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I can take the risk, but you should be safe: Self-other differences in situations involving physical safety

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Abstract

Prior research on self-other differences involving risk have found that individuals make riskier decisions for others than for the self in situations where risk taking is valued. We expand this research by examining whether the direction of self-other differences reverses when risk aversion is valued, as predicted by social values theory (Stone & Allgaier, 2008). Two studies tested for self-other differences in physical safety scenarios, a domain where risk aversion is valued. In Study 1, participants read physical safety and romantic relationship scenarios and selected what they would decide for themselves, what they would decide for a friend, or what they would predict their friend would decide. In Study 2, participants read public health scenarios and either decided or predicted for themselves and for a friend. In keeping with social values theory, participants made more risk-averse decisions for others than for themselves in situations where risk aversion is valued (physical safety scenarios) but more risk-taking decisions for others than for themselves in situations where risk taking is valued (relationship scenarios). Further, we show that these self-other differences in decision making do not arise from incorrectly predicting others' behaviors, as participants predicted that others' decisions regarding physical safety scenarios would be either similar (Experiment 1) or more risk *taking* (Experiment 2) than their own decisions.

Keywords: decision making, predictions of decisions, self-other differences, social values, risk taking, risk aversion.

1 Introduction

Imagine the following scenario. You are boarding your flight and nearing your seat. You see that the person who will be sitting next to you is already seated and clearly sick with what seems like the flu. You tend to get sick easily and you would really like to avoid getting ill. You could ask the flight attendant to help you find another seat away from this sick passenger, but it would be a bit of a hassle to do so since you would have to wait until all of the other passengers were seated. What do you do?

These types of decision dilemmas—whereby a choice needs to be made between a risky alternative (e.g., taking the seat next to the sick passenger) and a safer alternative (e.g., asking for a different seat)—have formed a cornerstone of judgment and decision-making research for years. A body of research has shown, however, that people make decisions for others differently from the way they make decisions for themselves in situations as diverse as giving advice to a friend who is confronted with the example above, to making medical decisions for a loved one who is unable to make decisions for him- or herself. In particular, people respond to risk differently when they are at risk themselves compared to when it is another person at risk (e.g., Beisswanger, Stone, Hupp, & Allgaier, 2003; Borresen, 1987; Fernandez-Duque & Wifall, 2007; Garcia-Retamero & Galesic, 2012; Raymark, 2000; Roszkowski & Snelbecker, 1990; Stone & Allgaier, 2008; Wray & Stone, 2005).

One approach to explaining self-other differences incorporates research investigating prediction errors, such as affective forecasting (e.g., Gilbert, Pinel, Wilson, Blumberg & Wheatley, 1998) and differential affective states regarding decisions for self and others (e.g., Burson, Faro, & Rottenstreich, 2010; Faro & Rottenstreich, 2006; Hsee & Weber, 1997; Loewenstein, Weber, Hsee, & Welch, 2001). For example, Faro and Rottenstreich combined the idea of an "empathy gap" (Loewenstein, 1996), where people underestimate the role of affective elements when predicting the decisions of others, with the "risk-as-feelings" argument (Loewenstein et al., 2001) that self choices are driven to a large extent by affective feelings. In particular, Faro and Rottenstreich

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showed that predictions are often too regressive, due to an inability to appreciate the extent to which others' decisions are influenced by emotions to the same extent as self decisions.

When people's predictions of what others would do is inaccurate, it stands to reason that people might decide differently for them as well, to the extent that one attempts to decide for another person in the same manner by which the other person would decide for him- or herself. In contrast to this idea, Stone and Allgaier's (2008) social values theory suggests that people's decisions for others are not based on what they think the other person would do, but instead on what is valued by people one cares about. The present work provides support for this theory by showing that people's decisions are more in line with what is socially valued when deciding for others than for the self, regardless of whether risk seeking or risk aversion is valued, and that these self-other differences in decision making emerge in the absence of prediction errors (Experiment 1) and even when the prediction errors occur in the opposite direction (Experiment 2).

1.1 Social values theory

Building on the work of Kray and Gonzalez (1999) and Kray (2000) on multiattribute choice, Stone and Allgaier (2008) developed social values theory to explain how people make decisions for others in the domain of risky decision making. Social values theory states that the social value[1] placed on risk in the situation is the predominant factor when making decisions for others. Thus, the decision maker does not weigh the pros and cons of that behavior prior to telling the person what to do. Instead, the decision maker follows a norm to make the socially-sanctioned decision for the other person (see Teigen, Olsen, & Solås, 2005 for a similar account regarding gift giving). In contrast, when making a decision for oneself, the decision maker considers a host of factors (including the value placed on risk).

Stone and Allgaier (2008) provided support for this theory in three experiments, reasoning as follows. If social values theory is correct, risk taking should be valued in situations where people make more risky decisions for others than for the self. Conversely, risk taking should not be valued in situations that do not show self-other differences. To test this idea, they categorized the work on self-other differences into three domains: monetary, low-impact relationship, and high-impact relationship scenarios, and then investigated whether risk is valued in each domain. In monetary scenarios and in high-impact relationship scenarios, typically no self-other differences exist (Beisswanger et al., 2003; Cvetkovich, 1972; Slovic, Weinstein, & Lichtenstein, 1967; Stone, Yates, & Caruthers, 2002; Teger & Kogan, 1975), whereas in low-impact relationship scenarios, people make more risk-taking decisions for others than for themselves (Beisswanger et al., 2003; Wray & Stone, 2005). In keeping with this pattern of self-other differences, Stone and Allgaier found that risk was valued in low-impact relationship decisions, but not in the other two domains. Further, they found that, in scenarios where risk taking was valued, deciding for another person to take risk-averse actions was judged to be more inappropriate than choosing such risk-averse actions for oneself, providing further evidence that the self-other differences were due to a difference in perceived norms.

Lastly, in their third experiment, Stone and Allgaier reasoned that if decisions for others are based predominantly on the value placed on risk, then self-other differences should persist even when participants do not systematically expect that others would make more or less risky decisions than they themselves would make and regardless who the decision recipient was. Indeed, a separate group of participants predicted that others would make decisions that corresponded with decisions made by participants deciding for themselves. Further, self-other differences in decision making emerged both when participants decided for a friend and for a "typical student".

1.2 Examining self-other differences in physical safety scenarios

In the domains examined by Stone and Allgaier (2008), all either produced no self-other differences or greater risk taking for others than for the self. If social values theory is correct, then the fact that people never made *less* risky decisions for others in the scenarios investigated by Stone and Allgaier is just an artifact of the domains that they investigated, and not because risk taking is generally valued in society (e.g., as in culture-value theory, as discussed by Brown, 1965). This is an important consideration because the main theoretical contribution of social values theory is to suggest that what is valued in a situation (i.e., either risk taking or risk aversion) is the predominant determination of how people decide for others. Thus, if *risk aversion* is valued, decisions for oth-

[1]The issue of whether something is valued can be addressed on many different levels. For example, Baron (2003) distinguishes between moral goals of decision making (making decisions based on another person's values) and moralistic goals (independent of the other person's values). We adopted the term "social values" from Rohan (2000), who defined a social value system as "people's perceptions of others' judgments about best possible living or functioning" (p. 265). As such, we assume that people are making decisions for others that they believe are in the others' best interests, but are attending to the social group's value, *not* to the other person's individual values. Thus, we use the term *social value* to indicate that it is the perceived value of one's social group that is relevant, not necessarily the person's personal values. At the same time, these values do not have the type of ethical (or protected value) element that is frequently associated with moralistic values.

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ers should be less risk-taking than decisions for the self. The present study therefore expands upon the existing research on self-other differences by examining whether self-other differences occur in a domain in which *risk aversion* is valued.

Of course, a priori, it is not possible to know with certainty when risk aversion will be valued, but situations invoking physical safety concerns seem likely to produce a social value placed on avoiding risk.[2] As seen in Schwartz's work on the structure of the value system (e.g., Schwartz, 1992), security concerns are one type of universal value. Since physical safety entails security, it seems likely that risk aversion would be valued in these sorts of situations. To test this assumption, we measured the social value placed on risk in physical safety scenarios prior to our examination of self-other differences.

