האוניברסיטה העברית בירושלים
THE HEBREW UNIVERSITY OF JERUSALEM

WHEN GUESSING WHAT ANOTHER PERSON WOULD SAY IS BETTER THAN GIVING YOUR OWN OPINION: USING PERSPECTIVE-TAKING TO IMPROVE ADVICE-TAKING

By

ILAN YANIV and SHOHAM CHOSHEN-HILLEL

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מרכז לחקר הרציונליות

CENTER FOR THE STUDY OF RATIONALITY

Feldman Building, Givat-Ram, 91904 Jerusalem, Israel
PHONE: [972]-2-6584135 FAX: [972]-2-6513681
E-MAIL: ratio@math.huji.ac.il
URL: http://www.ratio.huji.ac.il/

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When guessing what another person would say is better than giving your own opinion: Using perspective-taking to improve advice-taking

Ilan Yaniv and Shoham Choshen-Hillel
Hebrew University of Jerusalem

Abstract

We investigated how perspective-taking might be used to overcome bias and improve advice-based judgments. Decision makers often tend to underweight the opinions of others relative to their own, and thus fail to exploit the wisdom of others. We tested the idea that decision makers taking the perspective of another person engage a less egocentric mode of processing of advisory opinions and thereby improve their accuracy. In Studies 1-2, participants gave their initial opinions and then considered a sample of advisory opinions in two conditions. In one condition (self-perspective), they were asked to give their best advice-based estimates. In the second (other-perspective), they were asked to give advice-based estimates from the perspective of another judge. The dependent variables were the participants' accuracy and indices that traced their judgment policy. In the self-perspective condition participants adhered to their initial opinions, whereas in the other-perspective condition they were far less egocentric, weighted the available opinions more equally and produced more accurate estimates. In Study 3, initial estimates were not elicited, yet the data patterns were consistent with these conclusions. All the studies suggest that switching perspectives allows decision makers to generate advice-based judgments that are superior to those they would otherwise have produced. We discuss the merits of perspective-taking as a procedure for correcting bias, suggesting that it is theoretically justifiable, practicable, and effective.

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Belief perseverance is common. People's prior hypotheses, attitudes, and opinions seem resilient to change, even in the face of new disconfirming data. In particular, people's incorporation of new evidence tends to be biased in the direction of their prior beliefs. This has been shown in studies of Bayesian updating (Edwards, 1968), attitude change (Cohen, Aronson, & Steele, 2000; Lord, Ross, & Lepper, 1979), hypothesis-testing and people's willingness to revise preconceptions and personal theories (Koehler, 1993; Tetlock, 2005).

It has recently been suggested that individuals can transcend their egocentric viewpoint and enhance their judgment and decision making by distancing themselves from their own perspective. For example, Kross and Grossmann (2011) have suggested that self-distanced individuals reason more wisely than self-immersed ones. Other researchers have shown how perspective-taking could reduce biases in social judgment and improve the outcomes of social interactions, such as negotiations (Epley, Caruso, & Bazerman, 2006; Galinsky, Maddux, Gilin, & White, 2008; Galinsky & Moskowitz, 2000; Moore, 2005).

We investigate how perspective-taking might be used to overcome egocentric biases in advice-taking settings, where people may update their opinions after receiving the advisory opinions of others. The opinions of others are important sources of information in real-life decision situations, and therefore decision-makers' policies for using them have been at the focus of research. Studies find that decision-makers profit from receiving advisory opinions (Yaniv, Choshen-Hillel, & Milyavsky, 2009), but studies also document a dramatic self-other bias, such that decision-makers overweight their own prior opinions relative to the opinions of others (Harvey & Fischer, 1997; Soll & Mannes, 2011). As a result of their egocentric policy, decision-makers fail to exploit some of the valuable information contained in the advisory opinions, and their performance accuracy is suboptimal (Gino & Moore, 2007; Harvey & Harries, 2004; Minson, Liberman, & Ross, in press).

