (see also Gino & Schweitzer, 2008). Therefore, we predicted that:

Hypothesis 3.2. Grateful Bs will be more trustworthy or reciprocal (i.e., send back more money) than neutral Bs.

2. Study 1

Study 1 investigated people's (Players A) explicit beliefs about the effects of different emotional states (anger, gratitude and guilt) on others' (Players B's) trustworthiness, testing Hypotheses 1.1–1.3.

2.1. Method

2.1.1. Participants

The study used two separate samples of participants. Sample 1 ($n = 58$) was composed of undergraduate students at a southwestern U. S. university who participated in exchange for class credit. Their average age was 20.1 years ($SD = 1.40$) and 39 (67.2%) were male. Participants in this sample were 69.0% White, 15.5% Hispanic, 5.2% Asian, 3.4% African–American and 6.9% of other races. Sample 2 ($n = 54$) was composed of master's of business administration (MBA) students in a program at a public university in Chile, South America. The MBA sample was 52% male, 91% were Chilean nationals (others were Brazilians, Colombians and Argentineans), with a mean age of 34.0 years ($SD = 6.92$). They had received their undergraduate degrees in a variety of fields (26% in Business and Economics, 19% in Medicine, 20% in Engineering, 15% in Psychology and 20% in other majors) and had on average 9.1 years of work experience after receiving their undergraduate degree.

2.1.2. Procedure and materials

Participants received a package of printed questionnaires that asked their beliefs about how each of three emotions (anger, gratitude, and guilt) influences trustworthy behavior, altruism and acting fairly. (The questionnaires also included a variety of other emotions and behaviors, not related to trust-related behavior, to make the purpose of the study less transparent). Each questionnaire included, as a header, the target behavior (e.g., *behaving in a trustworthy way*) and some short examples (e.g., *keeping promises, even when it is difficult or costly*). This was followed by a set of questions concerning the effect of each of the three emotions on this behavior (e.g., *does being angry generally change how likely people are to behave in a trustworthy way?*). Responses were on 7-point bipolar scales (anchored at 3 = *Makes them much more likely to be trustworthy*, 0 = *No effect*, –3 = *Makes them much less likely to be trustworthy*). We used back-translation (Schaffer & Riordan, 2003) to develop the Spanish-language instrument for the MBA Chilean sample. A bilingual research assistant translated the instrument from English to Spanish, and the first author then translated it back to English. When inconsistencies were found, a professional translator helped rewording the items.

The administration procedure differed across samples. For sample 1, participants were brought to the laboratory and answered the questionnaire in individual rooms. For sample 2, participants answered the questionnaire at the beginning of an MBA course. In both samples, individuals took around 12 min to complete the questionnaire. To control for question-order effects, multiple forms of the questionnaire were created counterbalancing emotion order. Responses were aggregated across order conditions for analysis.

2.2. Results

Table 1 shows a summary of response means. Results are strikingly similar across samples, somewhat surprisingly given the sample differences in age, work experience and cultural background. The two sample were therefore pooled, for a total $N = 112$.

Table 1

Three emotions and their believed effect on trustworthy behavior using two different samples, Study 1.

Emotion	Sample								
	US Undergraduates			Chile MBAs			All		
	Mean	SD	SE	Mean	SD	SE	Mean	SD	SE
Anger	−1.59	.97	.13	−1.33	1.15	.16	−1.46	1.16	.11
Gratitude	2.21	.79	.10	1.83	.95	.13	2.03	.89	.08
Guilt	.72	1.55	.20	1.06	1.66	.18	.88	1.06	.10

Note: SD = Standard deviation. SE = Standard error of the means. The bipolar scales ranged from +3 (makes them much *more* likely to engage in the behavior) to −3 (makes them much *less* likely to engage in the behavior).

Hypotheses 1.1 and 1.3, which focused on how people (Players A) think specific emotions affect others' (B's) trustworthy behaviors, were supported. We used one-sample *t*-tests to examine our hypotheses, where zero ("no effect") was the reference value. When collapsing both samples, results suggested that participants believed that anger makes others less likely to behave in a trustworthy way ($M_{\text{anger}} = -1.46$), $t(111) = -14.55$, $p < .001$; and that gratitude makes them more likely to do so ($M_{\text{gratitude}} = 2.03$), $t(111) = 24.24$, $p < .001$. When comparing anger and guilt (Hypothesis 1.2) using a repeated-measures *t*-test, we found that people believe guilt makes people more likely to behave trustworthily ($M_{\text{guilt}} = .88$) than anger does ($M_{\text{anger}} = -1.46$), $t(111) = 13.18$, $p < .001$.

2.3. Discussion

Study 1 provided initial evidence that people hold differentiated beliefs about the impact of incidental, discrete emotions on others' trustworthiness, and that these beliefs go beyond valence. People believed that anger—a negative emotion—makes others less likely to engage in trustworthy behavior. This is generally consistent with findings in the negotiation literature (e.g., Van Kleef, van Dijk, Steinel, Harinck, & van Beest, 2008). Guilt—another negative emotion—was believed to produce the reverse effect, increasing the probability of trustworthy behavior. Gratitude—a positive emotion—was also believed to increase the probability of trustworthy behavior, with a stronger magnitude than guilt.

