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Two Egocentric Sources of the Decision to Vote: The Voter's Illusion and the Belief in Personal Relevance

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The decision to vote in a national election requires a choice between serving a social good and satisfying one's self-interest. Viewed as a cooperative response in a social dilemma, casting a vote seems irrational because it cannot have a discernible effect on the electoral outcome. The findings of two studies with undergraduate samples suggest that some people vote not because they set aside self-interest, but because they expect their own behaviors to matter. Two psychological processes contribute to this belief: the voter's illusion (the projection of one's own choice between voting and abstention to supporters of the same party or candidate), and the belief in personal relevance (the belief that one's own vote matters regardless of its predictive value for the behavior of others). The rationality of these two egocentric mechanisms depends on the normative framework invoked. Their relevance for actual voting behavior is indicated by their ability to account for four types of variation in turnout rates.

KEY WORDS: voting, projection, counterfactual reasoning, social dilemmas

> *"Just" one vote can and often does make a difference in the outcome of an election.*
>
> Federal Election Commission (1999)

> *There is no reasonable basis for asserting that your vote will make or break a tie.*
>
> Aldrich (1993, p. 258)

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For a democracy to function, citizens must exercise their right to vote. In the United States, voter turnout in presidential elections has dropped to about 50% of the voting-age population. In response, government agencies and other organizations appeal to citizens to vote—for instance, by trying to persuade citizens that each vote matters. At its Web site, the Federal Election Commission shows how a single vote can be decisive, citing four elections. However, no recent instances are mentioned; all four elections occurred in the 19th century, they all involved seats in the House of Representatives, and the numbers of voters were below 10,000. The implication is that since 1900, no election in the United States has turned on a single vote. This is not surprising because most voting districts have become more populous. More than ever, prospective voters face the question of whether their own individual votes matter.

In the classic public-choice model, decisions to vote follow from a rational calculus (Downs, 1957). An individual act of voting is understood as an investment toward a desired outcome made by a citizen who weighs the expected benefits of winning against the costs of voting. For an investment to be rational, the perceived probability of the desired outcome must be greater than zero. Several commentators have noted that in large elections, the mathematical irrelevance of a single vote is a "big brute fact" and "a moral certainty" (Meehl, 1977, p. 11; see also Overbye, 1995). As vividly demonstrated during the 2000 presidential election in the United States, electoral outcomes are more likely to depend on errors of counting than on the behavior of an individual voter. Moreover, casting a vote requires some time and effort. Other activities need to be canceled or postponed, which creates opportunity costs and possibly regrets. The classic model of rational choice fails to explain why anyone would engage in a behavior that is costly and does not yield any detectable benefits. In other words, the model does not answer a central question of the social sciences, namely the question of how collective action can arise from individual decisions (Colman, 2003; Ostrom, 1998).

The conflict between an individual's interest in avoiding the costs of voting and the collective interest in the preservation of the democratic system creates a public goods dilemma. As in other social dilemmas, defection from the collective (i.e., abstention) is considered the rational choice because the consequences for the individual are more desirable than are the consequences of cooperation (i.e., voting), no matter what others do (Dawes & Messick, 2000; Komorita & Parks, 1997). From this perspective, voting is socially but not individually desirable. In an attempt to explain why voting occurs nonetheless, several theorists have suggested that voters can reap non-instrumental rewards regardless of the electoral outcome (Brennan & Lomasky, 1993). Some feel gratified by being able to act on their political attitudes and allegiances, whereas others seek to foster reputations as responsible citizens (Barnea & Schwartz, 1998; Lanoue & Bowler, 1998; Sabucedo & Cramer, 1991; Southwell & Everest, 1998). In short, these alternative accounts focus on the expressive function of voting.

Other theorists have suggested that people, perhaps mistakenly, believe that their individual votes are relevant (Riker & Ordeshook, 1968). However, very few studies have focused on the psychological mechanisms that may account for such a belief. We address this gap by describing and testing two mechanisms that make voting behavior quasi-instrumental. The first phenomenon is the *voter's illusion*, which occurs when people project their own intentions, either to vote or to abstain, more strongly to similar others (i.e., supporters of the same party) than to dissimilar others. Because this projection differential inspires greater optimism regarding the election outcome when voting rather than abstention is being considered, many people may choose to vote (Quattrone & Tversky, 1984).

The second phenomenon, which is yet to be demonstrated, is the belief that individual votes matter regardless of their predictive value for the behavior of others. This *belief in personal relevance* negates the moral certainty argument. Inasmuch as people experience a choice between voting and abstaining, they can speculate about the implications of their own behavioral choices in conjunction with alternate outcomes. There are four possible combinations of events. A person may either vote or abstain, and the favored party may either win or lose. Two of these scenarios are immune to counterfactual behavior change. If victory occurs despite the individual abstaining, or if defeat occurs despite the individual voting, the outcome would have been the same had the person acted differently. In contrast, the other two scenarios allow the perception that one's vote might matter. If victory occurs after the individual voted, a counterfactual withdrawal of that vote raises the possibility that the election could have been lost. If defeat occurs after the individual abstained, a counterfactual casting of that vote would raise the question of whether the election might have been won. Note that these counterfactual deliberations can lead to the belief of personal relevance only if they occur *before* the election. Post-election counterfactual reasoning is fruitless because it will have become evident that the election, yet again, did not turn on a single vote.

We conducted two studies to examine these two egocentric sources of voting intention and to assess whether they are related to each other. Before presenting the empirical work, we review the presumed processes underlying each phenomenon.

The Voter's Illusion

Quattrone and Tversky (1984) suggested that voters regard their own decisions as being diagnostic of the decisions of millions of other voters who share their political preferences. Participants in their study were asked to identify with one of two parties seeking to govern the country of "Delta." Some participants learned that the electoral outcome depended on each party's ability to mobilize its supporters. Others learned that the election depended on the ultimate behavior of unaligned voters. Thus, only participants in the party-supporters condition could use their own intentions (vote or abstain) to predict the outcome. All

participants predicted the electoral outcome under the assumption that they had voted, and under the assumption that they had abstained. As expected, participants in the party-supporters condition thought that victory was more likely if they themselves voted. The voter's illusion was revealed by the correlation between the degree to which the expected electoral outcome was associated with individuals' own hypothetical behavior (i.e., estimated likelihood of victory if voting minus estimated likelihood of victory if abstaining) and the strength of their expressed intentions to vote.