How might perspective-taking help individuals overcome their egocentric bias? In particular, how might asking individuals to distance themselves from their own perspective help them enhance the accuracy of their advice-based judgments? We suggest that perspective-taking changes decision-makers' mode of processing advisory opinions. Decision makers normally approach the opinions of others from their own subjective perspective. In particular, they are privy to the reasons supporting their own opinions, but not to the internal network of reasons underlying their advisors' opinions. Since decision makers weight the available opinions as a function of the

support they can gather for them, they place more weight on their own opinions than on those suggested by others (Yaniv & Milyavsky, 2007). This account of the egocentric bias explains a broad range of findings (Yaniv, 2004; for review, see Bonaccio & Dalal, 2006).

Suppose, however, that a decision maker is instructed to step into another observer's shoes and guess what his estimate would be, based on *exactly* the same set of inputs. We predict that the decision maker who adopts the vantage point of this outside observer will engage a different mode of processing in integrating the opinions from the mode she would have engaged otherwise. Instead of relying on her privileged knowledge and then using advice to update it, the perspective-taker should start by reviewing the whole set of available opinions. Consequently, her preconceptions should be less dominant in her processing of the other opinions, and her final estimate should be less egocentrically biased.

If perspective-takers indeed focus less on their own opinion and consider the available set of opinions more closely, then they should produce more accurate estimates than individuals in the comparison group. Past research has shown that decision makers presented with advisory opinions can improve their accuracy, but they fail to take full advantage of the wisdom of others (Yaniv & Choshen-Hillel, in press). Their suboptimal improvement is attributed to their underweighting of advice. Perspective-takers, in contrast, should give more equal consideration to all inputs and thus extract the information contained in advisory opinions more fully.

The benefits of equal weighting of opinions are due to basic statistical principles. A quantitative judgmental estimate of some fact can be viewed as the sum of three components: the "truth," random error (random fluctuations in a judge's performance), and constant bias (a consistent tendency to over- or underestimate the event). Statistical principles guarantee that judgments formed by averaging several sources have lower random error than the individual sources on which the averages are based. Therefore, if the bias is small or zero, the average judgment should converge about the truth (Einhorn, Hogarth, & Klempner, 1977; Soll & Larrick, 2009). Studies have consistently shown that equal weighting of uncertain estimates yields, on average, more accurate estimates than the intuitive combining of estimates (Larrick & Soll, 2006; Mannes, 2009; Yaniv & Choshen-Hillel, in press).

In summary, according to our hypothesis, judges engage two different modes of processing when integrating others' opinions, depending on the perspective implied by the task. If true, the perspective-taking hypothesis would suggest that an effective method for overcoming egocentric

bias and increasing accuracy is for judges to replace the question "What is *my* best judgment, given the available set of opinions?" with the question "What might be the best judgment of *another judge* given the same set of opinions?" Whereas the estimates produced in response to the former question are dominated by the judges' preconceptions, those produced in response to the latter question should be less egocentrically biased and thus more accurate.

To test our hypothesis, we implemented a perspective-taking procedure in the advice-taking paradigm. Participants were first asked to form an opinion about some uncertain value (the caloric value of various food items). They were then presented with five advisory opinions about that food, drawn from ecological pools of opinions. In the *self-perspective condition*, the participants were asked to give their own final best estimate. In the *other-perspective condition*, they were asked to take the perspective of another (matched) participant and predict his/her best estimate, given that s/he would be shown exactly the *same* set of opinions they were shown. We evaluated the participants' judgmental policies as well as their accuracy gains.

Study 1

Method

The experimental procedure was conducted individually on personal computers, and included 20 questions on the caloric value of various foods (e.g., "the number of calories in a bowl of cooked pasta," "the number of calories in a cup of plain yogurt"). The participants (n = 92) were undergraduate students. They were told that they would get a flat fee of 7 Israeli Shekels (IS) and, in addition, 1 IS (about $0.30) for each estimate that fell within the range extending 15% on either side of the correct answer.