These results are, of course, simply espoused expectations that may or may not be reflected in the actual behavior of players responding to what they know of the emotional state of another individual. In Study 2, we extended these findings to actual (and consequential) decisions in a trust game. We investigated people's beliefs about others' incidental emotions, their expectations and behaviors in light of such beliefs, and the extent to which such beliefs correspond with others' actual behavior.

3. Study 2

3.1. Method

3.1.1. Participants

Participants were 132 undergraduate students at a large university in the Southwest U.S. who participated in exchange for class credit and their earnings from the experiment. Their average age was 21.7 years and 51.5% were females. Most (78.5%) were White, 7.7% were Hispanic, 13.8% Asian, and 1.5% reported other ethnicities.

3.1.2. Procedure and design

Participants were recruited via an internet-based system. The experiment was conducted in the University's Decision Behavior Laboratory. Following standard economic game practice, all players were fully informed about each other's incentives and options, no deception was used, and payoffs were in real money. Upon arrival at the laboratory, participants were asked individually (i.e., no other participant was watching them) to randomly draw cards with the room number and a role (Participant A or B). After this, they were led to individual rooms and asked to wait until all participants had arrived. They then were told that they would take part in two different studies. To ensure that participants remained (and felt) anonymous, after the initial instructions, all further communication was done via messages or envelopes passed under the room door, unless participants needed help with the instructions.

The first task was described as an "Episodic Memory Study". Three groups of participants assigned as Players B were asked to write in detail about some recent episode in their lives in which they had experienced anger, gratitude or guilt. (This procedure has been used by several researchers to induce the emotion the participants are asked to describe and has been validated as doing so: see Dunn & Schweitzer, 2005). A fourth ("neutral") group wrote about a recent classroom experience, as did all participants assigned as Players A.

In the second part of the experiment, we conducted the Trust Game. The study followed a one-factor between-subjects design. The critical manipulation was that, before they made their "send" decision, Players A were told about the task that their assigned B had completed during the first phase, and the emotion B was likely experiencing (a factor we labeled *emotional knowledge*). There were 4 levels of emotional knowledge: "Angry B," "Guilty B," "Neutral B" and "Grateful B." For

example Players A in the Guilty B condition were told that their counterparts had written about an earlier situation that had left them feeling really guilty and that, as a result, they were currently experiencing guilt. Players A in the Neutral B condition were told that Players B participated in a task similar to the one in which Players A had participated.

3.1.2.1. The game. Players A were endowed with \$20 and instructed that they could send any amount they wished (\$0–\$20) to Players B. Any amount sent would be tripled by the experimenters before delivery to Player B, who could then return any amount they wanted. All players were fully informed about the game procedure and the procedure was followed exactly as described. The amount sent by A is widely interpreted as a behavioral measure of trust (e.g., Kugler, Bornstein, Kocher, & Sutter, 2007).

3.1.3. Measures

Following their “send” decision, and before they were informed about B’s decision, participants in the role of Player A completed a post-decision questionnaire. As a manipulation check, they were asked what their counterparts had written about in the memory task. They also were asked about their expectations of B’s return. We asked them: “Suppose you had sent \$20 (so Participant B received \$60). How much money do you think Participant B would send back to you?”

Players B were asked to answer a shortened version of the Positive and Negative Affect Schedule (PANAS; Watson & Clark, 1994), including three items measuring anger, guilt and gratitude, with 11 filler items (20 items in total). Internal consistencies for these measures were high ($\alpha = .93, .87$ and $.91$, respectively). We used this to check the effectiveness of the manipulation of Player B’s emotional state.

After completing the post-decision questionnaire, participants were informed about their counterpart’s decisions, were paid and dismissed. Participants took around 45 min to complete both tasks and earned on average of \$22.40.

3.2. Results

3.2.1. Player A

3.2.1.1. Manipulation checks. Players A were asked what emotion their counterparts wrote about: anger, neutral, gratitude, or guilt. All participants indicated the correct emotion.

