

## INFLUENCES OF DISTRUST (AND TRUST) ON DECISION MAKING

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Our study highlights how distrust can influence decision making under uncertainty. Experiment 1 compared decision makers' behaviors when uncertainty was attributed to benevolent or malevolent sources. We found that compared to those who expected the source of information to help, those who expected the source to attempt to harm them (i) showed a stronger inclination not to respond with a decision and (ii) were more accurate in their decisions, especially when using the reject response. Experiment 2 extended these findings by revealing that participants were more willing to take the advice of people after recounting an experience of distrust, but were more inclined to discount the advice of others after recounting an experience of trust. Taken together, our findings highlight the value of distrust to decision quality.

*Keywords:* trust; distrust; suspicion; decision quality; decision response

Quite a while ago Homer stated, "Hateful to me as the gates of Hades is that man who hides one thing in his heart and speaks another." Attesting to the significance of distrust, studies show that people distinguish between trustworthy and untrustworthy faces following a very brief exposure (e.g., less than 50 ms; Todorov, Pakrashi, & Oosterhof, 2009). This may not be surprising when we remember that the presence of trust or the absence of distrust are critical ingredients for successful interactions among partners (Huemer, 2004; Kramer, 1999; Yamagishi, Cook, & Watabe, 1998). But should one always prefer a trustworthy partner to an untrustworthy one? Can the knowledge that one's interaction partner is potentially deceitful improve one's decision making?

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We consider trust a psychological state in which people are willing to give up control and accept vulnerability (Mayer, Davis, & Schoorman, 1995; Rousseau, Sitkin, Burt, & Camerer, 1998). Trust is triggered when one feels that specific others are “safe”—in the sense of being dependable, having no malevolent motivation, and being able to assist (Colquitt, Scott, & LePine, 2007; Kim, Dirks, Cooper, & Ferrin, 2006). In this regard, a state of trust (distrust) may resemble the more general positive (negative) mood states. According to Schwarz (2012), people often draw on their moods as a cue for the situation they are in: Good moods signal a benign situation, whereas bad moods signal a problematic situation. Moreover, because thought processes are tuned to meet the challenges of the situation, being in good versus bad mood states can lead to different processing strategies (Schwarz, 2012). Indeed, to complete the analogy, our past research (Schul, Mayo, & Burnstein, 2004, 2008; Schul, Mayo, Burnstein, & Yahalom, 2007) suggests that, like mood states, trust/distrust can shape the kind of processing strategies people utilize based on the challenges and opportunities in the situations that trigger them.

One may take a stockbroker’s advice, accept/refuse an offer for a ride from a stranger after a party, or reveal/conceal a secret to/from a friend. These examples, as well as theoretical discussions of trust/distrust (e.g., Kim et al., 2006; Twyman, Harvey, & Harries, 2008), highlight two aspects of trust. The first reflects the competence of the trusted person. Most people would be reluctant to take advice from an incompetent stockbroker, or trust a potentially drunk driver on the road. Here, trust refers to an expectation that the trusted other will succeed in accomplishing the task with which he or she has been entrusted. Competence might serve as a proxy for the certainty with which one predicts the accomplishment of the anticipated outcome, with high competence being associated with more certainty than low competence.

But the high-/low-certainty distinction cannot replace the trust/distrust distinction, because the quality of feeling (uncertainty vs. distrust) depends on people’s perceptions of how the uncertainty has been created. Schul et al. (2007) compared uncertainty that was attributed to chance with uncertainty that was attributed to attempts at deception. Although the two types of uncertainty were equal in magnitude, participants treated them differently. Participants were more inclined to apply a statistical prediction strategy (Einhorn, 1986) to uncertainty associated with chance, and a clinical prediction strategy to uncertainty associated with deception (see also Blount, 1995). Indeed, according to most theoretical conceptualizations, trust reflects an alignment of motivations of the person who trusts and the one who is trusted. Those who trust assume the trusted person has their well-being in mind. Mayer et al. (1995) have termed this aspect of trust “benevolence.” Accordingly, one should not trust a highly competent stockbroker who wants to promote the interest of her company (possibly at your expense). Our research capitalized on this characteristic to elicit trust versus distrust.

The research described below broadens in two directions the questions past research has investigated. In Experiment 1, decision makers were asked a series of questions and informed that another person selected the questions for them. The

selector was described as having either benevolent intentions (trust) or malevolent intentions (distrust). Experiment 1 explores whether the response tendencies and the quality of decision making differs as a function of the motivation attributed to the question selector. Note that the manipulation of distrust in Experiment 1 is similar in many respects to the natural way distrust is triggered. That is, decision makers often distrust a particular person after learning something about her motivations or competence. Accordingly, those who distrust are well aware of the situation, so they can tailor their decision-making strategies accordingly. We term this form of distrust *focused*.

In Experiment 2, we explore what happens when distrust is triggered indirectly. Specifically, distrust (or trust) was made more accessible when participants recounted past experiences of distrust (trust). Indirect activation of distrust is incidental to the decision-making task, and therefore the state of mind of distrust is termed *diffuse*. Experiment 2 discusses differences between focused and diffuse distrust, and investigates how diffuse states of distrust or trust influence participants' willingness to take the advice of others.

## EXPERIMENT 1

Experiment 1 explores how the knowledge that one interacts with a trusted or distrusted person influences decision-making processes. Specifically, we exposed each participant to a series of questions that another person selected, and manipulated the motivation of the selector (see the task description, below) to create the impression that the selector was seeking to help or harm the participants' performance. We assume the benevolent motivation is associated with a state of mind of trust, whereas the malevolent motivation is associated with distrust. We examine how knowledge about the selector's motivation influences the response tendencies of decision makers and the quality of their decisions. Of course, the difficulty of the decisions might also influence both the response tendencies and the quality of the decisions. Therefore, we use a norming study to scale the difficulty, and use it as a factor in the design. Next, we describe the experimental task in detail in order to discuss how the motivations attributed to the question selector might influence the decision-making process in our experimental paradigm.

