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# Accountability and Close-Call Counterfactuals: The Loser Who Nearly Won and the Winner Who Nearly Lost

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*This article links recent work on assimilative and contrastive counterfactual thinking with research on the impact of accountability on judgment and choice. Relative to participants who felt accountable solely for bottom-line performance outcomes, participants who were accountable for their decision-making process (a) had more pronounced differential reactions to clearly winning versus (winning but) nearly losing and to clearly losing versus (losing but) nearly winning; (b) were less satisfied with the quality of their decisions when they nearly lost and more satisfied with the quality of their decisions when they nearly won; and (c) invested less money into investments that nearly failed and more money into investments that nearly succeeded. This pattern is consistent with the hypothesis that process accountability amplified assimilative counterfactual thinking, whereas outcome accountability attenuated it. The evidence underscores the power of contextual features of the decision-making environment to shape key cognitive and affective consequences of upward and downward counterfactual comparisons.*

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In their daily lives, people are often beset by thoughts of what would, might, or could have been if events had taken a slightly different turn. This phenomenon is termed “counterfactual thinking” and has generated a great deal of research interest (see Miller, Turnbull, & McFarland, 1990; Roese & Olson, 1995, for reviews). In particular, a good deal of research has focused on how counterfactual thinking influences affective reactions. Early research suggested that people will have a stronger emotional reaction to an outcome to the extent that counterfactual alternatives are highly salient (Gleicher et al., 1990; Johnson, 1986; Kahneman & Miller, 1986).

For example, a traveler who misses a plane flight by several minutes will generate more thoughts about what might have been and thus experience more negative affect than a traveler who misses the same flight by 2 hours (Kahneman & Tversky, 1982).

More recently, researchers have stressed the distinction between upward and downward counterfactuals (Markman, Gavanski, Sherman, & McMullen, 1993; McMullen, Markman, & Gavanski, 1995; Roese, 1994; Sanna, 1996). Upward counterfactuals compare reality to a more desirable alternative world (e.g., “If only I had pumped my brakes, I could have avoided the accident”), whereas downward counterfactuals compare reality to a less desirable alternative world (e.g., “If I hadn’t been wearing my seat belt, I could have been killed”). Through the operation of an affective contrast mechanism (Schwarz & Bless, 1992; Sherif & Hovland, 1961) upward counterfactuals can elicit negative affect, whereas downward counterfactuals can elicit positive affect (Markman et al., 1993; Markman, Gavanski, Sherman, & McMullen, 1995; Medvec, Madey, & Gilovich, 1995; Roese, 1994; Sanna, 1996).

Medvec et al. (1995) provided a striking demonstration of affective contrast. These researchers found that Olympic silver medalists experienced less satisfaction from their performance than did bronze medalists, despite the palpable fact that the silver medalists objec-

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tively outperformed the bronze medalists. Apparently, the upward counterfactual “I almost won a gold medal” was more salient for silver medalists, whereas the downward counterfactual “At least I won a medal—I could have finished in fourth place” was more salient for bronze medalists. These differences in the direction of counterfactual thoughts were shown to influence feelings of satisfaction among the athletes. In a more formal analysis, Medvec and Savitsky (1997; see also Boles & Messick, 1995) suggested that categorical cutoff points (i.e., winning vs. everyone else; medal winner vs. nonmedal winner) attract attention and stimulate counterfactual comparisons. According to their model, just making a cutoff for a category elicits downward counterfactual comparisons, thereby enhancing satisfaction, whereas just missing a cutoff for a category elicits upward counterfactual comparisons, thereby decreasing satisfaction.

The notion that categorical cutoff points activate counterfactual thinking (cf. Meyers-Levy & Maheswaran, 1992; Roese & Olson, 1995, 1996) and shape the subsequent counterfactual thought (Markman et al., 1995; Medvec & Savitsky, 1997) is compelling. What is perhaps less clear, however, is whether upward counterfactuals necessarily and automatically lead to negative affect and whether downward counterfactuals necessarily and automatically lead to positive affect. For example, consider a job applicant who is the runner-up for a top-notch position out of a large group of highly qualified applicants. Although the upward counterfactual “I could have had that great job” may produce frustration and negative affect, the same counterfactual also could engender positive affect if the individual adopts the perspective that he or she must have been a very impressive applicant to have come so close: “I was nearly as good as the top applicant in the pool!” Conversely, consider a baseball manager who must choose between keeping a tired veteran starter in the game with a three-run lead or inserting an inexperienced relief pitcher. The manager elects to stay with the starter, who proceeds to give up two runs and nearly lose the game. Although the downward counterfactual “We just barely won that game” may lead the manager to feel fortunate and relieved, the same counterfactual also could engender negative affect if the manager adopts the perspective that his or her managerial decision making could stand some improvement: “We shouldn’t have come so close to losing.” Both of these cases, then, are examples of affective assimilation, whereby upward counterfactuals lead to positive affect and downward counterfactuals lead to negative affect (cf. Büünk, Collins, Taylor, VanYperen, & Dakof, 1990; Strack, Schwarz, & Gschneidinger, 1985).