The participants were assigned at random to either of two perspective-taking conditions. As shown in Table 1, in the *self-perspective condition*, for each question, participants first had to enter their best estimate (number of calories in the target food). After this initial estimate was entered, five advisory opinions were displayed on the computer screen, one below the other. The participants were informed that the advisory opinions had been drawn at random by the computer from large pools of estimates (100 estimates each) collected from other participants in an earlier survey. The advisory estimates were indeed sampled from such ecological pools and presented with labels such as #14, #1, and #53, indicating that the estimates came from different individuals on each trial. After viewing the advisory estimates, the participants were asked to make their final,

possibly revised, caloric estimate. They were also reminded of the bonus for accuracy. This procedure was repeated for each of the 20 calorie questions. The order of presentation of the questions was randomized for each participant.

Table 1
Outline of procedure and sample materials in Studies 1–2.

Self-perspective condition		*Other-perspective condition*	
Initial phase		*Initial phase*	
How many calories are there in a baked potato?		How many calories are there in a baked potato?	
Your estimate is	_____	Your estimate is	_____
Advice phase		*Advice phase*	
How many calories are there in a baked potato?		How many calories are there in a baked potato?	
Your estimate was	150*	Your estimate was	150*
The estimate of advisor #26	80	The estimate of advisor #26	80
The estimate of advisor #4	189	The estimate of advisor #4	189
The estimate of advisor #19	400	The estimate of advisor #19	400
The estimate of advisor #97	110	The estimate of advisor #97	110
The estimate of advisor #15	356	The estimate of advisor #15	356
Your final estimate	_____	Your prediction of the other person's estimate	_____
		*Final phase (**Study 2 only**)*	
		Your final estimate	_____

* The estimate entered by the participant in the initial phase.

In the *other-perspective condition*, the same 20 calorie questions were presented. As in the previous condition, the participants were asked to enter their initial estimates for each question. Then five advisory estimates were presented. Here, however, the participants were told that their task was to predict the estimate that another participant would give upon seeing the same set of opinions. Specifically, participants were told, "Your matched participant, who will come to the lab in a week, will be asked to generate a best estimate for each question from his or her perspective. S/he will be presented with the same questions and also with the same six opinions shown on your screen (i.e., yours and the five others). S/he will be asked to make his or her best estimate and will

be rewarded for accuracy. Your task is to get into his or her mindset and give us your guess of his or her best estimate. Your gain depends on your success in predicting that person's estimates. A monetary prize will be given (within two weeks) to the participant who best approximates the estimates produced by his or her matched participant."

In sum, the participants in the self-perspective condition gave their best estimates of the number of calories based on their own knowledge and the opinions available to them. The participants in the other-perspective condition gave what they thought would be the best estimates of their matched participants on the basis of the exact same set of opinions.

Results

Judgment policies. As expected, decision makers displayed a strong egocentric bias when they made advice-based estimates from their own perspective. In the self-perspective condition, the participants' advice-based opinions were identical to their initial ones in 50.3% of the cases. Did taking another perspective attenuate the decision makers' egocentric bias? As shown in Table 2, the bias was greatly reduced. The participants kept their initial estimates far less often in the other-perspective than in the self-perspective condition (16.8% vs 50.3% of the cases), $t(90) = 8.51$, $p < .001$, $d = 1.77$.

Additional support for the conclusion that perspective-taking affects participants' policies for using advice comes from two other indices. The first is an index of egocentrism, defined as the distance between the participants' initial and advice-based opinions. This distance was greater in the other-perspective condition (60.3 vs 30.1), $t(90) = 5.59$, $p < .001$, $d = 1.17$, suggesting that perspective-takers tended to adjust away from their initial opinions after receiving advisory opinions more than the controls. Another index used to capture participants' judgment policies is the distance of their advice-based estimate from the average of the six input opinions available to them on each trial. This index measures how close participants are to an equal weighting of the opinions. The distance from the average of the six opinions was less in the other-perspective than in the self-perspective condition (41.5 vs 59.2), $t(90) = 5.36$, $p < .001$, $d = 1.12$, suggesting that taking another perspective led the participants to use all the opinions more equally. Taken together, the three indices imply that perspective-takers were less egocentric and more egalitarian in their use of advice. According to our theoretical framework, the changes in judgment policy observed here should lead to greater accuracy gains. Our subsequent analyses confirmed this hypothesis.