### THE QUESTION-AND-ANSWER PARADIGM

Assume one is given 15 song titles and is informed that a number of these songs have won the Eurovision song contest. The decision maker (DM) is asked to indicate for each song whether it won the contest. The DM also has the option of not responding. Compare the following three scenarios: In one, the DM is told the songs were randomly sampled from a larger pool of songs. We refer to this condition as *chance* and it serves as our baseline condition for an uncertainty that

is not associated with human intentions. In a second scenario, the DM is informed that someone who profits whenever the DM makes a correct response selected the songs. Because the selector's interests are aligned with the DM's interests, the DM can reasonably assume the selector has his or her interests in mind. We therefore refer to this condition as *help* and consider it a trigger of trust.<sup>1</sup>

In a third scenario, the DM is told that someone who profits whenever the DM makes an erroneous response selected the songs. Now, the interests of the selector are opposite those of the DM. Thus, the DM might reason that the selector is likely to attempt to confuse her in order to maximize his own profit. We refer to this condition as *harm* and consider it a trigger of distrust. Our main interest is the comparison between the two types of motivated uncertainty: motivation to help (trust) and motivation to harm (distrust). The question is whether knowing how the songs were selected influences how the DM answers the questions.

### THE INFLUENCE OF TRUST/DISTRUST ON RESPONSE TENDENCIES

By definition, a trusting person is willing to become vulnerable—to take a risk with the person being trusted. By contrast, distrust is associated with a perception of malevolent intentions, which is likely to increase the protagonist's level of caution. Therefore, caution under distrust might be contrasted with the willingness to take risks that trust triggers. Research on behaviors in work organizations, for example, shows that when people trust a colleague, they are likely to delegate important tasks to her, refrain from monitoring her, and lower their safeguards in interacting with her (see a meta-analytic review in Colquitt et al., 2007).

Our study investigated a more distal aspect of risk taking—decision makers' willingness to commit to a decision, as opposed to refrain from deciding. We assume that compared to cases in which the selection of the particular alternatives was unmotivated (the chance condition), when a benevolent selector chooses the alternatives, decision makers expect them to be easier, and when a malevolent selector chooses the alternatives, decision makers expect them to be more confusing or difficult. Consequently, we hypothesize (H1a) that the DM will be less likely to refrain from responding in the help condition than in the harm condition. Naturally, the reluctance to commit to a decision also depends on the difficulty of the alternative in question. By definition, easy alternatives elicit mostly accept/reject decisions, whereas the difficult alternatives tend to trigger a feeling of "don't know" and a tendency to refrain from responding, giving more opportunity to variation in the tendency to refrain from responding. Accordingly, we hypothesize (H1b) that the differences between the help and the harm conditions will come into play more strongly in decisions involving the more difficult questions.

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1. Yamagishi and Yamagishi (1994) proposed that whether the alignment of motivations results from the trustee's internal or external inducements matters. They termed the former trust and the latter assurance. The predictions we make are invariant to this distinction.

## THE INFLUENCE OF TRUST/DISTRUST ON DECISION ACCURACY

Past research investigated the influence of trust on job-related performances such as the fulfillment of job-related duties, willingness to help others, conscientiousness, and citizenship. The general finding in this research has been that relative to distrust, trust improves work-related performance (see reviews in Colquitt et al., 2007; Kramer, 1999). This finding is consistent with the suggestion that the quality of on-the-job performance increases when workers' willingness to contribute to the organization or to their fellow workers increases, which happens in conditions of trust. But what happens in situations similar to the question-and-answer paradigm, where performance is not cooperative, namely, the decision makers make their decisions individually?

Decisions can be executed more or less effortlessly, meaning the DM can provide a quick response based on heuristic cues or a more thoughtful response based on attempts to find content-relevant information (Kruglanski & Thompson, 1999). Schul, Mayo, and Burnstein (2008) suggested that trust triggers reliance on routine cognitive strategies and flimsy initial response tendencies, and conversely, distrust frees one from this inclination. To illustrate, Mayo, Alfasi, and Schwarz (2014) recently showed that people who trust tend to use positive hypothesis-testing strategies, which lead them to accept many false hypotheses; by contrast, those who distrust tend to use negative hypothesis testing, allowing falsification of their initial hypotheses.

The tendency to adopt the immediate response is useful when one operates in simple environments, where nothing is surprising. However, in complex environments, such as the question-and-answer paradigm, where initial response tendencies are often wrong, thinking with more divergence and resisting immediate response inclinations are advantageous. Accordingly, we hypothesize (H2) that decision makers will be more accurate in their responses when they believe they cannot trust the person who has chosen the answers (harm condition) than when they believe they can trust the chooser (help condition), especially when dealing with difficult questions.

## METHOD

*Participants.* Ninety students participated in the experiment. They were allocated randomly to the three selection conditions. We eliminated the data of four participants from the analyses, one because of technical failure, and the other three because their pattern of responses indicated they had not considered the content of the alternatives when answering; that is, they consistently rejected or accepted the alternatives. Twenty additional respondents participated in a norming study (see below).

*Procedure.* All the participants started with the same procedure and instructions. In two practice rounds, we presented them with a question (e.g., "Which of the following songs won the Eurovision contest?") accompanied by 20 concealed answers. The answers appeared in veiled windows on the computer screen. We in-

formed the participants that 10 of the answers were veridical (i.e., a title of a song that had won the contest) and 10 were false. Participants had to select 15 of the 20 veiled windows. We noted that after the selection, the proportion of veridical alternatives could range from .33 to .66. Participants made their selections by clicking on 15 of the 20 veiled windows.

Immediately after the selection phase, the screen was redrawn to display only the selected alternatives, each in a veiled window. Using the computer mouse, participants pointed to each of the windows to unveil its content. Then they were able to indicate *acceptance* (marking “✓” to signify the alternative was a veridical answer), *rejection* (marking “x” to denote the alternative was a false answer), or refrain from marking it and move to another veiled window. Participants could view each window as many times as they wanted and modify their response to each alternative any time they wished. Participants had two practice questions (each with 15 alternatives) to familiarize them with the procedure, the type of answers, and the mode of response.

We introduced the experimental manipulation prior to the third question. We informed participants in the *chance* condition that the familiarization phase was over and the experimental phase was now beginning. We told them that at the end of the experiment, one of the eight questions they were about to see would be selected at random, and they would receive a monetary bonus based on their performance. Specifically, based on their responses to this question, the bonus would increase by one Israeli Shekel (about U.S. \$0.25) for each correct response (i.e., accepting a veridical answer or rejecting a false answer) and decrease by one Israeli Shekel for each incorrect response (i.e., accepting a false answer or rejecting a veridical alternative). A non-response was associated with no gain or loss.

Participants in the *harm* condition were also informed that the familiarization phase was over and the experimental phase involved eight questions, each of which had 15 alternatives. Importantly, we also told them that, unlike in the familiarization phase, another person had selected the 15 alternatives for each of the questions. At this point, we informed the participants about the bonus system. In addition to learning about their own personal bonus, which was identical to that in the chance condition, they learned that the other person, who had selected the alternative answers for them, would receive a bonus each time the participant made an *incorrect* response. Thus, the other had an intention to harm their performance.