Why did the voter's illusion occur? To a person who is yet to make a decision, the expected outcome may vary depending on whether voting or abstaining is being considered. When considering voting, the person expects victory and may be tempted to conclude that his or her individual vote is not needed. If the person then decides to abstain, this change of mind may *also* be projected to like-minded others, resulting in the expectation of defeat. One way in which a person can avert a cycle of changing forecasts contingent on changes of mind is to freeze deliberations when the forecast is good. Going out to vote may then appear to be a small price to pay for optimism.[1]

Quattrone and Tversky (1984) attributed the voter's illusion to the belief that the decision to vote might *induce* others to do likewise. Such a belief would constitute magical thinking because individual decisions can have no causal effect on the behavior of the aggregate. Alternatively, people may merely believe that their own actions are diagnostic of collective behavior, in which case they can read their own voting as a sign that many like-minded others will vote too. To pursue these hypotheses, we incorporated the variable of time (see Morris, Sim, & Girotto, 1998, for a related study of the prisoner's dilemma). Even the most magical of thinkers should recognize that causes must precede effects. If magical thinking occurs, the voter's illusion should be limited to those who act before instead of after most others.

Beliefs in Personal Relevance

The hypothesis that people believe their own votes matter is consistent with several social-psychological principles. People tend to attribute their actions to their own decisions rather than to the fact that group statistics, by definition, predict the acts of most individuals (Gilbert & Malone, 1995). If, for example, an 80% turnout is predicted, a voter will still put a premium on his or her individual choice to act. The sense of individual agency is greatest when behavior takes

[1] This loop is a game-theoretic paradox (Aldrich, 1993). Supposing that projection extends to the entire electorate, a citizen who intends to abstain might conclude that everyone will abstain. Then, this citizen could expect to break the 0–0 tie by casting the decisive vote (perhaps electing himself or herself president; Tullock, 1975). As projection shifts with this change of heart, this citizen will come to expect that others will vote too, and thus see the differential impact of his or her own vote swamped again. Then, the citizen reverts to abstention, and so on.

effort and appears to be controllable (Langer, 1975). In social dilemmas, individual cooperators also tend to believe that they and others will benefit in the long run from cooperation (Chaitas, Solodkin, & Baron, 1998). Moreover, cooperators in small-scale public goods games overestimate the probability that their own contributions are critical (Dawes, Orbell, Simmons, & van de Kragt, 1986). We hypothesize that many voters share such egocentric expectations when contemplating their own roles in large-scale elections.

Elections usually end in victory or in defeat for any given party, and individual party supporters either vote or abstain. Whatever the combination of outcome and behavior may be, people can ask counterfactual questions such as "What if my behavior were different?" and act to minimize the aversiveness of these answers (Mellers, Schwartz, & Ritov, 1999). In the realm of voting, the perception of not wasting a vote expresses a belief in personal relevance (Meehl, 1977), and confidence in future voting expresses a "preparative behavior" commonly arising from counterfactual reasoning (Roese, 1994).

We expected that if people believe that their own votes matter, their perceptions that a vote will be wasted would be low and their confidence in future voting would be high under two sets of circumstances. First, if the outcome is positive and the person has voted, he or she might speculate that the outcome could have been unfavorable if he or she had abstained. Second, if the outcome is negative and the person has abstained, he or she might wonder if victory could have been possible if he or she had voted. Conversely, when there are no opportunities for counterfactual reasoning, perceptions of waste are likely to be high, and confidence in future voting is likely to be low. Such conditions arise if the outcome is negative and the person voted, or if the outcome is positive and the person abstained. No change in behavior could have altered the outcome in these conditions.

We tested the effects of individual behavior and election outcome on perceptions of waste and future voting intentions, expecting that the former would predict the latter. When people are led to predict their own future intentions by way of counterfactual reasoning, their own anticipated hedonic responses may arguably play a mediating role (Landman, 1987). Preliminary research on "prospect-based" emotions, however, suggests that intentions to act can occur without the intervention of negative affect (Roese, 1994).

Study 1: Voting in Nation "Delta"

We adopted Quattrone and Tversky's (1984) paradigm and added a manipulation of the timing of voting behavior to explore the possibility that the voter's illusion is stronger among earlier voters than among late voters. To examine beliefs in personal relevance, we paired each collective outcome (victory or defeat) with each behavior (vote or abstain). For each of the four possible scenarios, participants rated the degree to which they would experience a sense of

having wasted a vote, their confidence in voting in the next election, and the extent of their regret and satisfaction.

Method

Participants. Undergraduates (N = 110) participated in this study. Half of them completed the study to fulfill a course requirement; the other half completed the study as part of a class activity.

Design and procedures. Participants read a description of nation "Delta," which was about to hold an election (see Quattrone & Tversky, 1984, study 2). Participants were asked to imagine themselves as supporters of the Peace Party (which opposed the War Party). They learned that political analysts predicted that the electoral outcome would depend on which party's supporters turned out in greater numbers: The party that was better able to mobilize its supporters was expected to win by a margin of 200,000 to 400,000 votes. Participants also learned that voting in Delta involved time and effort, and that citizens do not typically share information about their voting intentions with others because it is improper etiquette in Delta to do so.

Next, participants received information about their schedule for the day and the times available for casting a vote. Half of the participants were placed in the morning condition, and half were placed in the evening condition. The morning condition opened with the following scenario:

> Imagine that you have to go to the office and work from 9 a.m. to 5 p.m. After work, you must hurry off to the airport to catch a flight to country Beta, where you have some business transactions to take care of. The only time available for you to possibly vote is in the early morning between 7 a.m. and 8 a.m.