In support of these ideas, McMullen (1997; see also McMullen & Markman, 2000) demonstrated that affective

contrast and assimilation can both occur as a consequence of upward and downward counterfactuals. In two studies, participants were instructed to remember a fairly negative event, generate either upward or downward counterfactuals about the event, and then report their affect. McMullen (1997) found that when participants evaluated the actual event in comparison to the counterfactual event, either by explicitly instructing participants to do so or by using dependent measures that asked explicitly for an evaluation of the actual event (e.g., satisfaction), affective contrast occurred. But, when participants simply imagined the counterfactual event in the absence of explicit instructions or dependent measures asking them to evaluate the actual event, affective assimilation occurred.

An intriguing avenue for research suggested by McMullen’s (1997) work is to specify the conditions under which affective assimilation is especially likely to occur. According to McMullen (1997), contextual features that influence an attentional focus on the counterfactual event should lead to assimilation. Thus, if the counterfactual world is salient to the baseball manager—“We could have lost the game but we just barely squeaked by”—affective assimilation will occur. The contextual features that determine attentional focus, however, remain unspecified. We will argue that the social context of judgments and choice can influence reactions to counterfactuals by focusing one’s attention on either the actual or counterfactual event. In addition to affective reactions, we will also suggest that this differential focus has implications for a wide range of social judgments.

#### *Process and Outcome Accountability*

People often make decisions in social settings in which they have to justify themselves to others, and such expectations of accountability put implicit or explicit constraints on what they do (“If I do this, how will others react, and what could I say in response?”). Failure to act in ways for which one can construct acceptable accounts leads to varying degrees of censure, depending on the gravity of the offense and the norms of society (cf. Schlenker, 1982, 1985; Tetlock, 1985). Knowing that they will be held accountable for their actions and decisions, people seek approval and respect, either as ends in themselves (e.g., Hare, 1976; Jones & Wortman, 1973) or to protect and enhance their own self-image (e.g., Allport, 1937; Schlenker, 1982; Sherif & Cantril, 1947).

According to Tetlock (1985, 1992), the manner in which accountability influences judgments hinges, in part, on the degree of ambiguity in the social task of constructing an effective justification. When people are accountable to an audience whose own views are unknown, they process information more carefully, lead-

ing to higher judgmental accuracy (Tetlock & Kim, 1987) and complexity of thinking (Tetlock, 1983a). However, when people are accountable to an audience whose preferences are known, and they do not feel locked into any prior attitudinal commitment, they often shift their views toward the prospective audience to win approval (Tetlock, 1983b; Tetlock, Skitka, & Boettger, 1989).

More recently, researchers have found it useful to distinguish between two distinct types of accountability: procedural (or process) accountability (PA) and outcome accountability (OA) (Siegel-Jacobs & Yates, 1996; Simonson & Staw, 1992). In PA, the decision maker knows that the evaluation will be based solely on the quality of the process used in arriving at a response, regardless of the outcome of that response. In the medical domain, for instance, PA might require a physician to justify how a particular treatment was chosen, regardless of whether the patient ultimately got better. Conversely, in OA, the decision maker knows that evaluation depends solely on the outcome of a response, without regard to the nature of the process used to arrive at that response. Thus, the physician would only be concerned with how the patient fared under the chosen course of treatment (Siegel-Jacobs & Yates, 1996).

In a recent study, Simonson and Staw (1992) assessed the relative merits of PA and OA as techniques for reducing commitment to failing policies (also known as sunk cost effects, Arkes & Blumer, 1985; Brockner & Rubin, 1985; and as escalation tendencies, Staw, 1976, 1980). This research showed that increasing accountability for decision-making process effectively reduced commitment to losing courses of action, whereas raising accountability for outcomes strengthened such escalation tendencies. According to Simonson and Staw, OA heightens the need for justification, thereby increasing the need to justify or defend their prior investment mistakes. When accountable for the decision-making process, however, individuals know that if they use proper decision-making strategies, they will be favorably evaluated regardless of the outcome, thereby decreasing the need to justify the results of previous decisions.