To make the selection procedure concrete, we asked participants to role-play the task of the selector. Specifically, the participants received four questions, different from those used in the experiment, each with 20 alternative answers (10 veridical and 10 false). We informed them which of the answers were veridical and which were false. They had to choose 15 answers to *maximize the number of mistakes* another person, who would receive these answers, would make.

Participants in the *help* condition received similar instructions to those in the harm condition, except for one significant change. They were informed that the person who had selected the alternatives wanted them to succeed (rather than fail) because the bonus he or she would receive depended on the number of *cor-*

*rect* responses the participant made. These participants also received four practice questions. For each question, we instructed them to select a subset of 15 answers to *maximize the number of correct responses* another person would make.

Then all participants received the eight experimental questions. Those in the *chance* condition selected 15 veiled windows out of 20, whereas those in the *harm* or *help* conditions saw the 15 veiled windows that had been selected for them. In fact, however, all participants saw the same alternatives, regardless of what they or someone else had selected. Thus, the variation between the three conditions in Experiment 1 was unrelated to the actual ease or difficulty of the answers. As in the familiarization phase, the participants could view each alternative answer as many times as they wanted, and could accept it, reject it, or refrain from responding.

*Stimuli.* We used the following questions in the experimental phase: Which of the following is/was (1) a 20th-century invention, (2) a god or goddess in mythology, (3) a government minister, (4) an Israeli film, (5) a proper word in Hebrew, (6) Miss Israel (in a beauty contest), (7) a flower, and (8) a biblical hero? Each of the questions was associated with either seven or eight false answers and the complementary number of veridical ones.

*Post-Experimental Reactions.* After responding to the eight experimental questions, and before receiving feedback about their bonus, participants rated their experience during the experiment using seven 10-point scales (pleasant, stressful, interesting, confusing, challenging, annoying, and thought-stimulating). We averaged participants' responses to the questions about stress, confusion, and annoyance (Cronbach's  $\alpha = .72$ ) to yield an index of negative affect. Similarly, we averaged the ratings of interest, challenge, and stimulation to a second index ( $\alpha = .78$ ). We found no evidence of differences in the negative affect or the sense of challenge as a function of the experimental condition (help vs. harm vs. chance).

*The Norming Study.* We carried out the norming study ( $N = 20$ ) to assess the difficulty of the alternatives participants saw. It was identical to the chance condition in Experiment 1, except that instead of selecting 15 veiled alternatives, each participant selected 18 (out of 20) alternatives. For each of the 120 alternatives used in Experiment 1 (8 questions \* 15 alternatives each), we computed the no-response rate based on participants in the norming study. We consider this rate to be a marker of the subjective difficulty of the alternatives. That is, we assume alternatives characterized by a high probability of no-response are more subjectively difficult than those with a low probability. To facilitate the interpretation of the effects of difficulty, we divided the alternatives into three categories—easy, moderate, and difficult—on the basis of their percentile difficulty scores.

## RESULTS

*Likelihood of Refraining from Responding.* Our first hypothesis concerned how the rate of no response changes as a function of the motivation attributed to the chooser. We examine whether respondents are more likely to refrain from responding in the harm condition than in the help condition (H1a), and whether this effect is more likely to come into play when the items are difficult (H1b). We analyzed

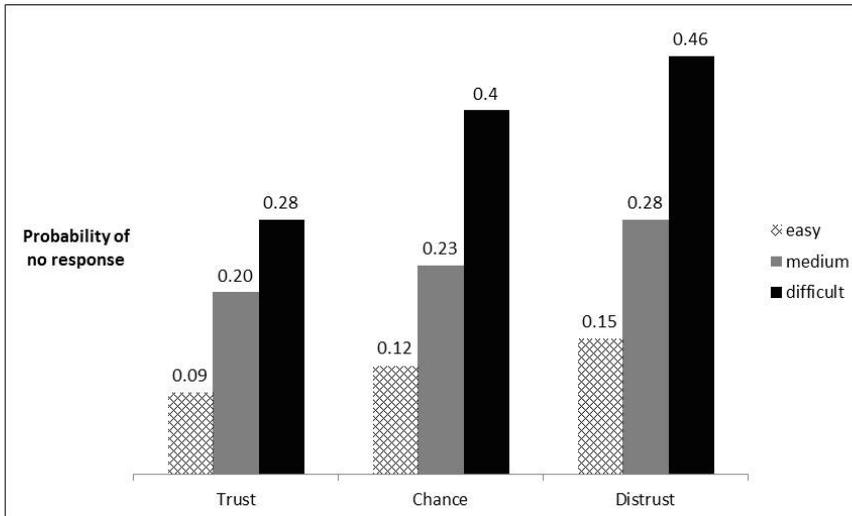


FIGURE 1. Rate of no response as a function of the type of uncertainty and alternative difficulty (Experiment 1).

participants' responses in two different statistical procedures: a participant-level ANOVA and a mixed-model log-linear regression. Whereas the former is more intuitive because it directly compares the no-response rate of participants in the three experimental conditions, the latter is more appropriate statistically because it considers the variability of items and respondents simultaneously (Judd, Westfall, & Kenny, 2012).

Each participant made 120 responses (8 experimental questions, each of which was associated with 15 alternatives). For each participant, we computed the no-response rate in each level of question difficulty. Figure 1 presents the mean rates as a function of the difficulty and the uncertainty condition. A two-way mixed-model ANOVA, with uncertainty condition (chance, help, and harm) as a between-participants factor, and difficulty (low, medium, and high) as a repeated-measures factor, was performed on these rates.

The main effect of uncertainty was not significant,  $F(2, 83) = 2.03, p = .14, \eta_p = .21$ . Still, the planned contrast comparing the conditions of help and harm (H1a) revealed participants in the help condition used the no-response option significantly less often than participants in the harm condition (.19 vs. .30),  $t(83) = 2.01, p < .05, d = .44$ . The rate of no response in the chance condition was in between (.25).