Table 2
Results of Study 1 (units are calories)

	Self-perspective $n = 45$	Other-perspective $n = 47$
Judgment policies		
% keeping the initial estimate	50.3%	16.8%
Distance between initial and advice-based estimate	30.1	60.3
Distance between advice-based estimate and average of 6 estimates (equal-weighting policy)	59.2	41.5
Performance accuracy (mean absolute errors)		
Initial estimate	94.1	89.8
Advice-based estimate	77.5	62.8
Average of 6 estimates	54.1	52.8

Performance accuracy. The mean absolute errors of the participants' estimates are presented in Table 2. We conducted a two-way analysis of variance on accuracy, with one within-participant factor having two levels, before and after receiving advice, and one between-participant factor with two levels, self- and other-perspective. We found that, across both conditions, the advice-based opinions were more accurate than the initial estimates, $F(1, 90) = 107.83$, $p < .01$, $\eta^2 = 0.55$. The simple effects of receiving advice were significant in both perspective conditions, ps $< .01$. More importantly, a significant interaction was obtained between advice (before vs after) and perspective, $F(1, 90) = 6.00$, $p < .05$, $\eta^2 = 0.06$. This interaction supports our hypothesis that the accuracy gains from the advisory opinions would be larger in the other- than in the self-perspective condition.

Discussion

We presented participants with advisory opinions and asked them to adopt either their own perspective or that of another judge. Perspective-taking induced them to change their mode of processing. We found that participants who took the perspective of another judge did not succumb to the egocentric bias, namely, the tendency to adhere to one's own opinion. Instead, they were more egalitarian in their use of other people's opinions. Importantly, as a result of treating all the available opinions more equally, the perspective-takers were able to produce more accurate estimates than their counterparts. The fact that this tendency towards equal-weighting is

advantageous is supported by the observation that the estimates produced by averaging were generally more accurate (Table 2, bottom row).

The results of Study 1 attest to the effectiveness of perspective-taking as a corrective procedure. They imply that by switching perspectives individuals can readily produce judgments that are superior to those they normally produce from their own perspective. Thus, the overall message of the findings so far seems to be that judges who are presented with advisory opinions would be better off estimating what another person would say (based on the advice), rather than giving their own advice-based opinion.

Study 2

The findings of Study 1 about the processes underlying advice-taking suggest that, when asked to take another person's perspective, judges engage a different mode of integrating advisory opinions than their usual egocentric mode. Suppose that, after adopting a different perspective, judges are prompted to give their *own* advice-based opinions. Which mode will they use? We considered two basic hypotheses. According to one, perspective-taking modifies judges' approach to the task of integrating opinions. Thus, when asked to give their own estimates after perspective-taking, judges maintain their perspective-taking mode (rather than switch to egocentric processing). If this hypothesis is true, we should find that, when generating their own estimates, perspective takers are less partial and more egalitarian in their weighting of the advisory opinions. According to the complementary hypothesis, however, the request to provide one's own best estimate changes the processing mode and, in particular, triggers an egocentric approach. This hypothesis is based on the idea that the two different tasks (giving "the other's best estimate" and then "one's own best estimate") trigger inherently different processes. If this hypothesis is correct, then once perspective-takers revert to their own point of view, they should revert to overweighting their own prior opinion and generate inferior estimates.

To tease apart these two possibilities, Study 2 used the same procedure as before, with one important modification (see Table 1). While the self-perspective condition remained the same as in Study 1, the other-perspective condition included an additional judgment phase such that, after participants took another perspective, they were asked to give their *own* final estimate. The new phase allowed us to test whether the participants' use of advice was affected by the perspective-taking intervention.

Method

As in Study 1, the procedure was conducted individually on personal computers, and participants (n = 103) were told that they would get a flat fee and a bonus for accuracy. There were two between-participants conditions. The self-perspective condition was the same as in Study 1; participants first made initial estimates and then advice-based ones. The other-perspective condition was also the same as in Study 1, except that a final judgment phase was added. As shown in Table 1, for each question, participants made an initial estimate in the first phase, then an advice-based estimate from another person's perspective in the second phase, and lastly, their *own* (advice-based) estimate in the final phase.