Having documented that risk aversion is valued in physical safety scenarios, we examined self-other differences with two different types of physical safety scenarios. The first experiment used a range of situations that would typically confront undergraduate students and that involve physical safety concerns. The second experiment used public health scenarios with physical safety concerns. Our primary goal in both experiments was to test our prediction that decisions for others would be less risk taking (more risk averse) than decisions for the self in physical safety scenarios, presumably due to the value placed on risk aversion in these situations. Further, in Experiment 1, we included a set of relationship scenarios to show that, within the same experimental context, decisions for others could be either more or less risk-taking than decisions for the self.

Our second goal in both experiments was to test the social values account of self-other differences versus a misprediction account. As discussed previously, according to the social values account, what one thinks the other person would do is largely irrelevant, as decisions for others are based predominantly on social values and decision-making norms based on them. In contrast, the *misprediction* account says that people mispredict how others would decide and make decisions for them in accord with these (erroneous) expectations.

Note that this misprediction hypothesis is consistent with many leading decision theories. For example, construal level theory (CLT; e.g., Trope & Liberman, 2010) states that people traverse psychological distance in reference to the present self and view others in terms of more central, high-level concepts the further they are from oneself. People's predictions and decisions for others could well be based on such high-level concepts, such as the person's attitude toward risk, which could play a reduced role in self decisions. Further, much recent work, as seen for example in Loewenstein et al.'s (2001) "risk as feelings" account, shows that self decisions are based to a large extent on one's affective reactions toward risk, and work by Faro and Rottenstreich (2006) and others suggests that people underestimate the role of emotions in decisions by others, leading to prediction errors (see also Fernandez-Duque & Wifall, 2007; Hsee & Weber, 1997; Laran, 2010.) This concern seems especially warranted in physical safety scenarios, as affective fears would be particularly strong in these situations, given the potential for physical harm. To examine the relevance of each of these theories in explaining self-other differences, we thus included a prediction condition in each of our experiments. To the extent that self-other differences in decision making mirror self-other differences in prediction, this finding would support a misprediction account of self-other differences. To the extent that self-other differences in decision making occur despite a lack of self-other differences in prediction, this finding would support the social values theory claim that decisions for others are based on factors distinct from how the decision maker thinks the other person would decide for him- or herself.

1.3 Pretest examining the role of social values in physical safety and relationship scenarios

The social values prediction is predicated on the assumption that risk taking is valued in relationship scenarios but risk aversion is valued in physical safety scenarios. Before conducting the first experiment, we conducted a pretest to test this assumption and to determine which scenarios have a clear value either for, or against, risk taking to use in the first experiment. We took four romantic relationship scenarios from Stone and Allgaier's (2008) previous work, adapted Loewenstein et al.'s (2001) taxi cab scenario, and constructed 24 additional physical safety and two additional romantic relationship scenarios in a similar form, for a total of 31 scenarios. Each scenario presented a dilemma within a given situation (e.g., needing to stay up late to study during finals week) with two possible options—a risk-taking option (e.g., taking a pill to stay up later) and a risk-averse option (e.g., not taking the pill).

To determine whether risk was valued in each scenario, the value placed on risk was measured in two different ways. First, we used the actual vs. ideal self procedure used by Stone and Allgaier (2008), which they adapted from Levinger and Schneider (1969) and Brown (1965). In this procedure, participants are presented with two

[2]We acknowledge that certain situations invoking physical safety concerns may also invoke social values involving courage and favor risk taking by certain individuals (e.g., soldiers, firefighters). However, for the scope of our research, we are interested in examining situations whereby risk is not valued, and so physical safety scenarios were selected as a reasonable example whereby risk aversion would be the predominant social value in most situations.

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people, one of whom does the risky action and one of whom does the less risky action. Each participant is then asked either which of these two people is closer to how 1) 'your "ideal self" would behave' or 2) 'how you would behave.' In keeping with previous research using this approach (e.g., Levinger & Schneider, 1969; Stone & Allgaier, 2008), the ideal self responses were compared to those of the actual self. To the extent risk is a valued commodity, participants should make more *risk-taking* choices for their ideal selves than they would make for themselves, and to the extent risk aversion is valued, participants should make more *risk-averse* choices for their ideal selves than they would actually make. One concern with this approach, however, is that we are inferring what society values from hypothetical choices that participants make. Thus, we also used a second method for measuring value, where participants rated the extent to which their social group would approve of their decision if they were to take each of the risk-taking and risk-averse actions. To the extent risk is valued, participants should indicate greater approval for taking the risk-taking action than the risk-averse action, and to the extent risk aversion is valued, participants should indicate greater approval associated with the risk-averse choice.

Three hundred and nine undergraduate students (162 women, 147 men) enrolled in an introductory psychology course responded to the questions about their *ideal* and *actual* selves (order of ideal to actual self counterbalanced between participants) first and then responded to the approval questions. Additionally, they answered questions regarding whether the scenarios dealt with physical safety and which of the two options entailed more risk, to check whether our opinions about the scenarios matched the participants' perceptions. Since there were different numbers of relationship and physical safety scenarios, 1) each of the *actual* and *ideal* choices were converted to percentages of risk-taking choices such that higher percentages indicated a greater percentage of risk-taking actions for the actual (ideal) self, and 2) responses to the approval ratings were averaged for the risk-averse actions and those of the risk-taking actions.

1.4 Assessing value

To assess value using the actual-ideal method, a repeated measures analysis of variance (ANOVA) compared *actual vs. ideal* choices for physical safety and relationship scenarios. There was a highly significant Decision Type (actual vs. ideal) by Scenario Type (physical safety vs. relationships) interaction, F (1, 303) = 391.61, $p < .001$, $\eta^2_{partial}$ =.564.[3] As expected, in physical safety scenarios, participants made a lower percentage of risk-taking choices for their ideal selves (M = 29.8%) than for their actual selves (M = 43.2%), paired $t(306) = 13.43$, $p < .001$, and in relationship scenarios, participants made a greater percentage of risk-taking choices for their ideal selves (M = 63.1%) than for their actual selves (M = 33.9%), paired $t(306) = 15.03$, $p < .001$.

Next, a repeated measures ANOVA compared the approval ratings of each action in the scenarios. These results mirrored the actual vs. ideal results. Specifically, there was a highly significant Action Type (risk-taking vs. risk-averse) x Scenario Type (physical safety vs. relationships) interaction, $F(1,305) = 280.52$, $p < .001$, $\eta^2_{partial}$ = .479. As predicted, for safety scenarios, the mean approval ratings for the risk-averse actions (M = 4.76) were greater than those for the risk-taking actions (M = 3.78), paired $t(308) = 13.70$, $p < .001$. For relationship scenarios, the opposite pattern was found: the mean approval ratings for the risk-averse actions (M = 4.25) were lower than those for the risk-taking actions (M = 4.96), paired $t(308) = 9.35$, $p < .001$.

1.5 Selection of scenarios for Experiment 1

The scenarios were analyzed individually to identify which scenarios to use for the first experiment. We selected physical safety scenarios that produced clear and strong differences in value as measured by both the ideal-actual difference approach and by the approval approach and that maintained these differences for both genders. Specifically, we included only the scenarios that produced actual-ideal differences of at least 10% for both genders ($p < .001$ for overall tests and $p < .01$ for each gender) and differences in approval ratings of at least .10 for both genders ($p < .001$ for overall tests and $p < .01$ for each gender). Eight physical safety scenarios met this criterion and so were used in the first study. These eight scenarios also had differences in physical safety concern ratings of at least 1.0 such that the risk-taking action entailed greater physical safety concerns than the risk-averse action ($p < .001$ for overall tests and for both genders) and the risk-taking action in each scenario was perceived to entail more risk than the risk-averse action by at least 93% of our participants.

For the relationship scenarios, only two scenarios met the above criteria regarding both the actual-ideal differences and the approval ratings, most likely because we included only six scenarios in the pretest. Thus, we modified the criterion to include scenarios that produced significant ($p < .05$) overall differences in the actual-ideal and approval ratings (five of the six scenarios) and then chose the four with the greatest actual-ideal differences.