Of particular interest is the uncertainty-by-difficulty interaction, which tests whether the tendency to refrain from responding is equally influenced by difficulty in the three uncertainty conditions. *A priori* we expect that when people know the answer (easy alternatives), the no-response rate will be similarly low in the three uncertainty conditions. The effect of uncertainty is more likely to show when the alternatives are more difficult (H1b). The significant interaction,  $F(4, 166) = 3.16, p < .05, \eta_p = .27$ , suggests this was indeed the case. The three conditions gave rise to similar levels of no response when the alternatives were easy,  $F(2, 83) = 1.60, p = .21, \eta_p = .19$ , or moderately difficult,  $F(2, 83) = 0.84, p = .43, \eta_p = .14$ ; however, there

was a significant variation in the rate of no response when the alternatives were difficult,  $F(2, 83) = 3.27, p < .05, \eta_p = .27$  (see Figure 1). In this case, the no-response rates in the harm and help conditions were significantly different from each other,  $t(83) = 2.53, p < .01, d = .55$ . Thus, when decision makers were relatively ignorant (i.e., when the questions were difficult), those who distrusted (harm condition) admitted their ignorance by not responding; by contrast, those who trusted (help condition) were much more likely to provide an accept/reject response (we return to the issue of accuracy below). We could not reject the null hypothesis that the participants in the chance condition were similar to those in the harm condition,  $t(83) = -.092, p = .36, d = .02$ .

The results of the mixed-model logistic regression led to a similar pattern of conclusions. Each of the 120 responses a participant made was coded as 1 (no response) or 0 (the item was either accepted or rejected). This 0/1 variable was predicted from the two fixed factors (condition and item difficulty) and their interaction. The logistic regression included two sources of random error: variation due to participants and variation due to items. We performed the regression with the generalized linear model with maximum likelihood procedure (glmer) in the *R* package.<sup>2</sup> The overall effect of the uncertainty condition (chance, help, harm) was marginally significant,  $\chi^2(1) = 5.45, p = .06$ . However, the planned contrast comparing the rate of no response of those who could trust (help condition) with those who distrusted the person who selected the items (harm condition) was highly significant,  $z = 2.34, p < .01$ . As expected, the rate of no response was strongly dependent on the difficulty of the item,  $\chi^2(1) = 105.88, p < .01$ . Moreover, in line with the participant-level analysis, the uncertainty condition and item difficulty interacted,  $\chi^2(1) = 10.14, p = .04$ . Contrast analyses supported the suggestion that the interaction component involving the rates of non-response in the case of moderate versus high difficulty items in the help and in the harm conditions was a key player in the condition-by-difficulty interaction,  $z = 3.01, p < .01$ .

*Decision Accuracy.* Figure 2 presents the rates of acceptance and rejection for veridical and false alternatives. Consider first the panel of accept responses, and compare the likelihood of acceptance of veridical and false alternatives. In each of the uncertainty conditions, participants were more likely to accept the veridical than the false alternatives, suggesting the accuracy of accept decisions was better than that expected by chance. Analogously, consider the reject decisions. As with acceptance, the veridicality of the alternative influenced the likelihood of rejection, with participants being more likely to reject the false alternatives than the veridical alternatives. Finally, we note that the largest discrepancy between the veridical and false alternatives (i.e., the highest accuracy) is with rejection responses made by participants who attribute the uncertainty to someone with malevolent intentions (i.e., the harm condition).

The abovementioned description points to an asymmetry between the accuracy associated with accept and reject responses. Accept responses were equally accurate in the three uncertainty conditions, whereas reject responses were more accurate in the harm condition. The question is whether this pattern is statistically

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2. We thank Alex Fine for his assistance with performing this analysis.

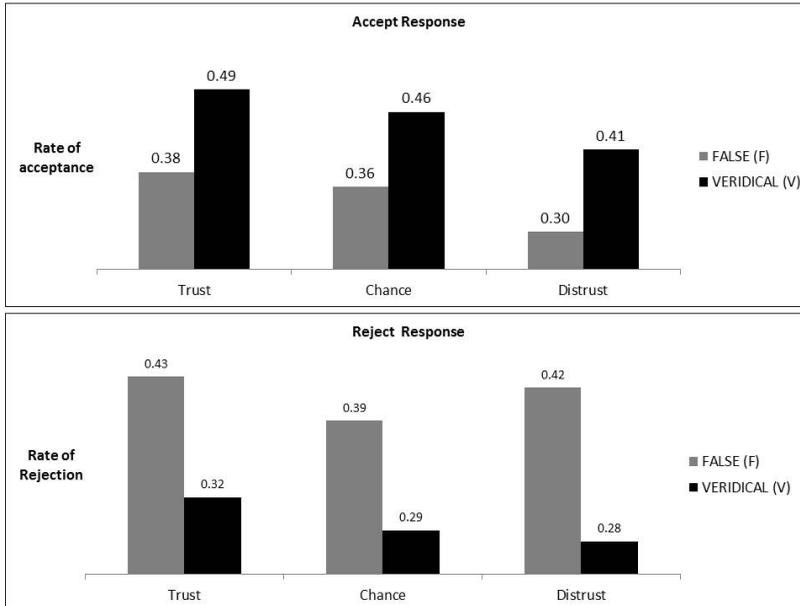


FIGURE 2. Rate of acceptance and rejection decisions as a function of the type of uncertainty and the alternative's veridicality (Experiment 1).

significant. To test this pattern statistically, we computed for each participant two correctness indices based on the differences between the F (false alternatives) and V (veridical alternatives) bars in Figure 2. We created these indices separately in each level of alternative difficulty. Let us define *rejection sensitivity* as the probability of correctly rejecting a false alternative minus the probability of wrongly rejecting a veridical alternative. Similarly, we define *acceptance sensitivity* as the probability of correctly accepting a veridical alternative minus the probability of wrongly accepting a false alternative. Note that because sensitivity is computed within type of response, it is orthogonal to response biases.

We performed a three-way mixed-model ANOVA on the sensitivity scores, with uncertainty condition as a between-participants factor, and difficulty (low, medium, high) and type of sensitivity (acceptance vs. rejection) as repeated-measures factors. The analysis revealed an interaction between the type of uncertainty and the type of sensitivity,  $F(2, 83) = 3.75, p < .05, \eta_p = .29$ . As Figure 2 shows, acceptance sensitivity was similar in the three uncertainty conditions, but rejection sensitivity was more pronounced when participants distrusted the source of the alternatives. In particular, the harm-versus-help component of that interaction was statistically significant,  $F(1, 83) = 5.43, p < .05, \eta_p = .25$ .