3.2.1.2. Test of hypotheses. We first focused on Hypotheses 1.1–1.3, dealing with Players A’s expectations of Player B’s response (see Fig. 1, upper panel). Consistent with Hypothesis 1.1, Players A in the Angry B condition expected their counterparts to return less ($M = \$12.06$) than As in the Neutral B condition ($M = \$20.59$), $t(32) = -2.23, p < .05, d = .76$. Players A in

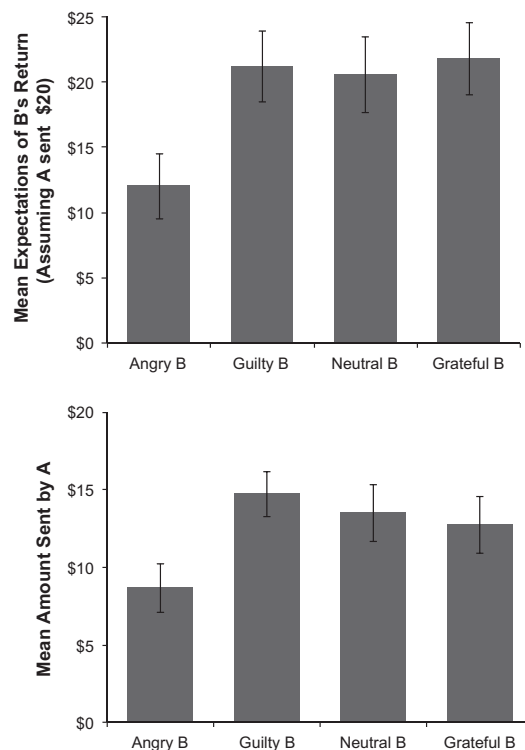


Fig. 1. Players A’s mean expectations of B’s response to a \$20 send by condition (upper panel), and mean amount sent by condition (lower panel), Study 2. Error bars represent standard errors of the means.

the Guilty B condition expected their counterparts to return more ($M = \$21.25$) than As in the Angry B condition ($M = \$12.06$), $t(31) = 2.49$, $p < .05$, $d = .87$, supporting Hypothesis 1.2. We found no support for Hypothesis 1.3. Expected returns in the Grateful B condition ($M = \$21.88$) and in the Neutral B condition ($M = \$20.59$) were not significantly different, $t(31) = -.32$, $p = .75$.

We then focused on Player A's behavior (Fig. 1, lower panel). The mean amount sent by Players A in the Angry B condition was \$8.71, compared to \$13.53 in the Neutral B condition. This difference is significant, $t(32) = -2.01$, $p < .05$, $d = -.69$, consistent with Hypothesis 2.1. We also found support for Hypothesis 2.2. Players A in the Guilty B condition sent more ($M = \$14.75$) than those in the Angry B condition ($M = \$8.71$), $t(31) = 2.82$, $p < .05$, $d = .98$. Contrary to Hypothesis 2.3, however, we did not find significant differences in the amount sent by As in the Grateful B ($M = \$12.81$) and Neutral B conditions ($M = \$13.53$), $t(31) = -.27$, $p = .78$.

3.2.1.3. Additional analyses. We tested whether Players A's expectations mediated the relationship between Emotional Knowledge and Player A's Amount Sent. To test this, we used Hayes and Preacher's (2013); (see also Preacher & Hayes, 2004) mediation analysis with a multicategorical independent variable. This method is based on a bootstrapping approach for assessing indirect effects and corresponding confidence intervals (Preacher & Hayes, 2008). This is superior to both the traditional causal step approach (Baron & Kenny, 1986) and normal theory tests (e.g., the Sobel test) in terms of statistical power, control of type I error rate, and realistic assumptions (Hayes, 2009).

We first used dummy coding with the Neutral B condition as the reference category, which resulted in three variables. The bootstrap results (1000 iterations) showed an indirect effect of emotional knowledge on amount sent through expectations, which was driven by the dummy variable representing the difference between the Neutral B and Angry B conditions (point estimate of -3.62 ; 95% CI [$-6.80, -.93$]). The effect of this dummy variable on amount sent dropped from -4.97 to -1.35 when the mediator (expectations) was controlled for. This analysis suggests that A's expectations of B's return fully mediate the effect of Emotional Knowledge on A's amount sent.

3.2.2. Player B

3.2.2.1. Manipulation check. Players B in the Anger condition reported an angrier state ($M = 5.10$) than those in the other three conditions ($M = 2.48$), $t(62) = 4.89$, $p < .001$. Players B in the Guilt condition reported being more guilty ($M = 5.58$) than those in the other 3 conditions ($M = 2.20$), $t(62) = 7.61$, $p < .001$. Finally, Players B in the Gratitude condition ($M = 6.56$) reported being more grateful than those in the other 3 conditions ($M = 4.51$), $t(62) = 3.63$, $p < .01$. Thus, the emotion manipulation seems to have been effective.

3.2.2.2. Test of hypotheses. The relative return (i.e., the amount Players B returned divided by what they received) is commonly used as a measure of B's trustworthiness (Ashraf et al., 2006). However, when Players B receive different amounts from Players A in different conditions, this measure is problematic. Several authors have reported that the relative return is lower when Bs receive less money (e.g., Kugler et al., 2007; Pillutla, Malhotra, & Murnighan, 2003). Differences in relative return across experimental conditions would thus confound the effect of A's expectations on his or her sending decisions and any real emotion effect on Bs' return decisions.