[3] Although the ideal-actual differences were somewhat stronger for women than for men, the basic pattern of results held for both genders.

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2 Experiment 1: Self-other differences in physical safety scenarios regarding student life

2.1 Method

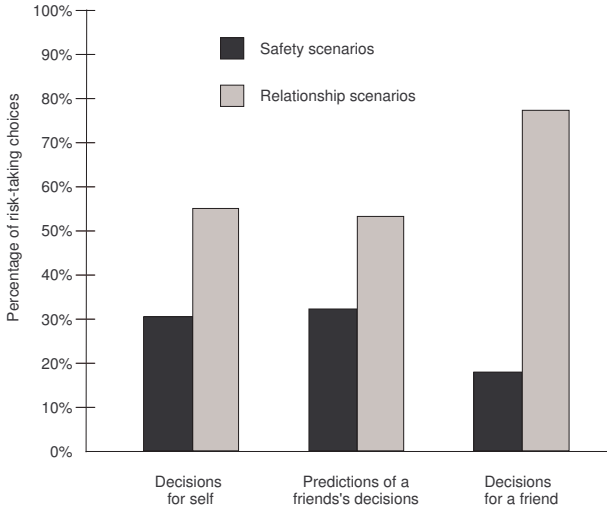
Participants. Two hundred and seventy undergraduate students (136 women, 134 men) enrolled in an introductory psychology course took part in this experiment as one option for fulfilling a research requirement. These participants were drawn from the same subject pool as the pretest participants, but were different people.

Materials. Twelve (eight physical safety and four relationship) scenarios, selected from the pretest, were used for this study. (The full set of scenarios is provided in Appendix A.) Although the majority of the decisions involved physical safety scenarios, romantic relationship scenarios were included to replicate the previously found pattern of self-other differences (Beisswanger et al., 2003; Stone & Allgaier, 2008). The relationship scenarios were "low-impact" (Beisswanger et al., 2003) and were chosen such that risk taking was valued. In contrast, the physical safety scenarios were chosen such that risk aversion was valued. More physical safety scenarios were included than relationship scenarios because the novel contribution of this study is in regards to physical safety situations.

The scenarios were randomly ordered with the constraint that no two relationship scenarios were next to each other. Half of the participants saw the scenarios in this order, whereas the other half saw the scenarios in the reverse order. Each scenario presented two different actions and participants either chose between the actions for themselves, chose between them for a friend, or predicted what decision their friend would make.

Procedure. Participants were assigned to one of six conditions, varying by Decision Condition (*deciding for themselves, deciding for a friend,* and *predicting the decision of a friend*) and Scenario Order (Version A vs. Version B), via a randomized block design. Participants in the *decide for self* condition were told to assume that they were in each of the scenarios and were asked "What decision would you make for yourself?" Participants in the *decide for a friend* and *predict for a friend* decision conditions first wrote down the name of a same-sex friend "who is similar to you in terms of beliefs, attitudes, values, etc." and then were asked to assume that it was this particular friend who was in each of the scenarios. In the *decide for a friend* condition, participants were told to assume that their friend had asked them to make a decision for him or her and then were asked "What decision would you make for your friend?" In the *predict for a friend* condition, participants were asked "What decision do you think your friend would make for herself [himself]?"

Figure 1: Percentages of risk-taking choices by decision condition for each scenario type, depicting a highly significant Decision Type x Scenario Type interaction. Choices in the self and predict conditions did not statistically differ, but both significantly differed from decisions for others ($p < .001$). $n = 91$ for the *decisions for self* and *decisions for a friend* conditions; $n = 88$ for the *predictions of a friend's decisions* condition.



2.2 Results

As in the pretest, since there were different numbers of physical safety and relationship scenarios, we converted each participant's responses to percentages of risk-taking choices within each type of scenario. As shown in Figure 1, decisions for a friend were more risk taking than either self-decisions or predictions for relationship scenarios but were more risk averse than either self-decisions or predictions for physical safety scenarios. That the pattern of self-other differences varied in the different scenarios was confirmed by a 3 (Decision Condition: decide for self, predict a friend's decision, decide for a friend) x 2 (Scenario Type: safety, relationship) repeated-measures ANOVA[4] on the percentage of risk-taking choices, where Scenario Type was the within-subjects variable: Decision Condition x Scenario Type interaction, $F(2, 267) = 35.72$, $p < .001$, $\eta^2_{partial} = .211$.

[4]Initially, we included Scenario Order in the ANOVA. However, the analysis indicated that there was no effect of scenario order, either in terms of a main effect or interaction with any of the other variables (all Fs < .76; all ps > .38). Thus, this variable is not considered further.

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Since the omnibus ANOVA effects do not indicate where the differences lie, we tested our specific hypotheses comparing only two of the conditions at a time. In the first section, we address whether we found the predicted pattern of self-other differences in decision making in the two different domains. In the second section, we examine predictions of a friend's decisions in comparison to the other two decision conditions.

2.3 Self-other differences in decision making

As stated above, participants made more risk-taking decisions for themselves than for their friends in physical safety decisions (M self-other difference = 13%), but less risk-taking decisions for themselves than for their friends in relationship decisions (M self-other difference = −22%). We examined the reliability and consistency of these effects by conducting a 2 (Decision Condition: decide for self, decide for a friend) x 8 (Scenario) repeated-measures ANOVA for the physical safety scenarios and a 2 (Decision Condition: decide for self, decide for a friend) x 4 (Scenario) repeated-measures ANOVA for the relationship scenarios.

In physical safety scenarios, participants were more risk-taking for themselves (M = 30.5%) than they were for their friends (M = 18.0%), $F(1, 180) = 20.23$, $p < .001$, $\eta_{\text{partial}}^2 = .101$. Conversely, for relationship scenarios, participants were less risk-taking for themselves (M = 54.9%) than they were for their friends (M = 77.2%), $F(1, 180) = 27.07$, $p < .001$, $\eta_{\text{partial}}^2 = .131$. In addition, there were significant Condition by Scenario interactions for both types of scenarios, $F(7, 1260) = 2.25$, $p = .03$, $\eta^2_{partial} = .012$, and $F(3, 540) = 3.05$, $p = .03$, $\eta_{\text{partial}}^2 = .017$, for physical safety and relationship scenarios, respectively.

Given the presence of the Condition by Scenario interactions, we conducted additional tests to determine how consistently we obtained the observed self-other differences in decision making. First, the scenarios were analyzed individually by pairwise contrasts. As shown in Table 1, for all eight physical safety scenarios, participants made more risk-taking decisions for *themselves* than for their friends, whereas for all four relationship scenarios participants made more risk-taking decisions for *their friends* than for themselves. Thus, the observed self-other differences in decision making occurred consistently within each domain, although not all of the differences were statistically significant.

Next, we conducted an item-based paired t-test (using the eight safety scenarios as rows and ignoring the prediction condition) in order to test for a general self-other difference within the safety scenarios, since the main contribution of this study is in regards to finding self-other differences among situations in which risk aversion is valued. Despite the small number of scenarios, there was a strong effect of decision condition for the physical safety scenarios, paired $t(7) = 4.00$, $p = .005$, in which decisions for others were generally more risk averse (M = 17.99%) than decisions for the self (M = 30.49%). Furthermore, an item-based ANOVA was conducted using all twelve scenarios to investigate self-other differences as a function of decision condition (decide for self, decide for other) and scenario type (romantic relationship, physical safety). There was a strong interaction between decision condition and scenario type, $F(1, 10) = 36.49$, $p < .001$, $\eta^2_{partial} = .785$.