The difficulty of the alternatives (based on the norming study) strongly affected the respondents' ability to differentiate between veridical and false alternatives, that is, the response sensitivity,  $F(2, 166) = 110.88, p < .01, \eta_p = .76$ . As might be expected, decision responses were mostly sensitive when the alternatives were easy ( $M = .26$ ), and quite insensitive when the alternatives were moderately difficult ( $M = .04$ ) or highly difficult ( $M = .03$ ). However, the difficulty of the alternatives did not interact with the type of uncertainty, as seen in the nonsignificant two-way

interaction,  $F(4, 166) = 0.53, p = .70, \eta_p = .11$ , or the three-way interaction (type of sensitivity  $\times$  uncertainty  $\times$  difficulty),  $F(4, 166) = 1.75, p = .14, \eta_p = .20$ . Thus, in a nutshell, the sensitivity analysis reveals that rejection responses made by participants who distrusted the information source more successfully differentiated false from veridical alternatives than the responses in the other uncertainty conditions.

## DISCUSSION

Experiment 1 compared how the motivations attributed to a source of uncertainty (help, harm, or no motivation in the chance condition) influenced the decision makers' responses and their decision accuracy. We reasoned that people tend to trust others who intend to help them, and distrust others who plan to harm their performance; accordingly we derived predictions about the decision-making performance. Briefly, trust is associated with safety; the other is seen as a competent person with benevolent motivations. Therefore, trust induces a sense that things are as they seem to be, and accordingly, one can use his or her initial gut reaction, without worrying about attempts to mislead. By contrast, distrust arises in the presence of a need to verify appearances; things may not be what they seem to be, and therefore, one has to be on guard. Therefore, the initial gut reactions cannot be trusted and one has to be cautious. Our findings suggest that compared to the case of trust, when the decision maker distrusted the other (thinking he or she wanted to harm them), (i) decisions were less risky (fewer attempts to volunteer an accept/reject answer), especially when decisions were difficult, and (ii) the accuracy depended on the response format. That is, those who suspected the alternative selector had malevolent intentions showed an increase in decision accuracy when using the reject response. We shall return to this issue in the General Discussion.

Experiment 1 manipulated trust/distrust through the motivations attributed to another person who had control over the participant. That is, the uncertainty was attributed to a chooser with benevolent intentions (an interest in helping) or to a chooser with malevolent intentions (an interest in confusing the decision maker). A significant aspect of this manipulation is that the trust/distrust was highly relevant to the decision-making task. But what happens when the states of trust/distrust are unrelated to the decision-making task? Experiment 2 explores *diffuse* trust and distrust. After describing theoretical differences between focused and diffuse distrust, we discuss whether the diffuse state of distrust might have a different influence on advice taking than the focused state.

## EXPERIMENT 2

The phenomenon whereby one's existing beliefs bias how one uses subsequent information has been well established in social psychology. Research on advice taking, for example, indicates people tend to discount others' advice and favor their own opinion, or even stick to their initial opinion and ignore others completely,

despite the potential benefit of combining additional opinions (Bonaccio & Dalal, 2006; Harvey & Fischer, 1997; Herzog & Hertwig, 2009; Larrick & Soll, 2006; Soll & Larrick, 2009; Yaniv, 2004; Yaniv & Kleinberger, 2000). Our study examines how states of mind associated with trust and distrust influence this robust tendency to discount others' advice.

Research corroborates laypersons' intuition by showing that when decision makers distrust a source of information, they reduce the weight of that source's advice. For example, Cain, Loewenstein, and Moore (2005) manipulated advisors' motives, such that their interests were either in conflict with or matched the decision makers' interests. They found that decision makers, who were aware of the advisor's motives, relied less on the advisor's advice when their interests conflicted. Similarly, Sniezek and Van Swol (2001) found decision makers' tendency to take the advice from others was related to their trust in the advisors. Twyman, Harvey, and Harries (2008) found that distrust in an advisor's motives decreases advice taking, independent of distrust in the advisor's competence. These findings are consistent with the findings in persuasion research about the impact of messages coming from trustworthy and untrustworthy sources. Studies have repeatedly shown that trustworthy sources are more persuasive than untrustworthy sources (Petty & Wegener, 1998; Pornpitakpan, 2004).

The abovementioned research deals with situations of *focused* trust/distrust: Decision makers interact with a specific, trusted (or distrusted) other. In this case, decision makers presumably activate a set of mental procedures that attempt to maximize what they can achieve from the situation. Importantly, in situations involving focused distrust, the decision maker's responses may include impression-management components that are intended to influence the distrusted other. Consider an interview of a person suspected of having intentions of performing illegal acts (e.g., terrorist activity; Vrij & Granhag, 2014). The interviewer is well aware that the suspect would try to hide her real intentions and create an impression that portrays her in the best possible way. Although the interviewer has no foolproof cues to ascertain truth or deception, he tries to pay attention to details, to detect inconsistencies, and to look for nonverbal cues that allow him to distinguish between truth and falsehood (Hartwig & Bond, 2011; Vrij, 2014).<sup>3</sup> Moreover, because the interviewer is aware the suspect reacts to what he is doing during the interview, he often uses techniques that mask his true intentions. Thus, in many cases of focused distrust, the two interaction partners are both senders and receivers of misleading messages.

The case of *diffuse* distrust is different. The particular person with whom one interacts does not elicit the distrust; rather, distrust reflects residual activation that was triggered during performance in an unrelated task (e.g., Schul et al., 2004, 2008). As a result, diffuse distrust activates the same information-processing strategies that come into play when people try to unmask deception, but without the "contamination" of the behaviors associated with trying to mislead the distrusted

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3. We are not concerned with the accuracy of detection, but with the strategies people use in trying to separate truth from falsehoods.

other or to directly cope with the other's attempts to mislead. What, then, are the differences between the features of information processing under focused and diffuse distrust?

Research suggests people in a state of mind associated with focused trust focus on the information at hand and on their immediate response to it, whereas those in a state of mind associated with diffuse distrust tend to be free from relying on their immediate response and process a wider scope of information. The latter can be deduced from a variety of positive consequences that diffuse distrust has on decision making. Briefly, studies show that diffuse distrust reduces the halo effect (Schul, Burnstein, & Bardi, 1996), weakens influence of inadmissible information (Fein, McCloskey, & Tomlinson, 1997), increases creativity (Mayer & Mussweiler, 2011), reduces stereotyping (Posten & Mussweiler, 2013), reduces the tendency to persevere with the initial gut reaction (Schul et al., 2008), and facilitates detection of deception (Miller, Mongeau, & Sleight, 1986). Accordingly, unlike the case of a focused distrust, which leads to advice discounting, we hypothesize that diffuse distrust leads to a greater willingness to take another person's advice (H2), because diffuse distrust (i) leads to decreased reliance on one's initial gut reactions and (ii) is not associated with attempts to protect oneself from the specific person who provides the advice. Experiment 2 explores this hypothesis using the jars-estimation task.