We therefore decided to test trustworthiness differently. A number of researchers have argued that people are strongly motivated by fairness or equality in economic contexts (Bolton & Ockenfels, 2000; Fehr & Schmidt, 1999). Van Dijk, Wit, Wilke, and de Kwaadsteniet (2010) have further argued that equality is a fair, simple, clear and socially defensible allocation principle that people frequently use in interactive decisions. As Messick (1993) stated, "it is hard to imagine a more pervasive principle of making allocation decisions than the principle of equality" (p. 29). We defined a fair return as any amount sent back by B that left both players with equal outcomes. For example, if A sends \$20, a fair return would be \$30 (leaving both players with \$30). If A sends \$10, a fair return would be \$10 (both players end up with \$20). If A sends \$4 or less, no fair return is possible, because A always ends up with more than B (e.g., if A sends \$4 and B returns \$0, A ends up with \$16 and B with \$12). If A sends \$5, a return of \$0 might indicate an interest in fairness (since both players end up with \$15), but could also indicate simple selfishness (B keeping all the money A sent). We thus decided to analyze only those cases in which A sent an amount larger than \$5, so that B had the opportunity to act fairly or unfairly. Fifty of 66 As sent more than \$5. In these 50 cases, 36 Bs (72%) returned a fair amount, giving support to the idea that Bs commonly behave fairly.³

Fig. 2 shows the amount received and sent back by Bs, by condition. The omnibus test of proportion of fair returns by condition was significant, $\chi^2(3, n = 50) = 10.80$, $p < .05$, $\phi^2 = .21$. Pairwise comparisons between the conditions of interest showed that angry Bs sent back proportionally more fair returns (90.9%) than did neutral Bs (37.5%), $\chi^2(1, n = 24) = 6.99$, $p < .01$, $\phi^2 = .30$. Although grateful Bs' returns tended to be more fair (70.0%) than neutral Bs' (37.5%), this difference was not significant, $\chi^2(1, n = 24) = 2.81$, $p = .098$. We found no differences in returns between guilty and angry Bs, $\chi^2(1, n = 26) = .74$, $p = .619$. Thus, Hypotheses 3.1–3.2 were not supported, and the answer to Research Question 1—which asked whether angry Bs would be more trustworthy than neutral Bs—is 'yes'. Fig. 2 suggests that the significance of the omnibus test is due to neutral Bs, who responded fairly less often than Bs in any of the other conditions.

³ Of these 50 cases, only three Bs returned an amount that left A with a larger payoff than B. We considered these cases as fair behaviors as well.

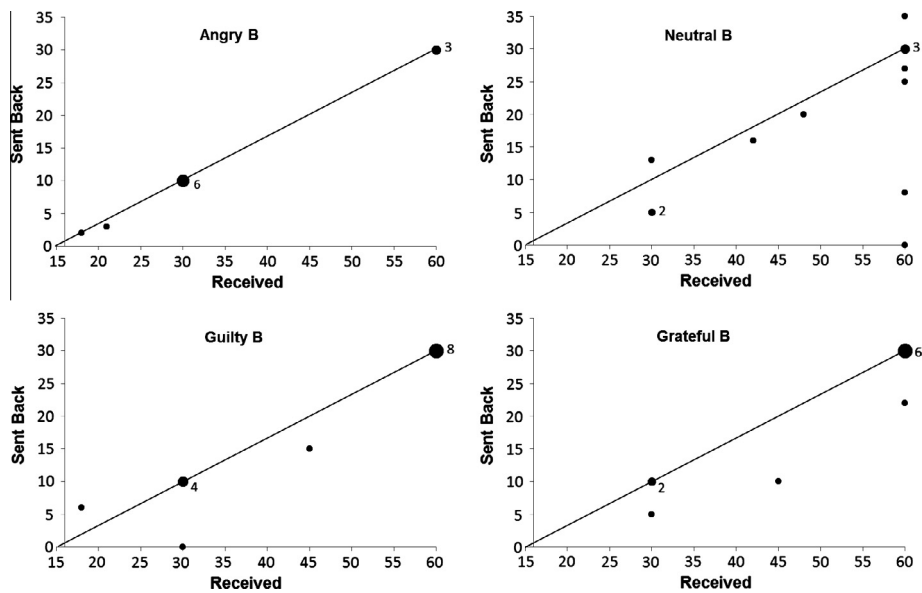


Fig. 2. Amount received and sent back by Bs, by emotion condition, Study 2. *Note:* The line indicates fair returns (outcome-equalizing); points under the line represent unfair returns. The size of each point represents the number of cases in the specific coordinate, which are also labeled. For Anger, $N = 11$; for Guilt, $N = 15$; for Neutral, $N = 13$; for Gratitude, $N = 11$.

3.3. Discussion

These results extend the findings of Study 1. Emotional information about others influences people's expectations and their actual behaviors in ways that are generally consistent with the beliefs documented in Study 1. For example, in line with the belief that angry people are untrustworthy and uncooperative, Study 2 showed that knowing that Player B is angry reduced As' expectations that B would reciprocate. This, in turn, affected Players A's own behavior; they were less inclined to put their endowment at risk by sending it to B. Consistent with this, we found evidence that As' expectations mediated the relationship between emotional information and amount sent.