The evening condition opened with an alternative scenario:

> Imagine that you have to go to the office and work from 7 a.m. to 4 p.m. After work, you must hurry off to the airport to pick up a business associate, whose flight arrives from country Beta at 6 p.m. The ride from the airport to the polls is approximately 45 minutes, but with rush hour traffic, the ride should take about 1 hour. The only time available for you to possibly vote is between 7 p.m. and 8 p.m.

A manipulation check performed on a separate sample (N = 38) showed that 84% of respondents correctly recalled the timing of their voting behavior at the end of the procedure.

Participants answered six questions drawn from Quattrone and Tversky (1984). The first two ratings referred to the expected turnout as a function of the participant's own behavior: "If you vote, how likely is it that other supporters of Party A (the Peace Party) will vote in larger numbers than the supporters of Party

B (the War Party)?" and "If you abstain, how likely is it that other supporters of Party A will vote in larger numbers than the supporters of Party B?" The next two ratings referred to the likelihood of the Peace Party's victory as a function of the participant's own behavior: "If you vote, how likely is it that Party A will defeat Party B?" and "If you abstain, how likely is it that Party A will defeat Party B?" The final two ratings referred to the participants' own intentions to vote: "How likely are you to vote if the theory of the political analysts about the outcome of the election is true?" and "Would you vote if the political theory were true and voting in Delta were costly?" All ratings were made on 9-point scales (1 = very unlikely, 9 = very likely; for the last rating, 1 = not at all, 9 = most definitely).

Following these ratings, participants received the scenarios combining each possible electoral outcome (victory vs. defeat) with each possible behavior (vote vs. abstain). Throughout, participants were asked to assume that they intended to vote, but half the time, the opportunity to act did not arise. Participants in the morning condition were presented with the following situation:

> Suppose that you had decided to vote but that you overslept because your alarm was disabled by a brief power outage. You had to go on your business trip without going to the polls first. When you return in the evening, you learn on the news that Party A (or B) won the election.

Participants in the evening condition were presented with an alternative mishap scenario:

> Suppose that you had decided to vote but that you got caught in so much traffic between the airport and the city that you could not get to the polls in time. When you return to your house after dropping off the business associate at the hotel, you learn on the late-night news that Party A (or B) won the election.

For each scenario, participants made four ratings: "How much *regret* would you feel about the fact that you took the time to vote (did not cast your vote)?", "How much *satisfaction* would you feel about the fact that you voted (did not cast your vote)?", "How much would you agree with the suggestion that your vote was (would have been) a *waste* (i.e., a 'throw-away' vote)?", and "How *confident* would you feel that you'd vote in the next election?" All ratings were made on 9-point scales (1 = total absence of the emotion, 9 = intense feeling of the emotion).

Results

Because people vote for a variety of reasons and because it is easier to express an intention than it is to act, intentions to vote were expected to be strong overall. Indeed, ratings of the likelihood of voting [$M = 7.15$, $t(109) = 17.02$, $d = 1.62$]

and of voting intentions [$M = 6.26$, $t(109) = 8.58$, $d = .82$] were both above the scale midpoint. The timing of voting did not qualify these effects.

The voter's illusion. Conditional estimates of electoral outcome (voter turnout favoring Party A and the likelihood of victory for Party A) were entered into a multivariate analysis of variance (MANOVA), in which Behavior (vote vs. abstain) varied within participants and Time of Voting (morning vs. evening) varied between participants. The only significant effect was that of behavior. A favorable outcome appeared more likely if participants expected to vote ($M = 5.06$) rather than abstain ($M = 4.48$) [$F(1, 108) = 31.75$, $d = .49$].

For each participant, a projection score was computed as the average of two differences (voter turnout if voting minus voter turnout if abstaining, victory if voting minus victory if abstaining); voting intentions were computed as the average of two ratings (likelihood of voting and voting intention, which were highly correlated: $r = .68$). The voter's illusion was then captured by the correlation between the projection scores and the voting scores [$r(108) = .19$, $p = .027$, one-tailed]. Analyses performed separately for the components of the composite projection and intention scores did not qualify the results. Moreover, there was no evidence for magical causation ($r = .19$ and .18 for the morning and the evening condition, respectively).

The size of the voter's illusion was relatively modest, in part, because the social desirability of voting (Silver, Anderson, & Abramson, 1986) constrained the range of voting intentions. Even among participants who did not show any tendency to project their own decisions to similar others (i.e., 54% of the sample), voting intentions were above the midpoint of the scale [$M = 6.51$, averaged across the two relevant ratings; $t(58) = 9.62$].

Personal relevance. Our second prediction was that people would expect to respond differently to an electoral outcome depending on whether they would vote or abstain. If they believe that their own votes matter, people may be least likely to consider their votes to be wasted after victory and voting or after defeat and abstaining. Under the same conditions, they may express high confidence in future voting. In contrast, perceptions of waste may be comparatively high and confidence may be low after victory and abstaining or after defeat and voting. Effects of timing were neither predicted nor found.

Ratings of waste and confidence confirmed the hypotheses (Table 1). A 2 (Outcome: victory vs. defeat) × 2 (Behavior: vote vs. abstain) repeated-measures ANOVA was conducted for each rating variable. Perceptions of waste showed the predicted interaction [$F(1, 108) = 50.31$]. Assuming victory, ratings were lower after voting than after abstaining [$F(1, 109) = 49.37$, $d = .67$]. Assuming defeat, ratings were higher after voting than after abstaining [$F(1, 109) = 12.42$, $d = .34$]. Confidence in future voting showed an interaction [$F(1, 108) = 48.76$], whose pattern was, as expected, the inverse of that of waste. Assuming victory, confidence was greater after voting than after abstaining [$F(1, 109) = 48.8$, $d = .67$].