## METHOD

*Procedure.* The *jars-estimation task* began by informing participants that they were about to view pictures of glass jars filled with coins, and their task was to estimate the total worth of the coins in the jar. We further informed participants that after making their initial estimate, they would receive advice about the total worth of the coins in the jar and would be asked to make their final estimate (see Yaniv, Choshen-Hillel, & Milyavsky, 2009, for the advice-giving procedure). Participants were told that at the end of the experiment, one of the jars they were about to see would be randomly selected and they would receive a bonus payment according to the accuracy of their estimation in this trial. After answering a short quiz designed to ensure participants understood the instructions, they began the jar-estimation task.

The task included two phases, each of which had two rounds. In Round 1 of the first phase, participants were shown pictures of five jars, one at a time. We asked the participants to type in their best estimate of the amount of money in the jar. After making the five initial estimates, participants were instructed to complete a three-minute writing task asking them to describe in detail the way from their home to university. After the three minutes were up, Round 2 of the estimation started. In this round, participants were presented with the same set of pictures of the five jars from Round 1, along with the participant's initial estimate and an advisory estimate. Unbeknownst to the participants, the advisory estimate was always the correct value of the coins in the jar. Participants were told that a computer had randomly drawn the advisory estimate from a large pool of estimates that other participants in an earlier experiment had made. Each advisory estimate

was attributed to a different past participant. After viewing the advisory estimate, the participants were asked to give a final estimate of the value of the coins in the jar and to rate their confidence in the estimate on a 9-point scale.

After completing Round 2 of Phase 1, participants were told that Phase 1 was a practice phase intended to familiarize them with the task, and that the estimation procedure of the experiment proper would be the same, involving new jars. In Round 1 of Phase 2, participants provided initial estimates for each of the 12 jars. Then, as in Phase 1, between Round 1 and Round 2, we gave them a writing task. However, the writing task this time was actually the *diffuse trust/distrust* manipulation (see below). After completing the writing task, participants performed the Round 2 estimations. As in Phase 1, in each trial, they were shown a picture of a jar, their Round 1 estimate, and an advisory estimate. They gave their final estimate and rated their confidence in it. Finally, participants were interviewed, thanked, and paid according to their results.

*Manipulations of Diffuse Trust/Distrust.* We asked participants to describe in writing an experience they had in which they could (could not) trust someone. The instructions were as follows (free translation from Hebrew; changes in the distrust condition appear in square brackets): "This part is about experiences people have while interacting with a person they trust [distrust]. In the next several minutes, you are asked to try and recount an experience that has happened in the last year, during which you felt you could [could not] trust another person, and believed his behavior was intended to promote your own benefit [and suspected his behavior was intended to promote his own benefit]. In the following lines, try to describe the experience (e.g., background, course of events), and the thoughts and feelings this experience had aroused."

*Stimuli Construction.* Participants saw 17 pictures of jars: 5 in the first phase and 12 in the second. The value of the money in the jars ranged from 20 to 80 Israeli Shekels (mean value: 38.8 in the first phase and 49.67 in the second).

*Post-Experimental Questionnaire.* Following Round 2 of Phase 2, the participants received a questionnaire asking them about their experiences during the task. One set of questions inquired about their perception of the usefulness of the advice. They were asked whether the advice was helpful, whether the advisors were trying to help, and whether they would rely on the advice of others in a similar task. They answered these questions on 5-point scales, with higher numbers corresponding to greater reliance/more helpfulness. A second set of questions inquired about the participants' feelings during the time they described their trust/distrust experience. Specifically, they rated their anger, regret, distrust, doubt, and fear on 5-point scales, ranging from *not at all* (1) to *very much* (5). Finally, they rated the extent to which they would trust the person they described in their story in future interactions (1 = *distrust very much*, 5 = *trust very much*).

*Participants.* Sixty students at the Hebrew University participated in the experiment: 30 in the diffuse-distrust condition and 30 in the diffuse-trust condition. Participants received a flat fee (15 ILS) or extra credit for their participation. In addition, at the end of the experiment, one of the jars was randomly selected to serve as the "bonus" jar, and the participant received an additional payment according to his or her accuracy in estimating the worth of the coins in this jar. The bonus

ranged from 0 Israeli Shekels (ILS; for estimation more than 10 ILS away from the actual value of the coins in the jar) to 10 ILS (for estimation less than 1 ILS away from the actual value of the coins in the jar).

## RESULTS

*Post-Experimental Ratings.* Participants rated their feelings at the time they recounted the experience associated with distrust or trust (which instantiated the diffuse distrust/trust manipulation). Reporting an experience of distrust (vs. trust) was associated with more anger (3.03 vs. 1.45), more regret (2.17 vs. 1.45), and more distrust (2.60 vs. 1.41),  $F(1, 58)s > 7.31, p < .01$ . However, the reflection on distrust versus trust was not accompanied by a statistically significant variation in doubt (2.43 vs. 2.03) or fear (1.40 vs. 1.40),  $F(1, 58)s < 1.48$ . Also, in line with the manipulation, participants in the distrust condition indicated they would distrust the person in their story ( $M = 2.13$ ), and those in the trust condition indicated they would trust that person ( $M = 4.70$ ),  $F(1, 58) = 137.22, p < .01, \eta_p = .83$ .

The manipulation of diffuse distrust or trust had no effect on participants' perceptions of the usefulness of the advice they received or the advisors who provided them,  $F < 1$ . Still, in line with our hypothesis, those participants who recounted an experience of distrust professed more willingness to rely on advice in similar tasks compared to those describing an experience of trust, 2.86 vs. 2.28,  $F(1, 54) = 4.10, p < .05, \eta_p = .27$ .<sup>4</sup>

*Advice Weighting.* For each participant, we computed the weight of the advice (WOA) according to Equation 1 (Bonaccio & Dalal, 2006; Yaniv, 2004). We computed WOA separately in the two phases (i.e., before and after the manipulation).

$$(1) \quad \text{WOA} = \frac{\text{Final}_{\text{estimate}} - \text{Initial}_{\text{estimate}}}{\text{Advice} - \text{Initial}_{\text{estimate}}}$$

We start by analyzing WOA in Phase 1. Our participants' final estimates showed egocentric discounting. Specifically, the average WOA in Phase 1 was 0.25, which is, on the one hand, greater than zero,  $t(58) = 8.97, p < .01, d = 2.36$ , and, on the other hand, less than 0.5,  $t(58) = 9.06, p < .01, d = 2.38$ . Note that because the advice was always the correct amount of money in the jar, participants' final estimates were significantly more accurate than their initial estimates, although not as accurate as they could have been had the participants given them a weight equal to their initial estimates.