Results

Judgment policies. As in Study 1, the participants in the self-perspective condition displayed a substantial egocentric bias; their advice-based estimates were identical to their initial ones in 51.7% of the cases (see Table 3). Participants adopting another person's perspective gave advice-based estimates ("other estimates") that were far less egocentric. These estimates were identical to their initial estimates in only 13.0% of the cases, $t(101) = 12.39$, $p < .001$, $d = 2.47$, replicating the effect found in Study 1. Which policy did perspective-takers use in updating their *own* opinions based on the advice? When asked to enter their own final estimates, the participants copied their initial estimates at a rate of 42.5%, far more often than in the immediately preceding phase (i.e., 13.0%), $t(50) = 8.45$, $p < .001$, $d = 1.19$. Thus the participants reverted to the egocentric policy of relying mostly on their own initial opinion.

The second index of egocentrism, involving the distance between the initial and advice-based estimates, showed a similar data pattern. First, adopting another person's perspective reduced the egocentric bias, as shown by the finding that the distance index was greater for the "other's estimates" than for the estimates made in the self-perspective condition (61.6 vs 23.9), $t(101) = 9.32$, $p < .001$, $d = 1.85$. In the final phase, however, the participants reverted to their egocentric policy. The participants' own final estimates were closer to their initial estimates than were their "other estimates" (33.9 vs 61.6), $t(50) = 8.56$, $p < .001$, $d = 1.20$. This finding reflects a substantial change in perspective-takers' policy, although the distance between their own (advice-based) estimates and their initial estimates was still greater than in the self-perspective condition (33.9 vs 23.9), $t(101) = 2.53$, $p < .05$, $d = 0.50$.

Table 3
Results of Study 2 (units are calories)

	Self-perspective	Other-perspective	
		Other est.	Final est.
	n = 52	*n* = 51	
Judgment policies			
% keeping the initial estimate	51.7%	13.0%	42.5%
Distance between initial and advice-based estimate	23.9	61.6	33.9
Distance between advice-based estimate and average of 6 estimates	57.0	40.4	55.9
Performance accuracy (mean absolute errors)			
Initial estimate	81.0	86.6*	86.6*
Advice-based estimate	70.0	63.3	70.5
Average of 6 estimates	56.5	55.7*	55.7*

*The same statistic occurs in two columns.

Our third index reflects participants' tendency to give equal consideration to all opinions. It is calculated as the distance between the advice-based estimates and the average of the six estimates. This distance was less for the "other estimates" than for the estimates made in the self-perspective condition (40.4 vs 57.0), $t(101) = 4.91$, $p < .001$, $d = 0.98$, suggesting that adopting another person's perspective induced a more egalitarian policy. The distance from equal weighting was greater for the participants' own final estimates than for their "other estimates" (55.9 vs 40.4), $t(50) = 7.45$, $p < .001$, $d = 1.04$, suggesting that the participants deviated further from the egalitarian policy in the final phase. To summarize, the three indices of egocentrism suggest that taking another person's perspective reduces egocentric bias and leads to a more egalitarian judgmental policy. However, when later asked to make their own final estimates, the participants changed their policy and displayed the egocentric bias once again.

Performance accuracy. As in Study 1, we hypothesized that, compared with participants in the self-perspective condition, perspective-takers should show greater accuracy gains in making advice-based estimates. In this study we also evaluated whether making estimates from another person's perspective enhances participants' accuracy in making their own final estimates. We therefore report two sets of analyses.

Our first analysis compares the accuracies of the "other estimates" (i.e., in the other-perspective condition) with those attained in the self-perspective condition. The relevant data are the accuracies of the initial and final estimates in the *first* and *second* columns of Table 3. We

conducted a two-way analysis of variance (equivalent to that in Study 1). As before, one factor had two levels, before and after receiving advice. The second factor was perspective. We found that receiving advice had a main effect on the participants' accuracy, $F(1, 101) = 92.\ 6$, $p < .001$, $\eta^2 = 0.48$, and that this effect was qualified by a significant interaction such that the magnitude of the advice effect was larger in the other- than in the self-perspective condition, $F(1, 101) = 12.03$, $p < .01$, $\eta^2 = 0.11$. These results replicate the findings of the first study.