### *The Present Study*

The current study sought to explore how particular types of accountability pressures—accountability for decision process or outcome—influence reactions to clear-cut success and failures that are difficult to imagine working out differently, as well as to close-call successes and failures that are easy to imagine working out differently. The study was presented to participants as a stock investment competition in which they would be asked to choose between investing in one of two different companies on four separate trials. Participants were told that

they would win a trial if the stock they chose outperformed the stock they did not choose across a 1-year span. For the present study, we elected to focus on what have been termed “close-call” counterfactuals, in which alternatives to reality are perceptually or linguistically salient (Kahneman & Varey, 1990; Medvec & Savitsky, 1997). In our view, the differential effects of OA and PA should be especially dramatic when people have a strong sense that the counterfactual outcome nearly happened (e.g., “I almost made a bad decision”).

Our hypotheses are grounded in an attentional-focus logic: Participants who are accountable for the decision-making process know that the implications of what nearly happened may be every bit as important determinants of how others evaluate them as what actually happened. According to McMullen (1997), individuals can easily imagine counterfactual outcomes without comparing them to actual outcomes when their attention is diverted from evaluating actual outcomes. Given that PA enhances the importance of considering what nearly happened, participants should focus more attention on salient counterfactual outcomes (“I almost won [or lost] the stock competition!”) with relatively less regard for actual outcomes, thereby engendering affective assimilation. Participants who are accountable for decision outcomes, by contrast, know that they will be evaluated entirely on their actual performance. Given that OA enhances the importance of evaluating actual outcomes, participants should consider counterfactual outcomes (“I could have won [or lost] the stock competition!”) alongside considerations of the actual outcomes (“I lost [or won] the stock competition!”) as well as, most important, the comparison between them. This comparison between actual and counterfactual outcome, then, engenders affective contrast.

As previously noted, most research on counterfactual thinking has documented affective contrast effects. It may be, however, that such findings simply reflect the domains in which counterfactual thinking is typically studied. More specifically, the typical counterfactual experiment examines reactions to events that are particularly likely to encourage individuals to focus on actual outcomes. As McMullen (1997) has suggested, a focus on actual outcomes leads individuals to compare these outcomes to counterfactual outcomes, thereby engendering affective contrast (see also Boles & Messick, 1995). Moreover, Baron and Hershey (1988) have documented the powerful biasing role that outcomes play in evaluating the quality of decisions. We suggest, then, that the typical domains in which counterfactual thinking is studied promote a focus on actual outcomes and thereby produce affective contrast by default. The present study, on the other hand, examines counterfactuals in a domain that promotes a focus on counterfactual outcomes—one

where close-call counterfactual outcomes are perceptually salient (cf. Kahneman & Varey, 1990). In our view, if the salience of the close counterfactual world dominates the perceiver's attention in a given situation (McMullen, 1997), such situations should produce affective assimilation by default. To illustrate, participants in a study conducted by Johnson (1986) ascribed negative emotions to an individual who just missed being crushed by a collapsed balcony—an example of downward assimilation. Likewise, in the gambling game of Keno, both the winning numbers and the nearby numbers light up, thereby inspiring players to try again because they came so close to winning (Sherman & McConnell, 1995).

To shed light on the natural or default cognitive-emotional reactions to clear-cut and close-call outcomes, the present experimental design included not only process-accountable and outcome-accountable groups but also a not accountable control group that reacted to the results of each stock competition in the absence of any accountability pressure. In addition to the manipulations of accountability, participants in our study also experienced each of four separate outcomes in a repeated-measures design: they clearly won, clearly lost, nearly won, and nearly lost a competition between the chosen and unchosen stock. Grounded in the attentional-focus logic described above, we developed the following specific hypotheses regarding the impact of PA and OA on four types of psychological processes:

1. *Counterfactuals*: If we are correct in hypothesizing that perceptually salient close-call counterfactuals engender assimilation by default, not-accountable participants (NAs) should show evidence of assimilative counterfactual thinking, and this tendency should be amplified for process-accountable participants (PAs) and attenuated for outcome-accountable participants (OAs).
2. *Affect*: OAs should be more swayed by actual outcomes than should PAs, whereas PAs should be more swayed by close-call counterfactuals than OAs. On measures of affect, then, this means that the difference between clearly winning and (winning but) nearly losing should be greater for PAs than for OAs, as should be the difference between clearly losing and (losing but) nearly winning. In addition, PAs should experience greater emotional uplift when they nearly win than should OAs. By contrast, PAs should find it more worrisome when they nearly lose than should OAs.
3. *Decision quality*: As stated above, OAs should be swayed more by actual outcomes, whereas PAs should be swayed more by close-call counterfactuals. When asked to evaluate the quality of their decisions, then, the difference between clearly winning and nearly losing should be greater for PAs than for OAs, as should the difference between clearly losing and nearly winning. In addition, relative to OAs, PAs should be more likely to defend the quality of their decisions and reinvest money in the same stock selections when they nearly win. By contrast, relative to OAs, PAs should be less likely to defend the

quality of their decisions and reinvest money in the same stock selections when they nearly lose.