Our findings also confirmed that people are sensitive to information about different emotions of the same valence. Players A who knew their counterparts were experiencing guilt sent on average 60% more than As who knew their counterparts were experiencing anger. This is also consistent with the results in Study 1, in which people in two different samples expected guilt to generate more trustworthy behaviors, and anger to generate less trustworthy behaviors. However, in contrast to the finding in Study 1, Players A did not trust more when they knew Bs were grateful, as opposed to neutral.

Overall, Players A's beliefs and expectations were imperfectly related to Player B's actual behavior. Although Player As generally believed that anger leads to less trustworthiness, we found that angry Players B actually sent back *more* money than neutral Bs. This finding is consistent with Capra (2004) and Kirchsteiger et al. (2006), who found that Players B in a bad mood reciprocated more than Bs in a good mood.

There are, of course, limitations in this study. The sample sizes are modest, and are further reduced by the use of the fairness measure of B's trustworthiness, which excluded some responses (those in which A's send precluded an equal-outcome response from B). We thus decided to conduct a third study, aimed at replicating the results found in Study 2 concerning angry Bs' behavior, and the behavior of As confronting angry Bs. This third study focused only on anger vs. neutral emotional states, and did not address A's expectations. For this study we switched to a *binary trust game* (Dasgupta, 1988; Kreps, 1990; Snijders & Keren, 1999) in which each player has only two choice options. Player A must either trust B entirely or not at all (sending either all or none of his or her endowment); Player B must act either fully trustworthily or completely untrustworthily (returning either an equal split of the money received or none at all). To boost sample size we also asked players to make their decisions simultaneously as opposed to sequentially. Since Bs made their choices regardless of As' decision, our measure of B's trustworthiness was independent of the amount sent by A. We recruited more participants per condition, and had them play repeatedly with different players. This allowed a more robust and statistically powerful test of our hypotheses regarding incidental anger and its effects on trust and trustworthiness.

4. Study 3

4.1. Method

4.1.1. Participants

Participants were 201 undergraduate students at a large public university in Chile, South America. They participated in exchange for their earnings from the experiment. Their average age was 21.4 years and 63.2% were males.

4.1.2. Procedure and design

The general procedure and design were similar to the previous study. Participants were recruited from different business and economics classes. They received \$500 Chilean pesos (around 1 US dollar) for participating, and additional earnings from the game, which were on average around \$1470 Chilean pesos (around 2.9 US dollars). Participants were randomly assigned to different roles (Player A or B). There were 101 Players A and 100 Players B.

The study took place in two parallel classrooms. Players A completed their tasks in one room, Players B in the other. Each experimental session involved around 24 participants (around 12 in each room).⁴ As in Study 2, the experiment used a two-experiment cover story. In the ostensibly first experiment (“Episodic Memory Study”) Players B were either induced to feel anger or participated in a neutral writing task. Players A participated in a neutral writing task in all conditions. The neutral task consisted in writing about a recent classroom session. In the anger-inducing task, participants were asked to describe in detail an event that made them feel strongly angry. (Materials were the same as in Study 2, translated from English to Spanish by the first author).

In the second part of the experiment we ran a paper-based version of the binary trust game, in a one-factor between-subjects design with two levels of *emotional knowledge*: Angry B and Neutral B. Players A were told about the task that B had previously completed, and the emotion Bs were likely experiencing (anger or neutral).

4.1.2.1. The game. Participants played 6 trials of a one-shot binary trust game. Each individual played the same role (Player A or B) in the 6 trials, but in each trial they were randomly paired with a different player. There was no feedback across trials: the payoffs of players' choices were revealed only at the end of the session. In each trial, Player A could either keep the endowment of \$200 Chilean pesos or send it to Player B; Player B could either keep the whole \$600 (the amount sent times three) or send \$300 back to Player A (equalizing outcomes across players).

As noted, both players made their choices simultaneously for all six trials. Players A decided for each of the six trials whether or not they would send the money, and Bs decided whether they would reciprocate on each trial before they knew whether or not As had sent them the money. In addition to maximizing usable data from Players B, this also reduced response time, a concern given the often short-lived nature of induced emotions (Ekman, 1999). Players B were told that their decisions would only become relevant for trials in which Player A had sent the money.

The payoffs for each trial were as follows: If A decided to keep the money, A would receive \$200 Chilean pesos and Player B zero. If A decided to send the money and B decided to reciprocate, both players would receive \$300. If A decided to send the money and B decided to keep the money (betray), A would receive zero and B would receive \$600.

4.1.3. Measures

The two main dependent variables were *trust rate*, the proportion of times Players A decided to send the money to different Players B; and *trustworthiness rate*, the proportion of times Players B decided to split the money back he or she had received (see Bohnet & Huck, 2004).