Table 1. Means (and Standard Deviations) for the Critical and the Hedonic Measures: Study 1

Measure		Election outcome	
		Victory	Defeat
Waste	Vote	2.80 (1.85)	4.08 (2.51)
	Abstain	4.42 (2.42)	3.35 (2.13)
Confidence	Vote	7.18 (1.54)	6.52 (1.84)
	Abstain	6.15 (1.93)	7.02 (1.83)
Regret	Vote	1.40 (0.74)	3.30 (2.32)
	Abstain	2.87 (1.89)	6.48 (2.29)
Satisfaction	Vote	7.47 (1.70)	5.04 (2.29)
	Abstain	2.42 (1.65)	2.00 (1.44)

Note. $N = 110$. Ratings range from 1 (low) to 9 (high).

Assuming defeat, confidence was lower after voting than after abstaining [$F(1, 109) = 11.73$, $d = .33$].

Table 1 also shows the mean ratings for the hedonic variables of regret and satisfaction. As expected, regret was lower after victory than after defeat [$F(1, 108) = 227.10$], and it was lower after voting than after abstaining [$F(1, 108) = 124.42$]. Conversely, satisfaction was greater after victory than after defeat [$F(1, 108) = 104.78$], and it was greater after voting than after abstaining [$F(1, 108) = 350.15$]. Although both measures also yielded significant interactions ($F = 40.72$ and 55.53 for regret and satisfaction, respectively), simple effects analyses showed that the effects of voting versus abstention were significant regardless of election outcome.

A set of weights was chosen for each variable to measure the extent to which the theoretical patterns predicted participants' ratings. For the critical measures of waste and confidence, the weights reflected the expected interactive pattern between outcome and behavior (for waste, −2 for victory/vote, 2 for victory/abstain, 2 for defeat/vote, and −2 for defeat/abstain; for confidence, the signs of these weights were reversed). For the two hedonic measures, the weights reflected an additive pattern of the two main effects (for regret, −3 for victory/vote, −1 for victory/abstain, 1 for defeat/vote, and 3 for defeat/abstain; for satisfaction, 3, −1, 1, and −3, respectively).

To examine the correlations among the four response measures, we computed composite scores by multiplying each rating with its theoretical scenario weight and summing the products across scenarios for each participant. Table 2 (top panel) shows the correlations among the four measures across participants. Ratings of confidence were more highly correlated with ratings of waste than with either of the hedonic variables [$t(107) = 37.90$ and 39.95 regarding the correlations involving regret and satisfaction, respectively], which suggests that the latter did not play a critical mediating role.

Table 2. Correlations Among Expected Post-Election Responses

Study 1			
	Satisfaction	Waste	Confidence
Regret	.74	.74	.69
Satisfaction		.71	.67
Waste			.94
Study 2			
	Satisfaction	Waste	Confidence
Regret	.54	.38	.40
Satisfaction		.02	.12
Waste			.43

Note. Correlations were computed across participants between the sums of the products of ratings and their respective scenario weights.

Across participants, the theoretical weights predicted ratings of both waste ($r = .21$) and confidence ($r = -.25$). To examine the idea that ratings of waste mediated ratings of confidence rather than vice versa, we recomputed the correlations between weights and one type of rating while holding constant the other type. When ratings of waste were controlled, the correlation between weights and confidence dropped significantly ($r = .09$, $p < .05$; see Olkin & Finn, 1995, model C, p. 160). Conversely, the correlation between weights and waste was not significantly reduced when confidence was controlled ($r = -.17$). This pattern is consistent with the idea that perceptions of waste affected confidence in voting, rather than vice versa.

To examine the potential interrelatedness of beliefs of personal relevance and the voter's illusion, we correlated the composite projection scores with the composite scores of perceived wastefulness ($r = -.05$) and with the composite scores of confidence in future voting ($r = -.03$). The low correlations suggested that the two egocentric sources of voting operated largely independently of one another. To follow up this analysis, we also reexamined the voter's illusion correlation (across participants) while controlling for the composite scores of perceived waste and for the composite confidence scores. Neither approach altered the voter's illusion by more than .02.

Discussion

The voter's illusion and beliefs in personal relevance emerged as distinct psychological sources of voting intentions. The size of the voter's illusion was more modest than it was in Quattrone and Tversky's (1984) original study, but it was the same for evening voters and morning voters. The lack of a timing effect

suggested that a magical belief in one's power to cause others to vote did not play a role. Instead, the voter's illusion simply appeared to capitalize on the perceived diagnosticity of one's own decision.

Perceptions of personal relevance emerged when counterfactual reasoning led participants to expect that their own votes might matter. Prospective nonvoters might expect to reproach themselves when contemplating electoral defeat (Ferejohn & Fiorina, 1974), whereas prospective voters can look forward to basking in the glow of victory. Inasmuch as people can simulate such reactions in advance, they can come to infer that they are better off if they vote (Markman, Gavanski, Sherman, & McMullen, 1995).

An alternative view is that anticipated responses follow a simple affective calculus. People expect to feel good (low regret, high satisfaction) after acting as social desirability demands (i.e., voting) or after receiving good news (i.e., victory). They expect to feel bad after failing to act on behalf of the social good (abstaining) or after receiving bad news (defeat). The data in Table 1 show that after voting and victory, participants displayed a pattern of low regret and high satisfaction, coupled with the belief that their votes were not wasted and that they would vote again. When voting was combined with defeat or when abstaining was combined with victory, the pattern was attenuated in a way consistent with this alternative view. There were greater expectations of regret, less satisfaction, more wastefulness, and reduced confidence. The data obtained in the fourth condition, however, were not compatible with the affective view. Although regret shot up and satisfaction dropped even lower when abstaining was combined with defeat, the perception of wasting a vote was down again and confidence in future voting was up. In other words, the affectively most rewarding and most aversive scenarios presented the most compelling contexts for voting.

Study 2: Beliefs in Personal Relevance in the 2000 Presidential Election

Our second study was designed to examine beliefs in personal relevance in a more realistic context. Participants were asked to consider the 2000 presidential election at a time when that election was 18 months in the future. For each possible electoral outcome (victory vs. defeat of their favored candidate), participants considered the possibilities that they themselves had voted or that they had abstained. We predicted that perceptions of wasting a vote and confidence in future voting would depend on the interaction of electoral outcome (victory vs. defeat) and personal behavior (vote vs. abstain). We revisited the question of how well anticipated hedonic reactions account for confidence in future voting.