The above analyses show that our overall pattern of results, whereby decisions for others were more risk averse than self decisions for physical safety scenarios and more risk taking than self decisions for relationships scenarios, generally held in our scenarios. To the extent that social values theory is correct, however, there should also be differences *within* domains, whereby the situations that produce the strongest social value also produce the strongest self-other difference. To examine this issue, we correlated the degree of self-other difference with the social value, again using the scenario as the unit of analysis. Specifically, we operationalized social value by taking the approval and actual vs. ideal responses obtained in the pretest for each scenario, transforming them into z-scores, and then averaging them to get an overall measure of social value. This social value measure was then correlated with the self-other difference measure (as shown in Table 1), controlling for scenario type. The partial correlation between social value and self-other difference controlling for scenario type was significant, partial $r = .69$, $p = .02$. The significant partial correlation was driven by a strong relationship with the actual-ideal measure for safety scenarios and a strong relationship with the approval measure for the relationship scenarios. Although based on only a small number of non-randomly-chosen scenarios, this result provides preliminary evidence for the social value prediction that scenarios that have the strongest social value will produce the strongest self-other difference.

2.4 Predictions of a friend's decisions

We next examined whether predictions of a friend's decisions differed from decisions for the self. In contrast to the results with *deciding for* friends, there were no self-other differences in prediction for either of the scenario types. For physical safety scenarios, participants' predictions (M = 32.4%) were roughly equivalent to their own level of risk taking (M = 30.5%), $F(1, 177) = 0.39$, $p = .53$, $\eta^2_{partial} = .002$. Similarly, for relationship scenar-

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Table 1: Self-other differences in decision making.

	Decide for self	Decide for friend	Self-other difference	1-tailed t
Physical safety scenario				
Keeping one's seat on a flight that is next to a flu-ridden passenger	49.45	16.48	32.97	4.80***
Taking caffeine pills	40.66	27.47	13.19	1.87*
Taking diet pills	24.18	10.99	13.19	2.30*
Putting up an overly heavy shelf	23.08	10.99	12.09	2.06*
Riding in a taxi cab with a drunk driver	26.37	16.48	9.89	1.60^{+}
Avoiding installation of a security alarm for apartment	27.47	20.88	6.59	.99
Taking Ritalin-like pills	38.46	31.87	6.59	.92
Not replacing a broken smoke detector	14.29	8.79	5.49	1.05
Relationship scenario				
Asking an attractive person to dance	58.24	91.21	−32.97	−5.10***
Asking a close friend to date	51.65	76.92	−25.27	−3.58***
Introducing oneself to an attractive person	54.95	78.02	−23.08	−3.28***
Telling dating partner about one's strong feelings to move relationship up a level	54.95	62.64	−7.69	−1.05

Note. Percentages of risk taking choices for each scenario by decision type. All p-values are 1-tailed, $^{+}$ $p < .10$, * $p < .05$, ** p < .01, *** $p < .001$.

ios, participants' predictions (M = 53.1%) were roughly equivalent to their own level of risk taking (M = 54.9%), $F(1, 177) = 0.14$, $p = .71$, $\eta^2_{partial} = .001$. Finally, there was no Condition by Scenario interaction for either physical safety or relationship scenarios (both F's < 1) and no self-other differences in prediction for any of the scenarios when tested individually (all $t(267)$'s ≤ 1.66, all p's $\geq$ .098). Thus, people were not expecting others to decide differently from how they would decide for themselves.

Conversely, there were large differences between people's predictions of and decisions for others. In physical safety scenarios, participants' predictions (M = 32.4%) indicated *greater* risk taking than did their actual decisions for others (M = 18.0%), $F(1, 177) = 24.66$, $p < .001$, $\eta^2_{partial} = .122$. For relationship scenarios, their predictions (M = 53.1%) exhibited *less* risk taking than did their actual decisions for others (M = 77.2%), $F(1, 177) = 34.16$, $p < .001$, $\eta_{\text{partial}}{}^2 = .162$. The Condition by Scenario interaction did not reach significance for either type of scenario (both p's > .09).

2.5 Discussion

As predicted, we found that self-other differences in decision making varied by domain. In replication of past studies (Beisswanger et al., 2003; Stone & Allgaier, 2008; Wray & Stone, 2005), decisions for others were more risk-taking than self decisions in low-impact romantic relationship scenarios (where risk taking is socially valued). In addition, we found that self-other differences in physical safety scenarios (where risk aversion is socially valued) were in the opposite direction of those found in relationship scenarios. We do not claim that people will make more risk-averse decisions for others than for themselves in all physical safety scenarios; indeed, the scenarios were specifically chosen to have a social value placed on risk aversion. Nonetheless, the consistency of findings across the eight scenarios suggests that this pattern of behavior is at least common.

Theoretically, this finding of two different directions of self-other differences using two different domains

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strengthens the social values account of self-other differences. For example, being more sensitive to negative outcomes in decisions for oneself than for another person could explain the greater risk taking for others in the relationship domain, but this explanation cannot also account for the findings in the physical safety domain. In addition, predictions of others' decisions did not differ from self decisions in either domain. This finding provides strong evidence against a *misprediction* account of self-other differences, at least for those found in our study. This result is also of interest in and of itself, as it provides information on when people *would* be expected to accurately predict the behavior of others. Before discussing the implications of these findings, however, it is important to determine how general the effects are. Thus, in our next study, we explored self-other differences using a different type of physical safety scenario.

3 Experiment 2: Self-other differences in public health scenarios

To examine the generality of our findings from Experiment 1, we conducted a second study using public health scenarios in which the situation entails general health and safety concerns. The scenarios were based on three possible real-life situations: an avian flu outbreak, detonation of a radioactive bomb in one's neighborhood, and hand washing behavior during flu season. Each scenario involved the potential for serious harm and was described in more detail than were the scenarios used in Experiment 1. Further, most of the scenarios (with the possible exception of the hand washing one) involved situations that the students had likely not previously thought about. Due to the (intentional) familiarity and the number of scenarios used in Experiment 1, it is likely that the participants did not spend much time thinking about each scenario in that study. Due to the novelty, seriousness, and small number of scenarios used here, however, we expected that the participants would spend longer thinking about their responses to each scenario. Although we had no a priori reason to think that these factors would influence self-other differences, finding the same results with such qualitatively different physical safety scenarios would speak to the generality of the effects.

Finally, we modified the study design from being completely between-subjects, to one where participants either made self decisions and decided for another person or predicted their own behavior and that of another person. This design should provide the greatest chance of finding that self decisions are different from predictions of others (since the variable is manipulated within-subjects), as well as test whether self-other differences in decision making will emerge with a different study design.

3.1 Method

Participants. Three hundred and twelve male and female undergraduate students enrolled in introductory psychology courses took part in this experiment as one option for fulfilling a course requirement.

Materials. This study used three public health scenarios, involving an avian flu (H5N1) outbreak, a radioactive bomb detonation situation, and hand washing behavior during flu season. The first two scenarios were taken from Bruine de Bruin, Florig, Fischhoff, Downs, and Stone (2006) and had previously been used to study US and Canadian citizens' anticipated behavioral responses to risk communications about these threat scenarios. All three scenarios provided risk information about the situation, guidelines for safety, and the benefits and challenges (or inconveniences) of following these guidelines. For example, in the bird flu scenario, participants were asked to imagine that an outbreak has occurred in their city and that as many as 100 million people in the U.S. could get infected and as many as 6 million could die from such an infection. The provided safety guidelines suggest wearing an N-95 surgical mask all the time to avoid getting sick or to avoid contaminating others if one is already sick. In addition, however, the scenario provided some reasons and examples of why following the guidelines would be difficult (e.g., how always wearing a mask would be difficult while eating, drinking, and/or smoking).

After all of the information was presented, participants were asked to decide or predict how often they (or a friend) would follow the guidelines for safely wearing a mask. The response scale was a continuous line, starting at "never follow the above guidelines" to "always follow the above guidelines" with a midpoint (at 6.7 cm) of "sometimes follow the above guidelines". Similar to Experiment 1, when deciding or predicting for a friend, participants were told to "consider a close same-sex friend of yours, with similar values, etc."; unlike that study, however, they were not asked to write down the name of a specific friend. Participants responded by placing a slash on the line to indicate the frequency by which they or their friend would follow the guidelines. The other two scenarios were analogous in their form, with the exception that the radioactive bomb scenario asked about length of time one would remain away due to radiation concerns and had a categorical response scale, ranging from "1 week", "1 month", and so on to "4 years" and "forever" to allow us to measure the full range of potential responses. The full set of scenarios is provided in Appendix B.