As in Study 2, we asked As to indicate what their counterparts had written about in the memory task (a classroom experience or an anger-induced event); and we used the PANAS to measure anger levels in Players B, before they participated in the trust game. These two measures were used as manipulation checks for Players A and B, respectively.

After completing a brief post-decision questionnaire (which included demographics), participants were informed about their counterparts' decisions, paid and dismissed. Each session of Study 3 took around 60 min.

4.2. Results and discussion

4.2.1. Manipulation checks

All but two Players A correctly identified the writing task their counterpart Players B had completed. Players B in the Anger condition reported an angrier state ($M = 5.43$) than those in the neutral condition ($M = 2.75$), $t(98) = 6.37$, $p < .001$. Both manipulations—emotional knowledge in Players A, emotion induction in Players B—thus appear to have been successful.

⁴ There were 9 sessions in total. In the first 8 sessions there were 24 participants (12 As; 12 Bs). In the final session, only 9 participants showed up (5 Players A; 4 Bs). Thus, Players A were paired with only 4 Bs (4 rounds of decisions); Bs were paired with 5 As. Also, although we used all these data to compute trust and trustworthy rates, we excluded these cases when computing the average payoffs earned.

4.2.2. Substantive findings

We first conducted normality tests of both dependent variables: trust rate and trustworthiness rate. Using the Shapiro–Wilk test, we found that the distribution of data for these variables deviated significantly from normality (for trust rate, Shapiro–Wilk's = .80, $p < .001$; for trustworthiness rate, Shapiro–Wilk's = .69, $p < .001$). We thus used two strategies to analyze these data and test both trust and trustworthiness rates. We first used the Mann–Whitney U test; then, we modeled these data using generalized models for binary variables (see Budescu & Johnson, 2011), which have been used in other areas of judgment and choice research that utilize repeated measures (Merkle, Smithson, & Verkuilen, 2011). In particular, we used a mixed logistic regression model (see Raudenbush & Bryk, 2002; Stockard, O'Brien, & Peters, 2007) employing the Glimmix procedure in SAS, using Players' decisions as repeated measures. This type of analysis allows controlling for individual variations (a random factor); that is, the correlations of the measurements within a person (Hoffman & Rovine, 2007; Quené & van den Bergh, 2004).

First, we tested Hypothesis 2.1, dealing with trusting behavior. Consistent with this hypothesis, a Mann–Whitney test suggested that trust rates were lower when Players A were told that Bs were angry (Mean Rank = 44.54%) than when told that As were in a neutral emotional state (Mean Rank = 57.59%), $z = -2.36$, $p < .05$, $r = -.23$. When testing this same hypothesis using the mixed logistic model, the intercept-only model showed that subjects did differ in their choices ($z = 4.95$, $p < .001$), justifying a multilevel approach. The fixed effects showed that the manipulation of emotional knowledge significantly affected the likelihood of trusting, $\beta = -1.08$, $p < .05$.

Second, we tested Research Question 1, dealing with trustworthiness. The Mann–Whitney test suggested a marginally significant effect ($z = -1.92$, $p = .054$, $r = -.19$): trustworthiness rates of angry Bs (Mean Rank = 55.50%) were marginally higher than those Bs in a neutral emotional state (Mean Rank = 45.50%). However, when using the mixed logistic model, the fixed effects suggested that there was a significant difference in Bs' trustworthiness, $\beta = 1.06$, $p < .05$. (The intercept-only model showed that subjects did differ in their choices, $z = 5.54$, $p < .001$.)

Thus, the answer to Research Question 1—which asked whether angry Bs would be more trustworthy than neutral Bs—seems to be a qualified 'yes'.

This pattern of results had interesting consequences on participants' payoffs. Across trials, angry Bs earned less money ($M = \$1278$; Mean Rank = 38.79%) than neutral Bs ($M = \$1748$; Mean Rank = 59.05%), $z = -3.61$, $p < .001$, $r = -.37$; and earned a smaller proportion of the total pie ($M = .56$) than the proportion earned by neutral Bs ($M = .45$), $z = -3.46$, $p < .001$, $r = -.35$.

4.2.3. Discussion

We found somewhat similar results in Study 3 to what we found in Study 2, using a different (binary) version of the trust game and a larger sample of participants and decisions. Results showed, as in Study 2, that Players A were less trusting when facing angry Bs than when facing neutral As. However, these choices did not correspond with Bs' behavior. Players B who were feeling incidental anger tended to be somewhat more trustworthy (more likely to reciprocate or honor A's trust) than those who were neutral. It is important to note, however, that there were important differences in effect sizes in Studies 2 and 3; the effects in Study 2 were much larger. For example, whereas in Study 2 the effects of the emotion manipulation on Bs' behavior (anger vs. neutral) was $r = .55$, in Study 3 it was $r = .19$. In other words, the effect was large in Study 2; it was small to medium in Study 3 (Cohen, 1988). Thus, although the sign of the effect of the emotion manipulation on trustworthiness was replicated, the data from Study 3 seem to be inconsistent with those from Study 2 in terms of the effect size (Simonsohn, 2013).