Method

Undergraduates (N = 86) completed the study as an in-class activity. They read the following scenario:

> The next presidential election in the United States will be held in November of the year 2000. Most likely, there will be one Democrat and one Republican candidate. Political analysts expect that the candidate whose party best mobilizes its supporters will win the election.

The first three questions were intended to raise awareness about this election and to ascertain the anticipated level of involvement: "Please think about the upcoming election and ask yourself whether you will have a preference for a candidate of one of the two parties. Now rate how certain you are that you will have a preference," "Also rate how certain you are that you know what that preference is," and "Rate how likely it is that you will go out and cast your vote." All ratings were made on 9-point scales (1 = uncertain, 9 = certain; for the last rating, 1 = not likely at all, 9 = highly likely).

After making these ratings, participants read the four scenarios. They were asked to assume that their preferred candidate had either won or lost the election, and that they had either cast a vote or abstained. For each scenario, they responded to four questions: "How much regret would you feel about the fact that you took the time to vote (did not cast your vote)?", "How much satisfaction would you feel about the fact that you voted (did not cast your vote)?", "How much would you agree with the suggestion that your vote was (would have been) a waste (i.e., a 'throw-away' vote)?", and "How confident would you feel that you'd vote in the next election?" Each rating was made on a 9-point scale, with higher numbers representing stronger responses. The order of the scenarios varied, but the order of the questions remained constant.

Results and Discussion

Participants were quite certain of having a preference [$M = 6.19$, $t(84) = 6.87$, $d = .69$] and of knowing what kind of preference it would be [$M = 6.18$, $t(83) = 6.71$, $d = .63$]. They also expressed strong intentions to vote [$M = 6.35$, $t(84) = 6.23$, $d = .63$]. Being above the scale midpoint, these averages suggested that participants expected this election to be personally involving.

The means and standard deviations of the two critical measures, waste and confidence, and the two hedonic measures, regret and satisfaction, are presented in Table 3. We hypothesized that participants would perceive their own votes as more wasteful and that they would express greater confidence in future voting when they could imagine that a counterfactual change in their own behavior was associated with the electoral outcome. The expected interactions between Outcome and Behavior were significant for perceptions of both waste [$F(1, 85) = 23.56$] and confidence [$F(1, 85) = 19.56$]. Assuming victory, perceptions of waste were lower after voting than after abstaining [$F(1, 85) = 40.59$, $d = .69$] but did not vary assuming defeat ($F < 1$). Assuming victory, confidence was

Table 3. Means (and Standard Deviations) for the Critical and the Hedonic Measures: Study 2

Measure		Election outcome	
		Victory	Defeat
Waste	Vote	2.67 (2.18)	3.48 (2.41)
	Abstain	4.35 (2.37)	3.38 (2.20)
Confidence	Vote	7.14 (2.14)	6.48 (2.39)
	Abstain	6.15 (2.41)	6.85 (2.33)
Regret	Vote	1.24 (0.61)	2.23 (1.81)
	Abstain	3.57 (2.20)	6.05 (2.60)
Satisfaction	Vote	7.21 (2.12)	5.12 (2.46)
	Abstain	2.34 (1.58)	1.85 (1.43)

Note. $N = 86$. Ratings range from 1 (low) to 9 (high).

greater after voting than after abstaining [$F(1, 85) = 28.68$, $d = .58$]. After defeat, confidence was lower after voting than after abstaining [$F(1, 85) = 6.09$, $p < .05$, $d = .27$].

Ratings of regret and satisfaction supported the hedonic hypothesis that people expect to feel better after victory than after defeat, and to feel better after voting than after abstaining. Regret was lower after victory than after defeat [$F(1, 85) = 104.57$, $d = .97$], and it was lower after voting than after abstaining [$F(1, 85) = 137.61$, $d = 1.71$]. Conversely, satisfaction was greater after victory than after defeat [$F(1, 85) = 59.48$, $d = .68$], and it was greater after voting than after abstaining [$F(1, 85) = 230.37$, $d = 2.15$]. Both measures also yielded significant interactions ($F = 17.99$ and 38.11 for regret and satisfaction, respectively).

As in Study 1, composite scores were computed by multiplying the theoretical scenario weights with the observed ratings and summing the products across scenarios. Again, the correlation between perceptions of waste and confidence in future voting were related (Table 2 bottom panel), but in this study, anticipated regret predicted confidence nearly as well as perceptions of waste did. The theoretical scenario weights again predicted ratings of waste ($r = .15$) and ratings of confidence ($r = -.19$), but the partial correlations (waste, $r = .11$; confidence, $r = -.16$) were not significantly smaller than their respective zero-order correlation.

In short, beliefs in personal relevance were detected in a more realistic context. Compared with Study 1, three out of four simple effect sizes remained stable. Only the difference in perceptions of waste assuming voting versus abstention in the case of defeat became significantly smaller. The correlational findings were less clear-cut than in Study 1. Because the two studies differed in several ways, it was not possible to reach definitive conclusions regarding the role of regret, and we defer this issue to future research.

General Discussion

Implications for the Rationality of Voting

The status of the voter's illusion and the belief in personal relevance as being rational or irrational needs to be considered in light of formal models. With regard to the voter's illusion, Quattrone and Tversky (1984) assumed that people should realize that their individual decisions to vote play no causal role in turnout. People should recognize abstention as the dominating choice. The argument of dominance is the standard basis for the claim that defection is rational in social dilemmas. The hallmark of this argument is that rational choice is defined without any reference to the perceived probabilities with which the alternative outcomes will materialize.

Consider the implications of this view for Newcomb's problem. In Newcomb's problem, a person faces two boxes. Box A is known to contain $1,000. Box B contains either $1 million or nothing, depending on what a demon (who has awesome powers of forecasting) has predicted the person will do. If the demon has predicted that the person will take only Box B, he put $1 million in Box B. If he has predicted that the person will take both boxes, he left box B empty. Taking both boxes is the dominating choice because whatever the demon did, the chooser's decision cannot affect it retroactively. The demon's putative predictive successes are therefore irrelevant for choices in the present.