4. *Responsibility and foreseeability*: PAs should be more attuned to the "flukiness" or probabilistic determinants of their outcomes than should OAs, especially in the case of close-call outcomes. Thus, PAs should be more likely to deny responsibility and foreseeability for their outcomes than should OAs when close-call counterfactuals are salient (i.e., when they nearly win and nearly lose).

## METHOD

### *Participants and Design*

The study consisted of 51 Marywood University introductory psychology students (20 men, 31 women) who participated in partial fulfillment of a course requirement. They were randomly assigned to one of three accountability conditions: not accountable, outcome accountable, and process accountable. In addition, each participant made four investment decisions, and each decision resulted in one of four outcomes: clear win, clear loss, near win, and near loss. Thus, the design of the study was a 3 (accountability: not accountable, outcome accountable, process accountable)  $\times$  4 (outcome: clear win, clear loss, near win, near loss) mixed factorial, with accountability being a between-participants factor and outcome being a within-participants factor.

### *Procedure*

Participants were run one or two at a time. After entering the laboratory, they were told that they were participating in a role-playing experiment in which they needed to imagine that they were making four separate stock investment decisions for an investment banking firm. The experimenter then provided some general information about the stock performance simulation.

You will be choosing to invest in one of two companies four different times. Each time you make a choice, you will then get to see how the stock you chose performed relative to the stock you did not choose. The information you will be reading about each company is based on data from 1998. What you will be seeing on the computer is a simulation of how the two companies you will be choosing between would probably perform in 1999, relative to each other, given the data from 1998. After seeing each simulation, you will respond to a questionnaire.

Participants were then led to individual computer cubicles and handed sealed envelopes. They were told to open the envelopes and to read carefully the instructions inside. The specific set of instructions that participants received constituted the manipulation of accountability. Participants assigned to the not-accountable condition were simply told that all of their decisions would be completely confidential and anonymous. Those assigned to

the outcome-accountable condition read the following instructions:

When you are done with the first phase of the experiment (choosing the four stocks and filling out the four questionnaires), the experimenter will then be conducting a 5- to 10-minute interview with you to discuss your performance on this stock investment decision-making task.

The experimenter has brought with him a computer printout of how well other students have performed on this task. Thus, you will be given an opportunity to see how your performance "sizes up" with other college students who have participated in this experiment. Good performance on this task is highly correlated with general decision-making abilities!

Finally, participants in the process-accountable condition read the following instructions:

When you are done with the first phase of the experiment (choosing the four stocks and filling out the four questionnaires), the experimenter will then be conducting a 5- to 10-minute interview with you to explore the types of information you used to arrive at your investment decisions.

During your interview, you will be asked to justify how and why you made the decisions that you did. On the basis of your responses, the experimenter will compute a Quality of Reasoning Score (QR) for you. The experimenter has brought with him a computer printout of the QR scores that other students have received. Thus, you will be given an opportunity to see how your QR score "sizes up" with other college students who have participated in this experiment. A high QR score on this task is highly correlated with general decision-making abilities!

Participants in the outcome- and process-accountable conditions also were asked to sign a waiver giving the experimenter permission to audiotape the interview for later data-analytic purposes.

#### *Stock Performance Simulation*

Following the manipulation of accountability, all participants then received information about two different companies: Davis, a computer software developer, and Jones, a satellite dish provider. The information contained a brief description of each company, 1998 quarterly results (i.e., revenue, net income, net profit margin, and shares outstanding), and a projection for 1999. The quarterly results and projections were constructed so as to suggest reasons both for and against investing in each company. On the basis of this information, participants were asked to decide which of the two companies they wanted to invest in and then indicated their choice on the computer screen.

When participants made their choice, a graph appeared on the screen. The x-axis of the graph plotted the 12 months of the year, whereas the y-axis was labeled "price per share." In every outcome condition, the simulation began (i.e., in January) with both stocks costing \$50 per share. Following a 3-second interval, the computer then plotted both stocks' price per share for the month of February and drew a line connecting the January and February points. The computer continued to plot and connect points at 3-second intervals until the simulation ended in December. A legend on the side of the screen described which of the two companies each of the lines was charting. In this way, participants were easily able to follow the performance of both stocks across a 1-year span. Following the simulation, participants responded to the dependent measures, after which they received information about two new companies.<sup>1</sup>