For all three scenarios, we standardized the response scale by dividing the participant's response by the max-

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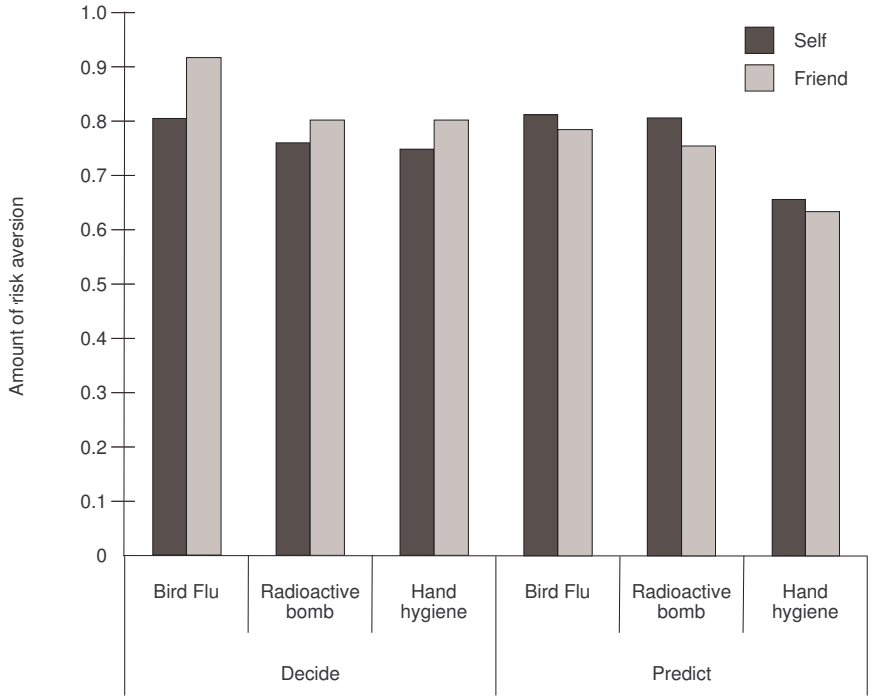
Figure 2: Extent of risk aversion by decision type for each scenario. N = 156 for each decision type per scenario, total N = 312.



imum possible response. Thus, for each scenario the scale ranges from 0 (maximum risk-taking response) to 1 (maximum risk-averse response).

Procedure. Two versions of the questionnaires were used. Half of the participants (n = 156) were given the scenarios and asked to *decide* for themselves and then for a same-sex friend. The other half of the participants (n = 156) were given the scenarios and asked to *predict* the behaviors of themselves and then for a same-sex friend.[5] All participants received the scenarios in this order: 1) bird flu, 2) radioactive bomb, 3) hand washing.

3.2 Results

As shown in Figure 2, decisions for a friend were more risk averse than were self-decisions, but predictions of friends' decisions were more risk taking than were self-decisions. That the pattern of self-other differences was different for decisions than for predictions was confirmed via a 2 (Decision Type: decide, predict) x 2 (Decision Recipient: self, friend) x 3 (Scenario: bird flu, radioactive bomb, hand washing) repeated-measures ANOVA on the extent of risk aversion, where decision recipient and scenario were within-subjects variables and decision type was a between-subjects variable. Specifically, there was a highly significant Decision Type x Decision Recipient interaction, $F(1, 310) = 72.33$, $p < .001$, $\eta^2_{partial} = .189$. In addition, the interaction between decision type and decision recipient was qualified by a relatively weak but significant Decision Type x Decision Recipient x Scenario three-way interaction, $F(2, 620) = 3.75$, $p = .024$, $\eta^2_{partial} = .012$.

To determine whether the overall two-way decision type by decision recipient interaction holds generally, we ran three 2 (Decision Type: decide, predict) x 2 (Decision Recipient: self, friend) repeated-measures ANOVA's, one per scenario. The Decision Type x Decision Recipient interaction was highly significant for all three scenarios (all F's > 20.66, p's < .001), although it was particularly strong in the bird flu scenario ($\eta^2_{partial} = .134$ for bird flu; $\eta^2_{partial} = .086$ for radioactive bomb, and $\eta^2_{partial} = .062$ for hand hygiene). For all three scenarios, the pattern of the 2-way interaction was the same: participants made *more* risk-averse decisions for their friends than for themselves, and predicted that their friends would make *less* risk-averse decisions than they would make for themselves (all t's > 1.82, p's < .08, by two-tailed paired t tests).

[5] In addition, all participants made hypothetical decisions/predictions for a younger brother and for the society as a whole—these questions and results will be described elsewhere and are not shown in the appendix.

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3.3 Discussion

The findings from this study support our conclusion from Experiment 1 that, for physical safety situations, people make more risk-averse decisions for others than for themselves. Although the scenarios from both studies involved physical safety concerns, the types of safety concerns were quite different. In Experiment 1, the scenarios generally involved day-to-day activities that would be expected to confront undergraduate students in their daily lives, such as whether or not to take a caffeine pill to stay up later. In Experiment 2, the scenarios described serious public health situations. In both cases, however, there was a strong tendency to make more risk-averse decisions for a friend than for oneself.

In addition, this study provided our strongest evidence yet that people's decisions for others and predictions of others' behavior are based on fundamentally different mechanisms. Whereas other work we have conducted (Stone & Allgaier, 2008; Experiment 1 of this paper) found that self-other differences in decision making occurred when people's predictions for others matched their self decisions, this study showed an actual reversal—people made *more* risk-averse decisions for others, but expected them to be *less* risk averse. The finding that people expected others to be less risk averse than they were themselves could be due to the better-than-average effect (e.g., Levinger & Schneider, 1969; Svenson, 1981), on the assumption that risk aversion is valued in physical safety scenarios.

4 General discussion

The present research extends our knowledge of how people decide for others by demonstrating that 1) social values play a greater role in decisions for others than in self decisions, and 2) decisions for others are not produced by the same mechanism as are predictions of others' decisions and will often not align with them. We elaborate on each of these issues below and end with a discussion of practical implications of the results.

4.1 The role of social values in decisions for others

The primary logic of our methodology was to take situations with known social values and test whether self-other differences would emerge such that people's decisions for others were more in keeping with the social value than were their decisions for themselves. Previous work has documented that, in situations where risk taking is valued (regarding relationships), people make more risk taking decisions for others than for themselves. The current research replicated that result and also showed that in situations where risk aversion is valued (regarding physical safety), people make more risk-averse decisions for others than for themselves.

These results are consistent with the idea that, when deciding for others, people are focused primarily on a norm regarding the "proper" way to decide, rather than on considering the individual elements of each particular situation. Note that this conclusion can also help explain some recent findings in the literature. As one example, Garcia-Retamero and Galesic (2012) showed that doctors make more risk-averse decisions for their patients than they do for themselves. Since physical safety concerns are paramount in these types of decisions, it seems likely that risk aversion was valued in their experiments. Thus, the fact that doctors make particularly risk-averse decisions for their patients could be explained by a norm encouraging risk-averse decisions.

It is worth emphasizing that the observed self-other differences in decision making occurred despite known biases that would seemingly reduce these effects or produce effects in the opposite direction. For example, to the extent projection effects (e.g., Fagerlin, Ditto, Danks, Houts, & Smucker, 2001) play a role when deciding for others, decisions for others should mirror decisions for the self. The fact that predictions of others were similar to self decisions in our first experiment suggests that projection may have influenced *predictions* of others' decisions, but not *decisions* for others. The better-than-average effect (e.g., Svenson, 1981) would suggest self-other differences in decision making, but in the opposite direction of what we found. If participants were motivated to see themselves as better than others, they presumably would have made decisions for others that were further away from what was socially valued, not more in keeping with the social value.