To Nozick (1969), who originally presented this problem, the fascination lay in the existence of an alternative rationale for choice. The evidential or inductive argument recognizes the relevance of the demon's record of accurate predictions. Accepting the view that the demon's predictions and individual choices are conditionally dependent, a person can expect the probability of box B being loaded to be higher if he or she takes only this box (Nozick, 1993). The person choosing one box is essentially making a prediction about the demon's prediction by projecting his or her own decision. In voting and in other forms of cooperative dilemmas, social projection serves the same predictive purpose. Individuals can project their own intended choices to others. Because people are more likely to project to members of an ingroup than to members of an outgroup (Clement & Krueger, 2002), they also tend to cooperate more with the former (Yamagishi & Kiyonari, 2000).

The question of whether beliefs in personal relevance are rational may also be considered from two divergent perspectives. Here, it is the probability view that suggests irrationality because the belief in personal relevance implies an overestimation of the actual probability of making a difference (Olson, 1965). In the absence of an instrumental justification, the costs of voting should persuade a person to abstain. As Meehl (1977) put it,

> My rough calculations indicate that my chances of determining who becomes President are about of the same order of magnitude (i.e., $p = 10^{-8}$) as my chances of being killed driving to the polls—hardly a profitable venture. (p. 11)

Dissenting, Parfit (1984) suggested that voters act rationally if they care about the benefits reaped by others as much (or nearly as much) as they care about their own. True altruists would vote because the total number of people benefiting from victory of the presumed superior candidate is so large that it more than offsets the costs incurred by the individual voter. Parfit's conclusion hinges on the assumption that such altruism is a powerful motive. This seems unlikely in light of the finding that altruistic motives tend to weaken as electorates become larger and their members more anonymous (Dovidio, 1984). Moreover, cooperation in the prisoner's dilemma drops sharply when players learn about their opponents' decisions before making their own (Shafir & Tversky, 1992). As true altruists, they would still have to cooperate with someone whose cooperation or defection is already evident.[2] Instead, cooperation depends on their hopes and fears associated with the uncertainty about the other player's behavior (as suggested by the inductive principle of choice).

The belief in personal relevance seems less irrational when evaluated against a coherence criterion. However mistaken they might be when compared with an external truth criterion, beliefs are coherent if they avoid outright contradictions (Dawes, 1998). If, by simulated counterfactual reasoning, people come to conclude that their own votes are unlikely to be wasted, they might act on that belief.

In short, both the voter's illusion and the belief in personal relevance are potentially rational, but not in the way envisioned by the traditional public-choice model.

Implications for Actual Voting

Voter turnout is a key variable of interest to most political analysts. Predictive models typically include voters' demographic characteristics (e.g., age, socioeconomic status), the nature of the election (e.g., national vs. state), and preelection survey forecasts. These models are quite successful in predicting turnout, but they make little contact with psychological factors that drive the decisions of individuals. Here, we examine four perennial variations in aggregate voter behavior in light of the present findings. Specifically, we compare the explanatory utility of egocentric voting with its chief alternative, namely non-instrumental voting.

First, at any given level (e.g., national, state, town), voter turnout decreases as the size of the electorate increases (Harkins & Latané, 1998). From the point

[2] By extension, anyone who values money would take both boxes if the demon's prediction of his or her choice were revealed.

of view of the voter's illusion, this is to be expected because people project their own preferences less as the group becomes larger and thus less homogeneous (Krueger & Clement, 1996). People also know that their own contributions have the greatest direct impact in small groups. Although this perception is moderated by the size of the group, it remains too strong for large groups (Baron, 1997; Kerr, 1989; van de Kragt, Dawes, Orbell, Braver, & Wilson, 1986). Theories of non-instrumental, or expressive, voting cannot explain the group size effect, mainly because these are theories of individual differences. They are not contextualized in a way that enables them to predict why people who care to express their politics should be less inclined to act when they are among many others.

Second, some voters act strategically depending on what they perceive to be the likely outcome of the election: "A tactical voter is one who votes for his or her second-favorite party to *affect the outcome of the election in some desired direction*" (Lanoue & Bowler, 1998, p. 371, emphasis added; see also Southwell & Everest, 1998). If it were not for an egocentric perception (either the voter's illusion or the belief in relevance), such tactical shifts would make little sense.

Third, voter turnout increases with the expected closeness of the race (Aldrich, 1993). When polling data forecast a close race, beliefs in personal relevance provide a motivation for voting (although the voter's illusion does not). However, when a landslide is predicted, voters may have little incentive to act. Theories of non-instrumental voting cannot explain this decrease without—somewhat tautologically—assuming that motives change when expectations change (Samuelson, 1993).

Finally, when turnout falls, the margin of victory also tends to fall (Kagay, 2000). This finding may be understood from the joint operation of the belief in personal relevance and the generally optimistic projection that most people in the electorate share one's own preferences. Let a numerical example illustrate what can happen. Suppose 60% of eligible voters support candidate A and 40% support candidate B. Of the former, 4 out of 5 expect victory by a margin of at least 10%, whereas of the latter, only 3 out of 5 do. If half of those who expect such a victory margin abstained because they would consider their own vote to be wasted, candidate A receives a mere 56% of the votes.

Like behavior in all social dilemmas, voting involves a conflict between self-interest and collective interest. Efforts to "bring out the vote" can respectively emphasize personal utilities or commitment to the group (Orbell, van de Kragt, & Dawes, 1988).[3] A focus on voters' egocentrism suggests yet another route. If people believe that their own behaviors matter, boosters of voting may find that fostering such beliefs enhances the public good. Perhaps the Federal Election

[3] Some people vote to benefit the community despite their personal costs (Baron, 1997; Brodsky & Thompson, 1993; Shapman & Stephenson, 1994). In contrast, a sociotropic orientation is ethical in the Kantian sense because it does not require the perception of a differential probability for one's own action (Meehl, 1977). To preserve the system, voting, but not abstaining, could be a rule imposed on all.