#### *Outcome Conditions*

Each participant made four investment decisions. After each decision, participants viewed a simulation that corresponded to one of four outcome conditions. In the clear-win condition, the participant's chosen stock ended the year at \$50 per share, whereas the unchosen stock ended the year at \$20 per share. Thus, the chosen stock clearly outperformed the unchosen stock (see Figure 1, top left panel). In the clear-loss condition, however, the participant's chosen stock ended at \$50 per share, whereas the unchosen stock ended at \$80 per share. Thus, the chosen stock was clearly outperformed by the unchosen stock in this condition (see Figure 1, top right panel). As can be seen in Figure 1, the performance pattern (i.e., trajectory and slope) of the chosen stock was identical in both conditions, whereas the performance pattern of the unchosen stock in the clear-win condition was a mirror image of its performance pattern in the clear-loss condition. What distinguished the two conditions, then, was not the chosen stock's absolute performance per se but, rather, its performance relative to that of the unchosen stock. At the end of the simulation, a message appeared at the bottom of the screen indicating the winner and loser of the performance simulation.

In the near-win condition, the chosen stock was outperformed by the unchosen stock between April and August but then began to catch up to the unchosen stock. At the end of the simulation, the chosen stock finished at \$50 per share, whereas the unchosen stock finished at \$50.50 per share. Because they were so close, a message at the bottom of the screen indicated that the unchosen stock was the winner. Thus, the chosen stock appeared to have nearly won (cf. Markman et al., 1995) the performance simulation (see Figure 1, bottom left panel). In the near-loss condition, by contrast, the cho-

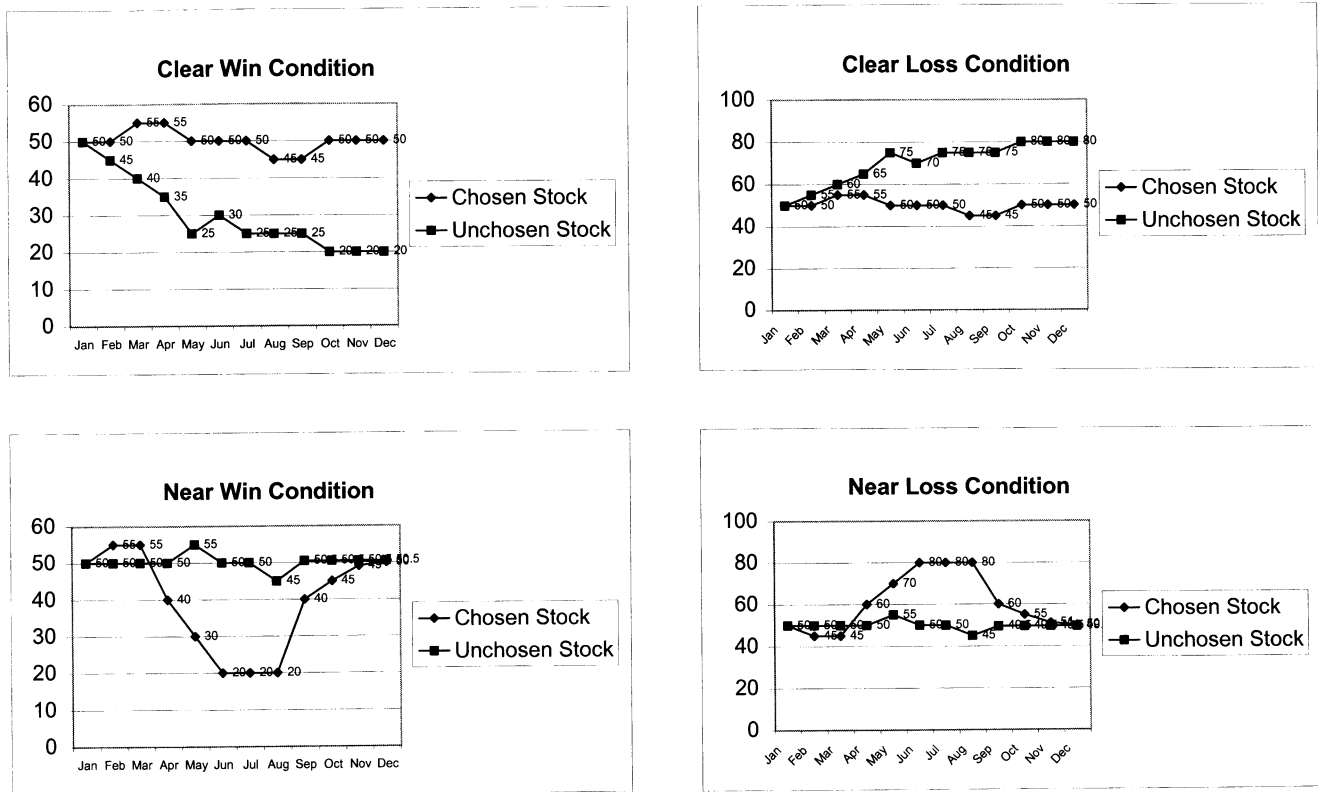


Figure 1 Outcome conditions.