Despite this issue, interestingly, Angry Bs had a disadvantage compared to Neutral Bs in terms of their (perhaps short-term) reputation. Because they were perceived as less trustworthy, they were less likely to receive money from Players A. Conversely, neutral Bs received more money and they used this to their advantage: they were more likely to betray As' trust and keep the money for themselves. In fact, among the four groups of participants (Player A in the Angry B condition, Player A in the Neutral B condition, Angry Bs, and Neutral Bs), neutral Bs ended up with the largest amount of money.

5. General discussion

The three studies reported here examined the effects of knowledge of others' emotional states in trust situations—when one player, the actor, knows the emotional state of the other player, the counterpart. First, we extended previous work by Andrade and Ho (2007) in ultimatum situations by examining the actors' espoused beliefs about how a counterpart's trustworthiness would be affected by their (the counterparts') emotional state. In other words, we examined actors' expectations of how incidental emotions shape others' reciprocity. Second, we studied the impact of knowing a counterpart's emotional state on the actors' actual expectations and behaviors in trust games with non-trivial financial consequences. Third, we investigated the impact of different emotional states on actual counterpart behavior. An underlying interest was whether or not expectations based on emotional information are accurate and thus provide good guidance when decision outcomes are jointly determined by trust and trustworthiness.

5.1. Overview of the results

A clear finding in these three studies is that people have crystallized beliefs about how different incidental emotions affect trustworthiness. When told about their counterparts' emotions, actors in trusting situations modify their behavior. They

are also sensitive to differences between discrete emotions, not simply to their overall valence. Negative emotions such as guilt and anger have different effects on actors' expectations of a counterpart's behavior. However, though these beliefs are strongly held and generally acted upon, their descriptive accuracy is quite mixed, and behavior based on them can result in seriously non-optimal outcomes.

People believe that anger makes others less trustworthy. Because of this belief, in a trust game, Players A paired with angry Bs are less likely to send money than As paired with neutral or guilty Bs. Furthermore, in Study 2 we found that As' expectations of Bs' trustworthiness mediated the effect. The belief, however, appears to be ill-founded. In the trust game conducted in Study 2, Angry Bs sent back fair (outcome-equalizing) returns just as often as did guilty Bs, and more often than neutral Bs. Although the effect was less strong in Study 3, the results also suggested a marginal effect indicating that angry Bs sent back money more often (or had higher trustworthiness rates) than neutral Bs.

Being told that another person is grateful had a less consistent effect on people's beliefs across studies. In Study 1, we found that people thought that gratitude was related to increased trustworthiness. Players A in Study 2, however, did not trust grateful others more than neutral others. A potential explanation of this finding is that, in the trust game, choices involve some uncertainty (Kugler, Connolly, & Kausel, 2009). Sending more money in the Trust Game makes Player A more vulnerable to what B does. Previous research suggests that people believe emotions can provoke uncontrollable and bizarre behavior (Ben-Artzi & Mikulincer, 1995). Because of this, people may think that highly emotional counterparts are too unreliable to be trustworthy, even if they are experiencing positive emotions that could lead to a larger payoff.

In keeping with most recent research on emotions, we found that people react to aspects of emotions beyond mere valence. Studies 1 and 2 showed that people think guilt (a negative emotion) is linked to trustworthiness, while anger (another negative emotion) is not. Similarly, decision makers tended to trust guilty Bs more than angry Bs in Study 2. These findings are consistent with Saffrey, Summerville, and Roesse (2008), who found that people think guilt facilitates smooth social relations, while they think that anger disrupts them.

Perhaps the most interesting finding of the study is the one that suggests that the accuracy of predictions of how emotions affect trustworthiness is quite variable. In Study 2, Players A told that B felt guilty correctly expected B to be trustworthy. However, Players A's predictions were also sometimes inaccurate. In Studies 2 and 3, Players A expected angry Bs to be untrustworthy, while angry Bs actually tended to reciprocate greatly, returning an amount that equalized outcomes across the two players (Study 2) or honored As' trust (Study 3).

5.2. Contributions and implications

Our findings suggest that people's beliefs about how emotions affect behavior may be more complex than previously thought. Ben-Artzi and Mikulincer (1995) found that people attach general attributes to emotional experiences. For example, they found that people think that emotions are uncontrollable. Our studies provide a finer-grained view of how people think about others' emotions. They show that different emotions are believed to have distinct effects on trustworthiness. Interestingly, although for several decades researchers disregarded the study of state and trait affect beyond valence (Lerner & Keltner, 2000; Slaughter & Kausel, 2009; Van Kleef et al., 2010; Zeelenberg, Nelissen, Breugelmans, & Pieters, 2008), our results suggest that laypeople do recognize that different emotions of the same valence can have different consequences on decisions.