Commission members understood the hidden public benefit of self-generated expectations when claiming that a single vote can and often does make a difference. As the introductory quote showed, the FEC appeals to the perceived probability that individual votes matter, and not to an altruistic motive to benefit others. Conversely, partisan politicians tend to appeal to significant outcomes being at stake, which can be construed as an appeal to altruism. Non-partisan appeals to the relevance of individual votes are difficult to justify given the low objective probabilities involved. It is an intriguing dilemma to contemplate that the very success of appeals to self-interest is inversely related to the truth of their promise. The more people respond to appeals to vote, the less their individual votes matter.

Limitations and Future Research

Like earlier research in this vein—most notably that of Quattrone and Tversky (1984)—our studies relied on university students as respondents, used scenarios to elicit judgments, and found relatively modest effect sizes. We consider the implications of these three limitations and sketch directions for future research.

First, university students may differ from the general population in their ability and willingness to process information. Even assuming sample bias, however, it is not clear whether either of the two egocentric biases might be larger or smaller in the general population. Depending on the normative model used, either bias can appear to be rational or irrational. Thus, the present tests may have been either conservative or liberal in the statistical sense. Replication studies with more representative population samples may shed light on the role of intellectual resources in this domain.

Second, the use of scenarios raises the risk of artificiality, but in the present case the scenario approach was dictated by the subject matter. Both the voter's illusion and the belief in personal relevance were theorized to depend on some form of counterfactual reasoning. The purpose of the instructional sets was to guide respondents through the hypothetical conditions that needed to be considered. To our knowledge, no methods exist that would allow researchers to observe people's spontaneous reflections on alternative conditions (see Karniol & Ross, 1996, for a review of future-oriented reasoning). In this way, this research approach differs starkly from behavioral research on voting, which is bound by people's ultimate behavior. Once behavior has occurred, it alters people's probability judgments and their retrospective accounts of their intentions (Regan & Kilduff, 1988). In other words, behavioral research has its own limitations regarding what it tells us about how people make decisions. Nonetheless, the predictive value of voting intentions for actual voting behavior needs to be examined further. Judging from previous work on the relationship between intentions and actions, one may hope for high correlations because in the case of voting, both intentions and actions refer to a highly specific behavior (Kraus, 1995).

Third, the observed effect sizes may not have been large, but according to the convention proposed by Cohen (1988), they fell between the small ($r = .10$) and medium benchmarks ($r = .30$). Thus, these effects were not negligible. When cast in the binomial effect size display, for example, the voter's illusion ($r = .19$) means that the rate of above-median voting intentions is 19 percentage points greater among above-median projectors than among below-median projectors (Rosenthal & Rubin, 1982). As would be expected for any socially desirable behavior, voting intentions were high, thereby constraining the size of any correlations involving this measure (i.e., the voter's illusion) or the emergence of a particular profile of differences between scenarios (i.e., beliefs in personal relevance). Moreover, consecutive judgments about election outcomes contingent on differences in personal behavior could have diminished people's expectations that they could single-handedly affect social outcomes. If so, the obtained findings are rather conservative estimates of egocentric components of the decision to vote. Perhaps most important, both phenomena proved to be replicable. Study 1 replicated the voter's illusion first demonstrated by Quattrone and Tversky (1984), and Study 2 replicated the belief in personal relevance first demonstrated in Study 1.

Our goal was to emphasize the need to study the psychological processes underlying the decision-making of individuals. These processes cannot be inferred from overt behavior without ambiguity. Instead, when they are studied experimentally, their consistency with observed trends in the collective may be examined.

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REFERENCES

Aldrich, J. H. (1993). Rational choice and turnout. *American Journal of Political Science, 37*, 246–278.

Barnea, M. F., & Schwartz, S. H. (1998). Values and voting. *Political Psychology, 19*, 17–40.

Baron, J. (1997). The illusion of morality as self-interest: A reason to cooperate in social dilemmas. *Psychological Science, 8*, 330–335.

Brennan, G., & Lomasky, L. (1993). *Democracy and decision: The pure theory of electoral politics*. Cambridge: Cambridge University Press.

Brodsky, D. M., & Thompson, E., III. (1993). Ethos, public choice, and referendum voting. *Social Science Quarterly, 74*, 287–299.

Chaitas, S., Solodkin, A., & Baron, J. (1998). *Students' attitudes toward social dilemmas in Argentina, Mexico, and the United States*. Available at http://www.sas.upenn.edu/~jbaron/virt.htm.

Clement, R. W., & Krueger, J. (2002). Social categorization moderates social projection. *Journal of Experimental Social Psychology, 38*, 219–231.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Erlbaum.

Colman, A. M. (2003). Cooperation, psychological game theory, and limitations of rationality in social interaction. *Behavioral and Brain Science, 26*, 139–198.

Dawes, R. M. (1998). Decision making. In D. T. Gilbert, S. T. Fiske, & G. Lindzey (Eds.), *The handbook of social psychology* (4th ed., vol. 1, pp. 497–584). Boston: McGraw-Hill.

Dawes, R. M., & Messick, D. M. (2000). Social dilemmas. *International Journal of Psychology, 35*, 111–116.

Dawes, R. M., Orbell, J. M., Simmons, R. T., & van de Kragt, A. J. C. (1986). Organizing groups for collective action. *American Political Science Review, 80*, 1171–1185.

Dovidio, J. F. (1984). Helping behavior and altruism: An empirical and conceptual overview. *Advances in Experimental Social Psychology, 17*, 361–427.

Downs, A. (1957). *An economic theory of democracy*. New York: Harper.

Federal Election Commission (1999). *National voter turnout in federal elections: 1960–1996.* Available at http://www.fec.gov/pages/htmlto5.htm.

Ferejohn, J. A., & Fiorina, M. P. (1974). The paradox of not voting: A decision theoretic analysis. *American Political Science Review, 68*, 525–536.