The data also are inconsistent with the idea that self-other differences in decision making arise because people's self decisions are determined largely by affective processes whereas people's decisions for others are determined by more cognitive processes, as seen for example in the "risk-as-feelings" hypothesis (Hsee & Weber, 1997; Loewenstein et al., 2001). Affective fears (e.g., fear of rejection or physical harm) would plausibly lead to more risk-averse self decisions for relationships, but they should also lead to more risk-averse self decisions in physical safety decisions. However, we found more risk-averse self decisions for relationships, but more *risk-taking* self decisions for physical safety situations. Consider, for example, our finding that people were more likely to put up a heavy shelf that might fall down and cause injury than to direct a friend to do so. If self decisions were more influenced by worry about the shelf falling down, our participants should have made more risk-averse decisions for themselves than for others, not

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less risk-averse decisions. Thus, the combination of findings in the relationships and physical safety domains suggests that self-other differences in decision making are not just driven by greater affective fears in the self condition (see also Atanasov, 2013).

For similar reasons, it is difficult to reconcile our results with Polman's (2012) claim that people are promotion focused when deciding for others and prevention focused when deciding for themselves. As part of a larger set of studies, Polman (Experiment 3a) presented participants with a set of relationship scenarios and asked them to make decisions for themselves or for another person. Those who made decisions for others later reported more promotion focus than did personal decision makers, and the reverse was found for prevention focus. This result is in keeping with the social value placed on risk taking in relationship scenarios. Of import is whether this same result would hold if participants responded to physical safety scenarios. The social values prediction is that in such a situation the focus would switch, such that people would be more prevention focused when deciding for others, given the value placed on risk aversion in that situation. The reversal found by Faro and Rottenstreich (2006) regarding self-other differences in prediction depending on whether gains or losses were investigated also suggests that the conclusion that people are more promotion focused when deciding for others may be overly simplistic.

To the extent that social values theory is accurate—that people's decisions for others are based to a large extent on a norm indicating the "correct" decision—the question remains as to why people decide for others this way. One functional explanation is that, when making decisions for others, people wish to avoid the risk of responsibility. In a recent study, Leonhardt, Keller, and Pechmann (2011) showed that people have a preference for indirect agency in decisions for others (versus for themselves) and suggested this preference occurs due to responsibility aversion. Deciding according to a decision-making norm could thus be another effective way of relinquishing responsibility for the decision (see also Chang, Chuang, Cheng, & Huang, 2012). If one were to adopt a more consequentialist approach when making decisions for another person, and it were to turn out badly, then that person would likely feel guilt, if not be actively blamed by the other person. This idea is in keeping with a recent proposal by Atanasov (2013) that a key factor in surrogate decision making is preserving one's relationship with the beneficiary, as seen in his relational model of surrogate decision making (Atanasov, 2013). One method of maintaining that relationship is by deciding in keeping with the norm for how to decide in that type of situation, in much the same way that a baseball manager would "follow the book" in order to avoid blame. In other words, deciding for others in keeping with a decision-making norm provides protection from the type of threat to self that would be present with a more consequentialist approach (see Larrick, 1993).

One specific methodological element may be in part responsible for our results as well. In each of our scenarios, the person being decided for asked the person to make the decision for him or her. This act of asking the person what to do may have served to put the decision maker in the role of conveying society's values. In other words, the person who asks the question may know what he or she *should* do, and is implicitly asking the decision maker to provide support in doing that, who in turn responds by deciding in accord with what society values. Note even if this is the case, however, the role of social values is crucial—the response is not as simple as providing support to make a risk-taking decision, given the reversal in self-other differences we find between relationship and physical safety scenarios. Nonetheless, a fruitful avenue for future work would be to examine different types of decision-making situations to examine the extent to which norms drive behaviors in other types of decision making for others. Preliminary evidence suggesting that decision-making norms do carry over to different types of decision situations was recently found by Dore, Stone, and Buchanan (in press), who extended this work to decisions parents make for their adolescent children.

4.2 Deciding for others versus predicting others' decisions

In both our experiments, we found that people's decisions for other people did not match their predictions for them. In Experiment 1, participants' predictions were similar to their self decisions, but were substantially different from their decisions for others. In Experiment 2, our participants made more risk-averse decisions for others than for themselves, yet predicted others would be more risk taking than themselves. These results are consistent with the idea that the way people go about predicting others' decisions and deciding for them are distinct phenomena.

In the previously discussed study by Garcia-Retamero and Galesic (2012), they asked doctors to predict the decisions their patients would make as well as to make decisions for their patients. Similar to our work, they found that the doctors' decisions for their patients did not match their predictions and concluded that doctors' decisions and predictions result from different underlying processes. Unlike our work, where we posit the main difference is that people are following a norm when deciding for others, Garcia-Retemero and Galesic argue that the key difference is that doctors' decisions are based more on potential costs and benefits of medical treatment than are their predictions of their patients' decisions. Re-

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gardless of the precise mechanism for how this decision-prediction difference arises, however, it seems clear that prediction and decision making are distinct concepts that need to be studied separately.

Another interesting finding emerged from Garcia-Retamero and Galesic's work as well. When doctors predicted the decisions of their last patients, they were quite accurate, similar to our participants in Experiment 1. When doctors predicted the decisions of their next patients, however, they typically predicted that they would be more risk seeking than they actually were (in contrast to the *decisions* they made for their next patients, which were more risk averse). Thus, the pattern of results for their next patients were similar to those in our second experiment, where we found that self decisions were in between predictions and decision making for a close friend.

Garcia-Retamero and Galesic suggested that the main reason for the difference in prediction for their next and last patients is that doctors knew their last patient. This conclusion is in keeping with that of Faro and Rottenstreich (2006), who documented an "empathy gap" in participants' predictions of a randomly selected other person, leading their predictions to be overly regressive, but found that this disappeared for predictions of a close friend (see also Hsee & Weber, 1997). That participants were able to empathize and accurately predict the behavior of their close friends is supported by our Experiment 1 results as well. Why, then, did we find a self-predict difference in Experiment 2? Following the reasoning of Faro and Rottenstreich, one explanation is that the situations that we used in Experiment 2 were so emotionally charged and unfamiliar (dealing with bird flu, a radioactive bomb, and the regular flu) that participants were not able to fully empathize with how their friends would feel. Future research should delineate more fully the conditions under which an empathy gap exists in the predictions of others and thus when these predictions would be expected to be inaccurate.

For the present purposes, however, we want to reiterate that in the situations where self decisions, predictions for others, and decision making for others have been simultaneously studied, to our knowledge, prediction errors have only occurred twice (in our Experiment 2 and for Garcia-Retamero & Galesic's, 2012, next patients). In both cases, these prediction errors occurred in the *opposite* direction of the self-other differences in decision making. To the extent people's decisions for others are based on what is valued socially, this finding makes sense; people want to be better than average, so they are motivated to think that other people's decisions will be further away from the social value than are their self decisions.

Future research could test this hypothesis by examining other prediction-decision differences for others. For instance, Dhami and Mandel (2012, in press) found that young adults' forecasted risk-taking behaviors in the domains of crime, health, and recreational risk were predicted by the perceived magnitude of the benefits associated with risk taking, but not by the perceived magnitude of the drawbacks, even though drawbacks were perceived as of greater magnitude than the benefits. According to the present account, we might anticipate differences in participants' assessments for others depending on whether they were asked to make a recommendation regarding whether the other person *should* engage in the risky behavior or a forecast of whether the other person *would* engage in the behavior. The present account predicts that the former assessments would be more risk averse than the latter. It would also be of interest to examine whether the predictors of such assessments differ as a function of self-other and recommendation-forecast differences.

4.3 Practical implications

Although the primary aim of this research was to advance our theoretical knowledge of how the process of deciding for others is different than deciding for the self and predicting others' decisions, a secondary contribution was to show that when physical safety concerns are present, decisions for others will frequently be more risk-averse than will decisions for the self. We made no attempt to systematically sample physical safety scenarios from a domain of all possible scenarios and make no claim that the self-other differences we found will hold consistently throughout the physical safety domain. Nonetheless, the ubiquity of this finding throughout both of our studies suggests that greater risk aversion for others than for the self will occur frequently in situations involving physical safety concerns. Knowing this should be beneficial in many applied situations. For example, when choosing a medical treatment plan for a loved one, it seems likely that these decisions would be more risk-averse than would the commensurate decision for oneself. Similarly, when deciding about health-related issues, parents will decide in a more risk-averse manner for their children than they will for themselves (Dore et al., in press).