Also of interest was the accuracy of the participants' "own final estimates" – namely, the ones elicited in the final phase of the other-perspective condition. The preceding analyses of the participants' judgment policies showed that they reverted to their egocentric approach when considering the advisory opinions, so that there was no reason to expect the accuracy gains found in the perspective-taking stage. We conducted a two-way analysis of variance on the accuracies (the first and third columns of Table 3) with the same two factors used above. We found again that receiving advice helped participants improve their estimates, $F(1, 101) = 74.7$, $p < .001$, $\eta^2 = 0.43$. However, the interaction of this factor with perspective was not significant; the participants' accuracy gains in the final phase were no greater than those observed in the self-perspective condition, $F(1, 101) = 2.71$, $p = .103$, $\eta^2 = 0.03$. Consistent with the finding that perspective-takers reverted to an egocentric policy when prompted to give their own final estimates, the accuracy gains were equivalent to those found in the self-perspective condition.

Overall, the results of Study 2 support the idea that different tasks cue different modes of processing. When asked to give their own best estimates, individuals become egocentric and adopting another perspective at an earlier stage does not eliminate this effect.

Study 3

A striking finding from Study 2 was that the judges treated the two prompts, requesting either "the best estimate from another person's perspective" or "your own best estimate," as completely different. When asked to give "the other person's estimate," judges repeated their own initial opinion in 13% of the cases, but when asked (subsequently) for their own estimates, they repeated their initial opinions in 42% of the cases. The measures of distance from average opinion, distance from initial opinion, and performance accuracy provide consistent evidence that perspective-takers changed their processing mode when subsequently asked to give their *own* best estimate.

One could argue that our judges showed the egocentric bias simply because they adhered to whatever initial opinions they had indicated in the initial phase. According to our hypothesis, however, when asked for their own estimates perspective-takers should switch to an egocentric mode of processing, even when no initial estimates are available to them to fall back on. To test this idea, the judges' initial opinions were *not* elicited in Study 3. If our hypothesis is true, then the data patterns obtained in this study (e.g., distance from average opinion and accuracy performance) should parallel those obtained in Study 2. That is, we should see a marked shift in processing when perspective takers are asked to give their own estimates.

Method

The study involved the self- and other-perspective conditions as in Study 2, except that the participants (n = 138) were not asked to make initial estimates (i.e., the initial phase in Table 1 was removed). Each question was presented along with six advisory opinions, and the participants were asked to generate an estimate – from either their own or another person's perspective. The perspective-takers were also asked for their *own* final estimate. In addition, the participants were queried at the end of the experiment about their strategy; they were given an open questionnaire in which to explain in writing how they had formed their estimates.

Results

Judgment policies. We computed the distance between the participants' advice-based estimate and the average of the six input opinions (see Table 4). We found that this distance was less in the other-perspective than in the self-perspective condition (52.5 vs 71.8), $t(136) = 4.95$, $p < .001$, $d = 0.84$, suggesting that perspective-takers tended more towards equal weighting of all opinions. When subsequently asked to give their own final estimates, the perspective-takers moved further away from equal weighting (65.3 vs 52.5), $t(70) = 5.23$, $p < .001$, $d = 0.62$; thus they moved away from the average of the opinions even though they had not generated initial opinions. Further, their final "own estimates" differed from their "other estimates" in 76% of the cases. The fact that the perspective-takers created substantially different estimates in the majority of the cases is consistent with the idea that they engaged in different modes of processing for the self- and the other-perspective estimates.

Table 4
Results of Study 3 (units are calories)

	Self-perspective	Other-perspective	
		Other est.	Final est.
	n = 67	*n* = 71	
Judgment policies			
Distance from average of 6 advisory estimates	71.8	52.5	65.3
% reporting seeking the central tendency	32%	72%	35%
Performance accuracy (mean absolute errors)			
Advice-based estimates	76.5	68.9	71.9
Average of 6 estimates	55.0	55.9*	55.9*

*The same statistic occurs in two columns.