*Weighting the Advice as a Function of Diffuse Distrust or Trust.* Each participant provided sets of estimates in Phase 1 and Phase 2. The Phase 1 estimates were given prior to the trust/distrust manipulation, and therefore they can be used as a baseline for the participant's tendency to take advice. We are concerned with the change in the weight of the advice in Phase 2, following the trust/distrust manipulation. We hypothesize that diffuse distrust allows people more freedom from their

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4. Four participants failed to complete this measure.

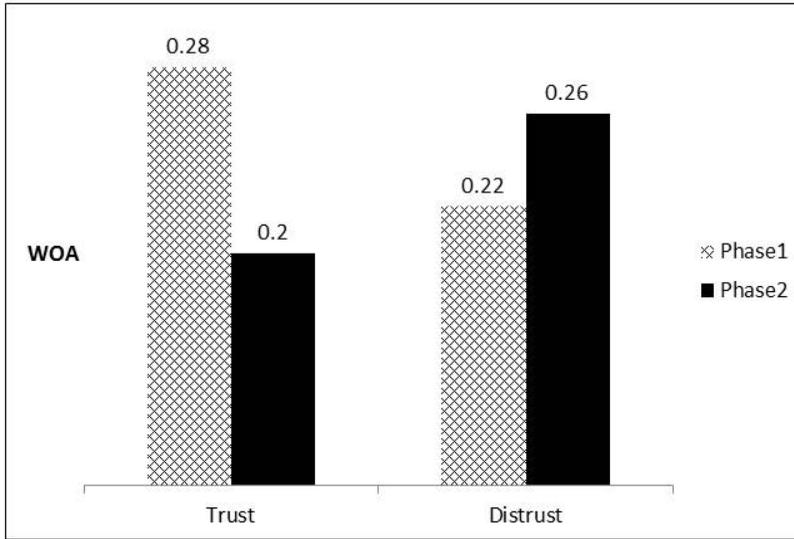


FIGURE 3. Weight of advice (WOA) as a function of experimental condition and phase (Experiment 2).

Note. The distrust vs. trust manipulation was instantiated after Phase 1.

immediate response inclination, meaning, in the present experiment, the weight of the advice (WOA) should increase more (relative to the Round 1 baseline) in distrust compared to trust. In non-technical terms, we expected that respondents' reliance on the advice would increase more in the distrust condition compared to the trust condition. Figure 3 displays the mean WOA in the two conditions.

We carried out a two-way mixed-model ANOVA, with distrust versus trust as a between-participants factor and phase as a repeated-measures factor, on the WOA scores. We hypothesize that participants who experience diffuse distrust will show a greater increase in the utilization of the advice compared to participants who experience diffuse trust. We test the hypothesis by the interaction contrast, which compares the WOA prior to the manipulation (i.e., in Phase 1) to the WOA after the manipulation (i.e., Phase 2) in distrust and trust. We note, first, that the two conditions are not significantly different from each other in Phase 1,  $F(1, 58) = 1.39$ ,  $p = .24$ ,  $\eta_p = .15$ . We expected this similarity because the trust/distrust manipulation occurred only after Phase 1 was over. Participants' reliance on the advice increased (Phase 2 – Phase 1) following the induction of distrust ( $M = .06$ ), and decreased following the induction of trust ( $M = -.08$ ). The two change patterns are significantly different from each other, as indicated by a significant interaction,  $F(1, 58) = 5.15$ ,  $p < .05$ ,  $\eta_p = .29$ .<sup>5</sup>

Finally, participants' confidence in the final estimate was correlated with the weight of the advice of that estimate. That is, we found that higher confidence

5. We also analyzed the WOA in Phase 2 in an analysis of covariance, with distrust/trust condition as a between-participants factor and Phase 1 WOA as a covariate. The analysis revealed the size of WOAs in Phase 1 and Phase 2 were strongly associated,  $F(1, 57) = 12.48$ ,  $p < .01$ ,  $\eta_p = .42$ . Still, the condition effect was statistically significant,  $F(1, 57) = 3.88$ ,  $p = .05$ ,  $\eta_p = .25$ . The adjusted mean WOA under distrust ( $M = .27$ ) was higher than the corresponding mean under trust (.19).

was associated with lower WOA. Specifically, for each participant, we computed the confidence-WOA correlation, based on the responses to 12 jars in Phase 2. The average within-participant correlation was  $-.23$ , which was significantly different from zero,  $t(53) = 4.68$ ,  $p < .01$ ,  $d = 1.28$ .<sup>6</sup> We found no evidence that the confidence-WOA correlation differed as a function of the distrust/trust condition,  $F(1, 53) = .11$ ,  $p = .74$ ,  $\eta_p = .05$ .

## DISCUSSION

Experiment 2 provided support for the counterintuitive prediction that participants who reflected on an experience of distrust relied on advice more than those who recollected an experience of trust. Interestingly, not only did the distrust/trust manipulation affect the magnitude of the WOA; it also affected participants' direct ratings of their willingness to rely on advice in the future. Our theoretical analysis suggests distrust can influence advice taking in two opposite ways. When the distrust is focused on the source of the advice (focused distrust), people discount the source and the corresponding advice. However, if the distrust exists as a state of mind that is not attached to the source of the advice (diffuse distrust), it allows more freedom from immediate judgments that one makes upon observing a stimulus. In this sense, perhaps paradoxically, diffuse distrust is a useful state of mind for increasing the quality of decision-making performance.

## SUMMARY AND CONCLUSIONS

### THE INFLUENCES OF MOTIVATED UNCERTAINTY

Our study highlights different ways that distrust can influence decision-making processes under uncertainty. Experiment 1 compared decision makers' behaviors when uncertainty was attributed to benevolent versus malevolent sources. We found that compared to those who expected the source of information to help, those who expected the source to attempt to harm them (i) showed a stronger inclination not to respond with a decision (i.e., accept or reject), especially when the decisions were difficult, and (ii) were more accurate in their decisions, especially when using the reject response. Experiment 2 extended these findings by revealing that participants were more willing to take advice from other people after recounting an experience of distrust, but tended to discount advice after recounting an experience of trust.