More generally, knowing that the social value corresponding with a situation is associated with decision making for others in the direction of that value is useful for making predictions in a wide range of situations. Although the precise social value in a situation would not be known in advance, research on people's value systems has provided a good understanding of what elements are typically valued by people. For example, Schwartz (1992) identified 10 different values that hold universally to at least some extent. One of these, security concerns, underlies the physical safety scenarios used in the present

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research, and a second, stimulation, is relevant to the relationship scenarios. Of course, a number of factors (cultural, institutional, etc.) will influence the social value in any particular situation (see, e.g., Rohan, 2000), but typically, knowing what values underlie a situation should allow one to predict with a reasonable degree of accuracy what the social value will be and thus how people will decide for others.

Note that one limitation of this work is that it shows how decisions for others differ from decisions for the self, but not which process is in any sense better. Indeed, we think strong arguments can be made either way. On the one hand, if one assumes that people make what they believe are the optimal decisions for themselves, then deciding differently for others would introduce a bias. For example, Roszkowski and Snelbecker (1990) found that financial service professionals make less risk-taking investment decisions for their clients than for themselves and argued that this was due to a norm to be careful with clients' money. This finding arguably indicates a bias towards conservatism, perhaps due to a concern that clients will be more upset about a failed risky investment than with excess conservatism, even if the conservative decisions are not in the client's long-term best interests when considering the overall portfolio. A similar argument has been made by Kahneman and Lovallo (1993) for why managers are typically overly risk-averse. More generally, if what society values or any resulting decision-making norm is not in keeping with one's best interests, then it is reasonable to expect that decisions for others will be biased in that direction.

On the other hand, it is also not the case that self decisions necessarily reflect one's own values, as indicated by the actual-ideal differences we found in our study. For example, participants in our study often did not ask someone to dance even though their "ideal self" would. In this type of situation, the decision made for another person may better reflect the decision recipient's own values than his or her own decisions would. Note one important element of the present work is that our participants were explicitly asked to decide for another person who had similar values to them. We expect that this situation is common, in that many values appear to be universal (see Schwartz, 1992). Nonetheless, if the decision maker and decision recipient do not share the same values, then the decision maker's decisions will not be in the recipient's best interest, however well meaning the decision maker may be.

Thus, this and related research document when self-other differences occur, but do not directly address the normative question of which should produce better decisions. A parallel line of research has begun to address this normative question by examining self-other differences in biases such as unbalanced information search (Jonas & Frey, 2003), information distortion (Polman, 2010), and the omission bias (Zikmund-Fisher, Sarr, Fagerlin, & Ubel, 2006). Combining these lines of research seems a particularly fruitful avenue for investigation. For example, Polman (2010) showed that there is greater predecisional distortion of information with proxy decisions than with personal decisions. In this work, there was no option that had a clearly superior social value. Instead, the information distortion was in favor of the leading (tentatively preferred) option, which was determined by previous information seen. In many cases, however, we expect that the social value associated with a decision option is why an alternative would be initially preferred. Combining these two research findings thus suggests that predecisional information distortion may be in part responsible for the finding that decisions for others are frequently consistent with the social value. More generally, an understanding of self-other differences in normative violations should help address the issue of when making a decision for oneself versus for another person is apt to produce the "better" decision.

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Appendix A—Scenarios used in Study 1 (decide for friend condition)

1. Your friend is boarding the plane for her flight and she is nearing her seat. She sees that the person who will be sitting next to her is already seated and clearly sick with what seems like the flu. She knows that she gets sick easily and she would really rather not get sick. She knows that she can ask the flight attendant to help her find another seat away from this sick passenger without being rude, but it would be a bit of a hassle to do so since she would have to wait until all of the other passengers were seated. Your friend is unsure what to do and asks you to decide for her. What decision would you make for your friend?

A. ask for a different seat
B. not ask for a different seat and take her seat

2. Your friend has been dating someone for awhile and has developed strong feelings for her guy. She's thinking about professing her true feelings to move her relationship up to the next level, but she's not sure of her guy's feelings. Your friend is unsure what to do and asks you to decide for her. What decision would you make for your friend?

A. tell her guy how she feels
B. wait awhile

3. Your friend has been staying up late the past few days trying to study for her exams. Because of her lack of sleep, it gets harder and harder to get through each day and to stay up later at night. She knows that taking caffeine pills can help her stay awake longer. But she also knows that caffeine pills are dangerous if misused and are potentially addictive. Your friend is unsure what to do and asks you to decide for her. What decision would you make for your friend?

A. take the caffeine pills
B. not take the caffeine pills

4. Recently, there have been some incidents of break-ins and other crimes around your friend's neighborhood. Because of the recent rise in break-ins, her neighbors have started setting up security alarms on their apartments and her landlord has agreed to pay most of the cost. Your friend doesn't have an alarm system on her place, but she feels like her apartment complex is pretty safe. Besides, getting an alarm system can take a lot of time to setup and it can become annoying if it goes off by accident. Your friend is unsure what to do and asks you to decide for her. What decision would you make for your friend?

A. install a security system
B. not install a security system

5. Your friend is at a frat party and she spots a cute guy across the room. She'd like to ask the guy to dance. Your friend is unsure what to do and asks you to decide for her. What decision would you make for your friend?

A. ask the guy to dance
B. not ask the guy to dance

6. Your friend is riding alone in a taxi. After riding in the cab for a while, it becomes apparent to her that the driver is drunk. There are no other taxis around or other means of transportation. Her destination is 5 miles away, and although it is inconvenient, it seems relatively safe to walk. Your friend is unsure what to do and asks you to decide for her. What decision would you make for your friend?

A. get out of the taxi and walk
B. remain in the taxi

7. Your friend is currently trying to lose weight. She has tried proper dieting and exercise, but the last 15 pounds are just not coming off. She knows that taking a diet pill might help boost her metabolism and help her lose the extra weight. But she also knows that diet pills can have dangerous side effects and put her at a greater risk for heart disease. Your friend is unsure what to do and asks you to decide for her. What decision would you make for your friend?

A. take the diet pills
B. not take the diet pills

8. Your friend is at a frat party. She spots a guy who she finds attractive. She is thinking of introducing herself but feels kind of hesitant because she was looking forward to hanging out with the girls. Your friend is unsure what to do and asks you to decide for her. What decision would you make for your friend?

A. stay with the girls
B. introduce herself

9. Your friend is having difficulty concentrating lately. She can't seem to do as well in academics as she used to, and she doesn't know why. She has tried relaxation therapy, yoga, and counseling, but none have worked. She is thinking of taking a pill that works like Ritalin that could potentially help her concentrate. But she also knows that this pill may not be safe to take, with possible negative side effects like affecting her moods, appetite, etc. Your friend is unsure what to do and asks you to decide for her. What decision would you make for your friend?

A. take this pill
B. not take this pill

10. Your friend has just moved into her apartment and she notices that the smoke detector in her apartment is broken. She can ask the landlord for a new one, but she's told by her neighbors that it would be a hassle since the landlord is terrible about maintenance. Your friend is unsure what to do and asks you to decide for her. What decision would you make for your friend?

A. ask the landlord for a new smoke detector
B. not replace the smoke detector

11. Your friend has been interested in dating a close friend of hers for a while. She thinks he might be interested in her too, but she's not sure and she's worried about saying anything that might affect their friendship. Your friend is unsure what to do and asks you to decide for her. What decision would you make for your friend?

A. tell her friend how she feels about him
B. not tell her friend how she feels about him

12. Your friend recently moved into a new apartment, which she likes except that the living room has nothing in the way of a mantle or shelves on which she can put candles and the various knick-knacks that she has. She orders a shelf online to put up in the living room. When it arrives, however, she finds out that this shelf is heavier than expected. She puts it up, but it doesn't seem very stable and she's concerned that it might fall down, possibly injure her cat, etc. She could get another one online, since the place from where she ordered allows exchanges, but then she'd have to go through the whole process all over again. Your friend is unsure what to do and asks you to decide for her. What decision would you make for your friend?