sen stock outperformed the unchosen stock between April and August but then began to lose ground to the unchosen stock. In this case, the chosen stock finished at \$50 per share, whereas the unchosen stock finished at \$49.50 per share. In this case, then, the chosen stock appeared to have nearly lost the performance simulation (see Figure 1, bottom right panel). As can be seen in Figure 1, the performance pattern of the unchosen stock was identical in both conditions, whereas the performance pattern of the chosen stock in the near-win condition was a mirror image of its performance pattern in the near-loss condition. Once again, what distinguished the two conditions was not the chosen stock's absolute performance per se but, rather, the trajectory of its performance relative to that of the unchosen stock.

In sum, each participant experienced a clear win, clear loss, near win, and a near loss. The order in which participants were exposed to each of these outcomes was randomly determined by the computer.

#### Dependent Measures

After each simulation, participants were asked to provide a written free response to the question, "Now that you have viewed the results of this last stock simulation,

what are you thinking?" (cf. Markman et al., 1993). After writing their thoughts, participants then responded to a series of questions, including (a) a set of mood-state adjectives; participants were asked, "What is your mood right now?" and were instructed to circle a number from 1 (*not at all*) to 9 (*very much*) for each of 12 mood adjectives: *happy, contented, gloomy, tense, good, agreeable, discouraged, peaceful, upset, mad, disgusted, and fearful*; (b) requests to evaluate their decision and outcomes: "How satisfied are you with the outcome of your decision?" "How much responsibility do you take for the outcome of your decision?" and "How foreseeable was the outcome of your decision?" All of these questions were on 9-point scales; and (c) requests to imagine that they now had the opportunity to invest \$1,000 of real money into each of the two companies they had just chosen between; they were told that they could apportion the money any way they wanted so long as the two amounts summed to \$1,000.

After viewing the fourth and final simulation and completing the dependent measures, participants were probed for demand awareness and debriefed. It should be noted that participants expressed no suspicion about the symmetrical nature of the simulation outcomes.

RESULTS

Counterfactuals

Content analyses were performed on participants' free responses to the "What are you thinking?" question. Two judges, blind to experimental condition and hypotheses, coded the free responses for the number and direction of counterfactual thoughts. The two judges agreed 100% of the time on the number and direction of counterfactual thoughts. A 3 (accountability) × 4 (outcome) ANOVA was computed on the sheer number of counterfactual thoughts generated. The accountability main effect was not significant,  $F(3, 146) = 1.61, p = .27$ . However, the analysis did reveal a main effect of outcome,  $F(3, 146) = 4.12, p = .004$ . As might be expected, the near-win and near-loss conditions produced more counterfactual thoughts ( $M_s = 2.05$  and  $1.85$ , respectively) than did the clear-loss and clear-win conditions ( $M_s = 0.89$  and  $0.22$ , respectively),  $t(48) = 3.55, p = .001$ . Consistent with prior research (e.g., Roese & Hur, 1997; Sanna & Turley, 1996), the clear-loss condition also produced more counterfactual thoughts than did the clear-win condition,  $t(48) = 2.41, p = .02$ . The Accountability × Outcome interaction was not significant,  $F < 1$ . In terms of the direction of these counterfactuals, 98% of the counterfactuals in the near-win and clear-loss conditions were coded as upward, whereas 95% of the counterfactuals in the near-loss condition and 97% of the counterfactuals in the clear-win condition were coded as downward.

Of importance, content analyses also were performed on the extent to which participants' counterfactuals exhibited contrastive versus assimilative qualities. Consistent with the procedure developed by McMullen (1997), the same two judges, who were unaware of the experimental condition or hypotheses, coded the counterfactuals on a scale from 1 to 7 for the extent to which they contained evidence of contrast or assimilation (1 = *contrastive*, 4 = *neither*, 7 = *assimilative*). Lower numbers were given when language containing contrastive comparisons was present, whereas higher numbers were given when there were descriptions of an imagined outcome that provided details and/or described the feelings that the individual would have had if it had happened. Interrater reliability was high,  $r = .82$ , and so the two judges' ratings were averaged. Specific examples of assimilative and contrastive counterfactuals generated by study participants appear in Table 1.