A content analysis of the participants' written explanations confirms our conclusions. Two independent judges (phi correlation for reliability = .96) coded how often participants mentioned seeking the central tendency of the opinion set (e.g., "I estimated the average of the opinions because I thought this would come close to what the other person would do," "I calculated a rough average of the answers; if an answer occurred more often I used it"). The participants mentioned seeking the central tendency in 72% of the cases in the other-perspective condition and less often (32%) in the self-perspective condition, χ^2 (1, 106) = 18.32, $p < .01$. When asked for their own final estimates, the participants in the other-perspective condition reported using the central tendency in 35% of the cases, compared with 72% in the preceding stage, McNemar's test, χ^2 (1, 53) = 18.18, $p < .01$. These analyses are consistent with the findings based on the measure of the distance from the average advice.

Performance accuracy. As shown in Table 4, the estimates were more accurate in the other-perspective than in the self-perspective condition (68.9 vs 76.5), $t(136) = 2.06$, $p < .05$, $d = 0.35$. This effect replicates the one found in Studies 1 and 2. It helps corroborate the idea that perspective-taking induces judges to use a more efficient processing mode.

Given that the perspective-takers used less egalitarian policies when giving their own advice-based estimates, we did not expect these estimates to be more accurate. Indeed, the final self-estimates formed after the perspective-taking phase were not significantly more accurate than those made in the self-perspective condition (71.9 vs 76.5), $t(136) = 1.20$, $p > .2$. This result is consistent with our hypothesis and the conclusions from Study 2.

General Discussion

Our current research tested a procedure designed to overcome the egocentric bias that pervades the process of updating opinions on the basis of advice. We find that judges engage in two different modes of processing when integrating others' opinions, depending on the perspective implied by the task. Adopting another person's perspective attenuates the egocentric bias, leads to more equal weighting of the different opinions, and thereby results in greater accuracy. The main message of our studies is thus that judges presented with advisory opinions would be better off adopting the perspective of another person rather than their own.

Our studies used the advice-taking paradigm. After making their initial estimates (number of calories in some food), participants were presented with samples of advisory opinions. We compared two conditions. In the self-perspective condition, the participants were asked to give their own advice-based estimates. In the other-perspective condition, the participants were asked to produce advice-based estimates from the perspective of another person. The results of Study 1 document the major effects of perspective-taking. While the self-perspective group adhered to their initial opinions and discounted the advisory opinions, the perspective-taking group exhibited little egocentrism and tended to weight the available opinions more equally. Consequently, they made better use of the information contained in the advisory opinions and achieved greater accuracy.

Studies 2 and 3 replicated the beneficial effects of perspective-taking on accuracy and further investigated the mechanisms underlying these effects. In these studies, perspective-takers were asked to give their *own* final estimates after guessing another person's estimate; here we found that participants switched to an egocentric mode of processing, producing final estimates that were inferior to those they had just made while taking another person's perspective. Specifically, when asked to take the perspective of another judge, they did not impute their own opinion to the other person, and did not overweigh their own opinion, replicating the main result of Study 1. However, when later asked to give their own opinions, the perspective-takers switched to the egocentric processing mode, giving more weight to their initial opinion (Study 2). Likewise, they were less egalitarian in weighting the opinions in Study 3, although their initial opinions had not been elicited and thus could not be relied on as in Study 2.

Taken together, the results suggest that decision makers can readily take the perspective of another person and integrate advisory opinions in a mode that is different from the one they

normally use. Participants use this impartial mode and benefit from it only when asked directly to engage in perspective-taking. We therefore conclude that decision makers could gain from intentionally replacing their personal advice-based opinion with what they believe would be the advice-based opinion of another person.