The present studies also indicated that neutral Bs tended to be less likely to reciprocate than those Bs experiencing emotions, including anger. (Although, as noted above, the magnitude of the effect was inconsistent across studies). There are at least three potential explanations for this. First, this finding is consistent with Bereby-Meyer, Moran, and Schweitzer (2009) who found that people told to regulate their emotions by means of cognitive reappraisal were more likely to make economically rational (but Pareto suboptimal) decisions in ultimatum and trust games. The authors suggest that making rational decisions involves self-control—an exhaustible resource—and emotions seem to deplete this ability. A similar account comes from the persuasion literature, which suggests that felt obligation is an important predictor of reciprocity (e.g., Cialdini, 1993; Cialdini & Trost, 1998). Pillutla et al. (2003) showed that, in trust games, Players B who felt an obligation to reciprocate tended to be more trustworthy. Players B who are already experiencing strong emotions may struggle in dealing with this obligation, sending back fair returns. Neutral Bs may have more resources to regulate this felt obligation, and therefore act in a more selfish way (for a similar finding, see Forgas & Tan, 2013).

Second, this finding is consistent with the negative-state relief model (Andrade & Cohen, 2007; Cialdini, Darby, & Vincent, 1973), which states that people in negative moods may engage in other-regarding behavior to elevate their mood. Thus, angry Bs may have reciprocated more as a way of reducing or repairing their negative emotion. Third, given that fairness and unfairness are important themes in the experience of anger, the anger-inducing manipulation may have triggered a fairness mindset. As a result, Bs behaved fairly and honored As' trust. More research is needed to explore the driving force of this behavior. At any rate, given the importance of trust and trustworthiness in increasing collective value (Arrow, 1974; Ostrom & Walker, 2005), it is interesting that people in heightened emotional states (including anger) reciprocate more than those in neutral states.

5.3. Limitations and future research

A first limitation of these studies is that the effect sizes of the emotion manipulation on B's behavior were inconsistent: they were much larger in Study 2 than in Study 3. Although there are many reasons to why this could have happened

(samples with different cultural background, different payoffs, different games and procedure, among others), future research should test the degree to which these effect sizes are reliable (Simonsohn, 2013).

Furthermore, in Studies 2 and 3, it could be argued that there was a possible demand effect in that, by making the counterpart's emotional state salient to the actors, we also made it clear that this was the experimental issue of interest to the experimenters (but see Andrade & Ho, 2007, for a similar manipulation). We would argue, however, that the money involved in these studies (particularly in Study 2) mitigated this concern. The payoffs were large enough to engage the thoughtful attention of most of our participants and were eagerly sought after. We spent some time making sure that participants understood what each task involved and what outcomes would follow from each pair of choices. We emphasized that the monetary payoffs were real and that no deception was used.

Despite this, we did consider examining these effects by using a different manipulation; for example, by asking participants to infer his or her counterpart's emotional state (from posture, tone, facial expression or other cues). However, this alternative could be subjected to confounding effects. For example, from facial expression, people infer emotions but also stable traits (Willis & Todorov, 2006; for a study involving trustworthiness, see Krumbhuber et al., 2007). In fact, the fundamental attribution error (Jones & Harris, 1967) suggests that people often attribute facial expressions to dispositions or personality rather than transient aspects such as moods or incidental emotions. Thus, a change in expectations based on others' facial expression could be the result of inferred traits; not inferred emotions. Similar confounding issues could occur based on other cues (e.g., "Is Player B using that tone because of a fleeting emotion or is s/he always like this?"). Our interest was explicitly in the effects of emotional knowledge, and the somewhat heavy-handed manipulation of this factor seems appropriate. Furthermore, this method allowed us avoiding deception, common in studies examining the interpersonal effects of emotion (e.g., participants receive messages ostensibly sent by counterparts but actually written by experimenters). Deception is discouraged in our lab and we sought a manipulation that was consistent with this policy.

An interesting research question that future research may address is related to people's inaccuracy in predicting how emotions affect other people's behavior. In specific cases, there may be a "curse of knowledge": more information leads to worse outcomes. Consider a continuous (i.e., not binary) trust game in which all Players A are confronted with Bs who are, in fact, angry. One group of As are told this, a second group are not. Results from Study 2 suggest that Players A told that B is angry will send less money (around \$8.50) than Players A told who assume that B's mood is neutral (around \$13.50). Because the findings indicate that a high proportion of angry Bs send back fair (outcome-equalizing) returns, people who received emotional information would end up with less money (around \$19) than those who did not (around \$24). Emotional information of others, therefore, could be counterproductive in some cases.

A second avenue for research is the importance of gaming emotions in trusting situations (see Andrade & Ho, 2009). Studies 2 and 3 demonstrated that angry Bs are at a disadvantage if others know that they are angry, because anger is negatively associated with perceived trustworthiness. This led Players A to send angry Bs less money than they sent to neutral Bs. Our results suggest that signaling anger is detrimental for one's perceived short-term trustworthiness; people may be better off gaming other emotions (such as guilt, gratitude or no emotion) in trusting situations.

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