A. leave the shelf up
B. get another shelf

Appendix B—Scenarios used in Study 2 (predict condition)

On the following pages, you will be asked a number of questions regarding three different scenarios. Please respond to each question independently of each of the others, and respond to the questions in order. There are no right or wrong answers. We are just interested in what you think regarding each of the scenarios.

Scenario 1—Bird Flu

Imagine that H5N1, the virus that causes bird flu, has become transmissible from human to human. Hundreds of cases have already been identified across North America, including your city. Within a few months, as many as 100,000,000 in the United States are expected to get sick with this human form of bird flu. Of those people, as many as 6,000,000 may die. To date, vaccines and antivirals are not yet available in sufficient quantities to stop the pandemic.

You can get flu from inhaling tiny droplets of respiratory fluid with flu virus in them. When an infected person coughs, sneezes, or even talks, droplets move through the air. Droplets can be on their hands, after they touch their nose or mouth. Droplets can then be passed on to you when shaking hands, or touching something another person touched such as eating utensils, door knobs, or elevator buttons. You can then infect yourself as soon as your hand touches your nose or mouth.

Wearing masks can protect you from droplets, if you use the right masks. A good mask has a snug fit and is made of fiber-like materials, so that droplets can not get past it. Masks made out of cloth may not work very well, because fluid can get through them. N-95 surgical masks are recommended for protection against flu.

To protect yourself, you have to wear a mask whenever you are around any other people. During a pandemic anyone may be infected, even if they seem healthy.

Wearing masks can be a challenge for many reasons. It can make it hard to take care of a loved one who is sick. And if you are sick yourself, it can also be a challenge to keep wearing a mask. You can not eat, drink, use an inhaler, or smoke while wearing a mask. Still, the masks have to stay on when you are around any other people.

You have to use a clean mask every time. If you put on a contaminated mask, you can infect yourself. You also have to be careful not to infect yourself when taking your mask off. You have to take the mask off without touching the outside of the mask, and then carefully wash your hands. A used mask should be thrown away. When the mask is off, you should be careful not to touch contaminated surfaces and to avoid being near any other people.

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For the following questions, assume that there is an outbreak of bird flu, and you have read the guidelines regarding wearing masks as described above.

1. Assume that you live in one of the cities where there has been an outbreak of bird flu and need to decide what to do about wearing masks. How often do you think you would follow the guidelines for wearing masks? (Place a slash at the appropriate spot on the line.)

|.....|.....|

never follow the above guidelines for wearing masks	sometimes follow the above guidelines for wearing masks	always follow the above guidelines for wearing masks

2. Now consider a close same-sex friend of yours, with similar values, etc. Assume that this friend lives in one of the cities where there has been an outbreak of bird flu and needs to decide what to do about wearing masks. How often do you think your friend would follow the guidelines for wearing masks? (Place a slash at the appropriate spot on the line.)

|.....|.....|

never follow the above guidelines for wearing masks	sometimes follow the above guidelines for wearing masks	always follow the above guidelines for wearing masks

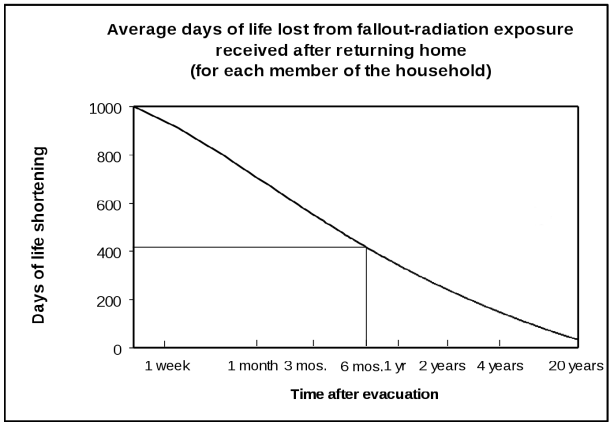
Scenario 2—Radioactive Bomb

Imagine that a small nuclear bomb was detonated in an urban area. The explosion would flatten structures within a 2 kilometer radius. Radioactive dust from the explosion would be carried high into the atmosphere and transported many kilometers downwind where it would eventually settle back to the ground. This settled radioactive dust, known as "fallout," emits harmful radiation. Exposure to high levels of fallout radiation can cause death within days or weeks. Exposure to lower levels of fallout radiation increases the risk of developing cancer some years after the exposure. Cancers that result from exposure to fallout radiation would not appear until 5–20 years after the radiation exposure had occurred.

As a result of radioactive decay, the intensity of radiation from fallout particles decreases over time. Fifty weeks after the explosion, for instance, radiation levels are only 1/100 as strong as they were at 1 week after the explosion. However, even though radiation levels many weeks following the blast would be greatly decreased from those shortly after blast, long-term radiation levels could still be high enough to increase the risk of developing cancer.

Thus, following a nuclear blast, official instructions would likely be to remain sheltered in one's basement for approximately one week, after which time there would be a total evacuation of fallout-contaminated neighborhoods to prevent further accumulation of radiation risk. Evacuees would find housing outside the contaminated zone and wait until radiation levels in their fall-contaminated neighborhoods fall to low enough levels to return to their former neighborhood to be reoccupied.

The graph below shows how much additional cancer risk one would assume by moving back to one's house at various times after the evacuation. The graph expresses risk as the number of days, on average, that one's life would be shortened by cancer caused by the fallout radiation received after moving back to one's neighborhood. For instance, if a person were to move back 6 months after evacuation, the lifespan of that person would be shortened by about 400 days, on average.



For each of the following questions, assume that the government would provide temporary housing for as long as the person chooses to stay in it, and that, whenever the person chooses to return home, community services such as schools, utilities, trash pickup, etc. would be available.

1. Assume that you live in a city where the above scenario occurred and need to decide when to move back to your neighborhood. When do you think you would move back to your neighborhood? Check the response that comes closest to your response:

__ 1 week
__ 1 month
__ 3 months
__ 6 months
__ 1 year
__ 2 years
__ 4 years
__ forever (never move back)

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2. Now consider a close same-sex friend of yours, with similar values, etc. Assume that this friend lives in a city where the above scenario occurred and needs to decide when to move back to his or her neighborhood. When do you think your friend would move back to his or her neighborhood? Check the response that comes closest to your response:

__ 1 week
__ 1 month
__ 3 months
__ 6 months
__ 1 year
__ 2 years
__ 4 years
__ forever (never move back)

Scenario 3—Hand Washing

An approach that has been shown to be effective for reducing the transmission of flu is hand hygiene. In particular, increased hand-washing frequency has been associated with decreased transmission of pathogens. Similarly, washing hands before eating and after going to the bathroom reduces the chance of passing a variety of infections. For hand washing to be optimally effective, you should wash your hands for 30–60 seconds.

Despite the potential effectiveness of hand washing as a means of reducing the spread of flu, these recommended procedures are often not followed. There are a variety of reasons that people do not follow these recommended procedures. Reasons include lack of knowledge of the effectiveness of hand washing, concerns with potential dry skin that may result from frequent use of hot water and some soaps, rough paper towels, and from not wanting to take the time to wash one's hands frequently.

1. Assume that it is now flu season and you have to decide whether to follow the recommended hand-washing procedures. How often do you think you would follow the recommended hand-washing procedures? (Place a slash at the appropriate spot on the line.)

|.....|.....|

never follow the above guidelines for hand washing	sometimes follow the above guidelines for hand washing	always follow the above guidelines for hand washing

2. Now consider a close same-sex friend of yours, with similar values, etc. Assume that it is now flu season and your friend needs to decide whether to follow the recommended hand-washing procedures. How often do you think your friend would follow the recommended hand-washing procedures? (Place a slash at the appropriate spot on the line.)

|.....|.....|

never follow the above guidelines for hand washing	sometimes follow the above guidelines for hand washing	always follow the above guidelines for hand washing

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