Perspective-taking as a corrective procedure

Improving judgment is a major mission in the study of decision-making. Indeed, the insights gained into the biases and fallacies that encumber good decision-making have given rise to a variety of corrective procedures designed to remedy poor decision practices (Arkes, 1991; Lilienfeld, Ammirati, & Landfield, 2009). Researchers have tested various interventions and modifications of individuals' cognitive strategies to remove biases from decision making (Larrick, 2004). A prominent example is instructing participants to "consider the opposite" – that is, to seek evidence that might disconfirm their initial hunch. The benefits of this method for improving judgment have been noted (Herzog & Hertwig, 2009; Hirt & Markman, 1995; Hoch, 1985; Koriat, Lichtenstein, & Fischhoff, 1980). Corrective procedures could also involve replacing imperfect intuitive strategies with better ones, such as teaching decision makers to use a normative rule rather than rely on a faulty one (Larrick, 2004). In other cases decision-makers are advised to replace a default procedure with one that generates better judgments. For example, in reviewing the planning fallacy, Kahneman and Tversky (1979) suggest that planners could improve their estimates by replacing an internal question ("How long will this project take?") with an external question ("How long do projects of this sort usually take?"). Finally, "nudging" – that is, changing the environment or restructuring the decision task – could also facilitate good decisions (Thaler & Sunstein, 2008).

Our perspective-taking procedure, in our view, belongs to this broad and diverse class of corrective procedures. We suggest that viable corrective procedures should be theoretically justifiable, effective, and practicable. Indeed, our procedure *stems from a theory*. The success of the manipulation can be theoretically accounted for in terms of a distinction between self and other perspectives. Decision makers normally approach others' opinions from their own perspective, yet, when instructed to adopt the perspective of an outside observer, they engage in a more impartial processing mode and become less prone to overweight their own opinion. As we have suggested, such a change in judgment policy should be advantageous. Interestingly, Soll and Mannes (2011) have recently suggested that judges produce more accurate advice-based estimates "when the self

is not involved." Our findings are in complete accord with this view, suggesting that one can disengage the self, so to speak, by taking another person's perspective. This idea is also similar to the idea that self-distancing can enhance judgment (Kross & Grossmann, 2011).

It is imperative that corrective procedures should be not only grounded in theory, but also *practicable*. One could conceive of procedures that would be far too hard to implement because, for example, they are too time-consuming or too complicated. Our procedure, however, seems straightforward and easy to apply. People should be asked to estimate what another person would say given a set of opinions (their own and another's) rather than offer the best estimate from their own point of view. We have found that participants are responsive to the instructions to take another person's perspective, and they readily distance themselves from their own perspective. This is not obvious, since perspective-taking requires adjustments that are not always straightforward (e.g., Epley, Keysar, Van Boven, & Gilovich, 2004). Moreover, our accuracy measures suggest that, when prompted to take another person's perspective, participants can easily compute more accurate estimates than the ones they normally give.

Finally, even practicable procedures that are grounded in theory could ultimately be ineffective, for a variety of reasons. Judgmental biases in general tend to be resistant to change and corrective methods are often ineffective (Arkes, 1991; Larrick, 2004; Milkman, Chugh, & Bazerman, 2008). For example, warnings tend to be futile (Fischhoff, 1982), and educational methods tend to have limited effectiveness (Lilienfeld et al., 2009). Further, people may be unreceptive to corrective efforts because they do not perceive themselves as biased and therefore in need of remediation (Pronin, Gilovich, & Ross, 2004). Our perspective-taking procedure has been found *effective* in that our participants stepped into another observer's shoes and adopted less biased and more profitable policies. While our participants did not use perspective-taking spontaneously, they readily adopted such a perspective when instructed to do so and clearly benefited from it. The recommendation of perspective-taking as a corrective procedure is thus based on its being theory-driven, practicable, and effective.

Final remarks

Researchers have pointed out that the study of biases far outpaces the research on how to overcome the biases found (Lilienfeld et al., 2009). Indeed, the inventory of successful corrective tools – namely, ones that are theory-based, practicable, and effective – is fairly limited. Given the paucity of such tools, novel research on corrective procedures is of importance for both theoretical

and applied reasons. The present theory and findings seem encouraging as they offer a tool for avoiding a pervasive egocentric bias in belief revision. They suggest that decision makers could improve their advice-based judgments by replacing their own opinion with what they believe would be the opinion of another person.

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