We proposed a distinction between two types of actions that people who distrust carry out: unmasking the other and masking the self. On the one hand, when a threat of deception or misrepresentation exists, recipients of information attempt

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6. Five participants had no variation in their confidence ratings; therefore, we could not compute their confidence-WOA correlations. Analysis of the Fisher  $z$ -transformed correlations produced an identical pattern of results.

to find out whether the information the distrusted source conveys is veridical or false. The large literature on detection of deception documents the variety of cues people can and do use to unmask deception (e.g., Bond & DePaulo, 2006; DePaulo et al., 2003; Driskell, Salas, & Driskell, 2012; Ekman, & O'Sullivan, 1991; Granhag & Hartwig, 2008). At the same time, however, in coping with a distrusted other, the interrogator often becomes the deceiver in an attempt to mask her thoughts while trying not to allow the distrusted other to catch on to her interrogation strategy.

The two components of distrust—unmasking the other's deception and masking one's own behavior—may affect information-processing strategies in opposite ways. Therefore, we designed experimental situations in which the behavior of people who distrust could not affect the distrusted other. In the pure case of diffuse distrust, the experience of distrust is not linked to the task one currently performs (e.g., Experiment 2); therefore, the decision maker does not interact with a specific distrusted other and does not need to mask his or her own behavior or to react overtly to misleading information. Note that even in Experiment 1, where the distrust was linked to a source of information that had malevolent intentions, the "masking" component could not come into play, because the source of information was absent from the situation. Therefore, the information-processing reactions in both experiments reflect patterns of information processing that are generalizations drawn from attempts to unmask deceptions, which are relatively uncontaminated by attempts to mask the decision maker's information-processing strategies.

We propose that people's willingness to volunteer a response when they attribute the uncertainty to a benevolent source (trust) is a generalization of manifestations of risk-taking behaviors observed in in-group settings, such as work environments. Trust in work settings is indicated when workers rely on others, meaning they are willing to lower their defenses, reduce monitoring, and, in general, become dependent on the trustworthy others. Our findings indicate trust in others translates to trust in oneself. That is, even if one is not interacting directly with another person, one acts with less caution when processing information from a trustworthy source than when the information is attributed to a distrusted source with malevolent intentions. In Experiment 1, this is indicated by the willingness to make an accept/reject response in the help condition; in Experiment 2, it is indicated by the stronger discounting of the advice following recollection of an experience of trust.

Both Experiment 1 and 2 show that decisions are more accurate when a distrust (vs. trust) frame of mind is active. We interpreted the findings concerning decision accuracy in light of the action potentials associated with distrust and rejection. We proposed that, unlike trust and acceptance, which are associated with union or coupling, distrust and rejection are associated with opposition, distancing, and alarm. This suggestion is consistent with the suggestion of Alia-Klien et al. (2007), who proposed that unlike the word "yes," which is positively valenced, the word "no" produces negatively valenced associations and is linked to the behavioral-inhibition system. It follows that under distrust, and while preparing to reject, decision makers allow themselves more doubt, and therefore they raise their criteria

for information sufficiency, which, in turn, leads to an enhancement of decision quality.

## MOTIVATED VERSUS UNMOTIVATED UNCERTAINTY

Our discussion has thus far centered on the trust/distrust contrast. We have said little about the third condition in Experiment 1, which involved uncertainty due to chance. Trust is often considered the default state, and therefore it might be argued that motivationally unassigned uncertainty (e.g., attributed to chance) tends to be interpreted by decision makers as uncertainty in case of trust (e.g., Mayer & Mussweiler, 2011). We doubt the suggestion that trust is ubiquitously the default state. Rather, we believe the presence of trust versus distrust depends on who we interact with. A state of distrust (instantiated as thinking about the threat of deception) is likely to be prevalent when we meet people from an out-group that have much to gain from our exploitation. In the terminology used in this article, encountering potentially malevolent others is likely to trigger distrust (e.g., Cosmides & Tooby, 2005). By contrast, a state of trust prevails when one deals with members from an in-group, when the likelihood of malevolent action is low. Thus, without knowing the context—the relationship between the interaction partners and the assumptions they make about each other—one cannot determine whether trust or distrust is more likely to prevail.

Another aspect of the trust/chance variation is important. Trust has to do with uncertainty associated with another person who happens to have benevolent intentions. Chance has to do with attribution of uncertainty to a nonhuman “device.” Evidence from experiments with Prisoner’s Dilemmas and other coordination games suggests individuals adopt different strategies when playing against a nonhuman agent, such as a computer, than when playing against a person (e.g., Kelley, Thibaut, Radloff, & Munday, 1962; Rabinowitz, Kelley, & Rosenblatt, 1966). Sometimes the difference is intriguingly “irrational.” For instance, in an ultimatum game, individuals often reject an offer from another person, and yet accept the same offer from a computer (Blount, 1995). Indeed, Schul et al. (2007) showed that people are more willing to adopt statistical decision strategies when they attribute uncertainty to chance than when they attribute uncertainty to another person. In short, motivated uncertainty (e.g., trust or distrust) and unmotivated uncertainty (e.g., chance) may be similar and different along different dimensions, and they cannot easily be reduced to one another.

The distinction between motivated and unmotivated uncertainty may also reflect the perception that one is able to cope with the uncertainty. Schul et al. (2007) suggested the two types of uncertainty differ in terms of people’s understanding of how the uncertainty has been generated. Because deception is very common, people are likely to believe not only that they are able to deceive others, but also that they can unmask the other’s attempts at deception. If the uncertainty is nonhuman in origin, however, no comparable experience exists. Therefore, from this perspective, uncertainty due to chance should lead to a stronger feeling of control

deprivation than uncertainty associated with distrust. In turn, this should lead to more accurate information-processing strategies when uncertainty is attributed to chance—a prediction that follows the work of Pittman and D'Agostino (1989). Schul et al. (2007) found some support for this prediction, showing that people were more likely to adopt statistical prediction strategies under chance compared to under the threat of deception. However, the current research did not bear out this prediction, and future research should clarify this issue.

## THE VALUE OF TRUST

Let us end with a cautionary comment. Trust is probably valuable for people's well-being because it signals a supportive environment, as other positive affective states do. Previous research has described the influences of being satisfied with one's current state on cognitive processing (e.g., Clore & Huntsinger, 2007). For example, positive affective states trigger the tendencies to process incoming information more globally (e.g., Fredrickson & Branigan, 2005) and to use schema-based processing (Bodenhausen, Kramer, & Süsser, 1994). Whether these tendencies are useful or harmful, however, depends on the environment in which one is operating. In routine environments, where things are as they are expected to be, schematic processing is both fast and accurate. However, in non-routine environments, where things are unexpected, attention to detail is beneficial. We propose that trust might be beneficial in the former but costly in the latter.

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