Gilbert, D. T., & Malone, P. S. (1995). The correspondence bias. *Psychological Bulletin, 117*, 21–38.

Harkins, S. G., & Latané, B. (1998). Population and political participation: A social impact analysis of voter responsibility. *Group Dynamics: Theory, Research and Practice, 2*, 192–207.

Kagay, M. R. (2000, 27 August). The mystery of nonvoters and whether they matter. *New York Times*, pp. 1, 4.

Karniol, R., & Ross, M. (1996). The motivational impact of temporal focus: Thinking about the future and the past. *Annual Review of Psychology, 47*, 593–620.

Kerr, N. L. (1989). Illusions of efficacy: The effects of group size on perceived efficacy in social dilemmas. *Journal of Experimental Social Psychology, 25*, 287–313.

Komorita, S. S., & Parks, C. D. (1997). *Social dilemmas*. Boulder, CO: Westview.

Kraus, S. J. (1995). Attitudes and the prediction of behavior: A meta-analysis of the empirical literature. *Personality and Social Psychology Bulletin, 21*, 58–75.

Krueger, J., & Clement, R. W. (1996). Inferring category characteristics from sample characteristics: Inductive reasoning and social projection. *Journal of Experimental Psychology: General, 125*, 52–68.

Landman, J. (1987). Regret and elation following action and inaction: Affective responses to positive versus negative outcomes. *Personality and Social Psychology Bulletin, 13*, 524–536.

Langer, E. J. (1975). The illusion of control. *Journal of Personality and Social Psychology, 32*, 311–328.

Lanoue, D. J., & Bowler, S. (1998). Picking the winners: Perceptions of party viability and their impact on voter behavior. *Social Science Quarterly, 79*, 361–377.

Markman, K. D., Gavanski, I., Sherman, S. J., & McMullen, M. N. (1995). The impact of perceived control on the imagination of better and worse possible worlds. *Personality and Social Psychology Bulletin, 21*, 588–595.

Meehl, P. E. (1977). The selfish voter paradox and the thrown-away vote argument. *American Political Science Review, 71*, 11–30.

Mellers, B., Schwartz, A., & Ritov, I. (1999). Emotion-based choice. *Journal of Experimental Psychology: General, 128*, 332–345.

Morris, M. W., Sim, D. L., & Girotto, V. (1998). Distinguishing sources of cooperation in the one-round prisoner's dilemma: Evidence for cooperative decisions based on the illusion of control. *Journal of Experimental Social Psychology, 34*, 494–512.

Nozick, R. (1969). Newcomb's problem and two principles of choice. In N. Rescher (Ed.), *Essays in honour of Carl G. Hempel* (pp. 114–146). Dordrecht, Netherlands: Reidel.

Nozick, R. (1993). *The nature of rationality*. Princeton, NJ: Princeton University Press.

Olkin, I., & Finn, J. D. (1995). Correlations redux. *Psychological Bulletin, 118*, 155–164.

Olson, M. (1965). *The logic of collective action: Public goods and the theory of games.* Cambridge, MA: Harvard University Press.

Orbell, J. M., van de Kragt, A. J. C., & Dawes, R. M. (1988). Explaining discussion-induced cooperation. *Journal of Personality and Social Psychology, 54*, 811–819.

Ostrom, E. (1998). A behavioral approach to the rational choice theory of collective action. *American Political Science Review, 92*, 1–22.

Overbye, E. (1995). Making a case for the rational, self-regarding, "ethical" vote . . . and solving the "paradox of not voting" in the process. *European Journal of Political Research, 27*, 369–396.

Parfit, D. (1984). *Reasons and persons*. Oxford: Clarendon.

Quattrone, G. A., & Tversky, A. (1984). Causal versus diagnostic contingencies: On self-deception and on the voter's illusion. *Journal of Personality and Social Psychology, 46*, 237–248.

Regan, D. T., & Kilduff, M. (1988). Optimism about elections: Dissonance reduction at the ballot box. *Political Psychology, 9*, 101–107.

Riker, W. H., & Ordeshook, P. C. (1968). A theory of the calculus of voting. *American Political Science Review, 62*, 25–43.

Roese, N. J. (1994). The functional basis of counterfactual thinking. *Journal of Personality and Social Psychology, 66*, 805–818.

Rosenthal, R., & Rubin, D. B. (1982). A simple, general purpose display of magnitude of experimental effect. *Journal of Educational Psychology, 74*, 166–169.

Sabucedo, J. M., & Cramer, D. (1991). Sociological and psychological predictors of voting in Great Britain. *Journal of Social Psychology, 13*, 647–654.

Samuelson, P. A. (1993). Altruism as a problem involving group versus individual selection in economics and biology. *American Economic Review, 83*, 143–148.

Shafir, E., & Tversky, A. (1992). Thinking through uncertainty: Nonconsequential reasoning and choice. *Cognitive Psychology, 24*, 449–474.

Shapman, L., & Stephenson, K. (1994). A critique of the self-interested voter model: The case of a local single issue referendum. *Journal of Economic Issues, 28*, 1173–1186.

Silver, B. D., Anderson, B. A., & Abramson, P. R. (1986). Who overreports voting? *American Political Science Review, 80*, 613–624.

Southwell, P. L., & Everest, M. J. (1998). The electoral consequences of alienation: Nonvoting and protest voting in the 1992 presidential election. *Social Science Journal, 35*, 43–51.

Tullock, G. (1975). The paradox of not voting for oneself. *American Political Science Review, 69*, 919.

van de Kragt, A. J. C., Dawes, R. M., Orbell, J. M., Braver, S. R., & Wilson, L. A. (1986). Doing well and doing good as ways of resolving social dilemmas. In H. A. M. Wilke, D. M. Messick, & C. G. Ruttle (Eds.), *Experimental social dilemmas* (pp. 177–204). Frankfurt: Peter Lang.

Yamagishi, T., & Kiyonari, T. (2000). The group as the container of generalized reciprocity. *Social Psychology Quarterly, 63*, 116–132.