A 3 (accountability) × 4 (outcome) ANOVA computed on counterfactual mode revealed a main effect of accountability,  $F(3, 146) = 3.25, p = .01$ . Of importance, and as predicted, planned contrasts revealed that PAs engaged in more assimilative counterfactual thinking ( $M = 6.2$ ) than did NAs ( $M = 5.1$ ),  $t(48) = 2.69, p = .01$ ,

TABLE 1: Specific Examples of Contrastive and Assimilative Counterfactuals Generated by Study Participants

Contrastive counterfactuals	
1.	"My stock didn't win. I really wish it had beaten the other stock."
2.	"I'm fairly happy with how the stock performed. It could've lost to the other one."
3.	"Wow. I guess I should have picked Davis."
4.	"Wilson really came through for me in the end. That's cool that it beat Sheppard."
Assimilative counterfactuals	
1.	"I'm feeling pretty good right now because I came so close to winning."
2.	"I had a real scare with this one. My stock almost tanked."
3.	"I'm happy because I almost won."
4.	"I was getting really worried when Martin took a nosedive and almost lost. I hope that doesn't happen again. My heart can't take it!"

TABLE 2: Number of Counterfactuals and Counterfactual Mode as a Function of Accountability and Outcome

Accountability	Outcome			
	Clear Loss	Near Win	Near Loss	Clear Win
Number of counterfactuals				
Not accountable	0.72 <sub>a</sub>	1.77 <sub>b</sub>	1.41 <sub>b</sub>	0.18 <sub>a</sub>
Outcome accountable	1.03 <sub>a</sub>	2.26 <sub>b</sub>	1.93 <sub>b</sub>	0.22 <sub>c</sub>
Process accountable	0.91 <sub>a</sub>	2.12 <sub>b</sub>	2.22 <sub>b</sub>	0.28 <sub>a</sub>
Counterfactual mode				
Not accountable	4.42 <sub>a</sub>	5.56 <sub>b</sub>	5.98 <sub>b</sub>	4.50 <sub>a</sub>
Outcome accountable	2.94 <sub>a</sub>	4.87 <sub>b</sub>	4.82 <sub>b</sub>	3.70 <sub>c</sub>
Process accountable	5.81 <sub>a</sub>	6.53 <sub>b</sub>	6.75 <sub>b</sub>	5.60 <sub>a</sub>

NOTE: Counterfactual mode reflects coding on a 1 (*contrastive counterfactual*) to 7 (*assimilative counterfactual*) scale. Row means that do not share common subscripts differ at the  $p < .05$  level.

NAs engaged in more assimilative counterfactual thinking than did OAs ( $M = 4.1$ ),  $t(48) = 2.06, p = .04$ , and PAs engaged in more assimilative counterfactual thinking than did OAs,  $t(48) = 3.48, p = .002$  (see Table 2). The outcome main effect also was significant,  $F(3, 146) = 4.11, p = .004$ . The near-win and near-loss conditions engendered more assimilation ( $M_s = 5.7$  and  $5.9$ , respectively) than did the clear-loss and clear-win conditions ( $M_s = 4.4$  and  $4.6$ , respectively),  $t(48) = 2.88, p = .009$ . The Accountability × Outcome interaction was not significant,  $F(3, 146) = 1.44, p = .31$ .

Affect

On measures of affect, decision quality, and willingness to reinvest, it was predicted that the difference between clearly winning and nearly losing would be greater for PAs than for OAs, as would the difference between clearly losing and nearly winning. To examine

the hypothesis as it pertains to mood, a factor analysis was first performed on the mood adjective ratings (principal components, varimax orthogonal rotation, eigenvalues greater than 1 extracted). The analysis suggested only a single factor, and all intercorrelations among the adjectives were significant, ranging from .37 to .89, all  $p$ s < .001. Therefore, after appropriate reverse scoring, all adjective ratings were averaged to create a mood-state dependent measure.

To examine the hypotheses regarding emotional reactions, a 2(accountability)  $\times$  4 (outcome) ANOVA was computed on the mood ratings.<sup>2</sup> The analysis revealed the predicted Accountability  $\times$  Outcome interaction,  $F(3, 96) = 2.78, p = .04$ . Planned contrasts revealed that PAs were significantly sadder when they nearly lost ( $M = 6.43$ ) than when they clearly won ( $M = 7.60$ ),  $t(16) = 3.11, p = .009$ , whereas OAs did not differ from each other at all ( $M$ s of 7.76 and 7.62, respectively),  $t < 1$ . In addition, NAs also were significantly sadder when they nearly lost ( $M = 6.96$ ) than when they clearly won ( $M = 7.39$ ),  $t(16) = 2.22, p = .04$ . Also consistent with predictions, PAs were significantly happier when they nearly won ( $M = 5.62$ ) than when they clearly lost ( $M = 4.59$ ),  $t(16) = -2.55, p = .02$ , whereas OAs did not differ from each other ( $M$ s of 4.91 and 5.21, respectively),  $t(16) = 1.10, p = .03$ . Similar to PAs, NAs also were significantly happier when they nearly won ( $M = 5.09$ ) than when they clearly lost ( $M = 4.52$ ),  $t(16) = -2.15, p = .05$  (see Table 3).

In addition, it was predicted that PAs would be happier when they nearly won than would OAs but would be sadder when they nearly lost than would OAs. In support of predictions, PAs were significantly sadder when they nearly lost ( $M = 6.43$ ) than were OAs ( $M = 7.72$ ),  $t(32) = 2.26, p = .03$ . NAs did not differ from either PAs or OAs, all  $p$ s > .30. Likewise, PAs were happier when they nearly won ( $M = 5.62$ ) than were OAs ( $M = 4.91$ ), but this contrast did not attain significance,  $t(32) = 1.64, p = .11$ . NAs did not differ from either PAs or OAs, all  $p$ s > .35.

Because the near-win and near-loss conditions produced the greatest amount of counterfactual thinking, separate correlations for each of these conditions were computed to examine the relationship between counterfactual mode and mood. The results were consistent with those of McMullen (1997): The correlation between mode and mood in the near-win condition was positive and significant,  $r(51) = .32, p = .02$ , indicating that (upward) assimilation was associated with more positive mood in this condition, whereas the correlation between mode and mood in the near-loss condition was negative and significant,  $r(51) = -.30, p = .02$ , indicating that (downward) assimilation was associated with more negative mood in this condition.

To explore further the predictions regarding affect, a  $2 \times 4$  ANOVA was then computed on the satisfaction ratings. Although the overall Accountability  $\times$  Outcome interaction was not significant,  $F(3, 96) = 1.94, p = .16$ , planned contrasts still revealed the same pattern found on the mood measure: PAs were significantly less satisfied when they nearly lost ( $M = 7.03$ ) than when they clearly won ( $M = 8.46$ ),  $t(16) = 3.10, p = .009$ , whereas OAs did not significantly differ from one another ( $M$ s of 7.37 and 7.77, respectively),  $t(16) = 1.05, p = .31$ . NAs also did not significantly differ from one another ( $M$ s of 7.42 and 8.06, respectively),  $t(16) = 1.79, p = .11$  (see Table 3). As predicted, PAs also were significantly more satisfied when they nearly won ( $M = 4.19$ ) than when they clearly lost ( $M = 2.84$ ),  $t(16) = -3.18, p = .008$ , whereas OAs did not significantly differ from one another ( $M$ s of 3.30 and 3.52, respectively),  $t < 1$ . NAs also did not significantly differ from one another ( $M$ s of 3.37 and 3.13, respectively),  $t < 1$ .

In addition, it was predicted that PAs would be more satisfied when they nearly won than would OAs but less satisfied when they nearly lost than would OAs. However, although the pattern of means was consistent with predictions (see Table 3), neither of the key pair-wise comparisons was significant,  $t(32) = -1.55, p = .15$  for the former;  $t < 1$  for the latter. NAs did not differ from either PAs or OAs when they nearly won,  $p$ s > .44, or when they nearly lost,  $p$ s > .49. Separate correlations computed between counterfactual mode and satisfaction in the near-win and near-loss conditions were consistent with the relationships found for mood: Assimilative counterfactual thinking and satisfaction were positively correlated in the near-win condition,  $r(51) = .28, p = .05$ , but were negatively correlated in the near-loss condition,  $r(51) = -.29, p = .04$ .

#### Decision Quality

According to initial predictions, the difference between clearly winning and nearly losing should be greater for PAs than for OAs on the decision quality measure, as should the difference between clearly losing and nearly winning. To examine this hypothesis, a 2 (accountability)  $\times$  4 (outcome) ANOVA was computed on the decision-quality ratings. This analysis revealed a significant Accountability  $\times$  Outcome interaction,  $F(3, 96) = 3.05, p = .01$ . As Table 4 indicates, PAs rated the quality of their decision significantly lower when they nearly lost ( $M = 5.71$ ) than when they clearly won ( $M = 7.88$ ),  $t(16) = 2.59, p = .02$ , whereas OAs did not significantly differ from one another ( $M$ s of 7.51 and 7.60, respectively),  $t < 1$ . In addition, NAs also did not differ from one another ( $M$ s of 6.59 and 7.33, respectively),  $t(16) = 1.22, p = .24$ . Also consistent with predictions, PAs rated the quality of their decision significantly higher



**TABLE 3: Mood and Satisfaction Ratings as a Function of Accountability and Outcome**

Accountability	Outcome			
	Clear Loss	Near Win	Near Loss	Clear Win
Mood ratings				
Not accountable	4.52 <sub>a</sub>	5.09 <sub>b</sub>	6.96 <sub>c</sub>	7.39 <sub>d</sub>
Outcome accountable	5.21 <sub>a</sub>	4.91 <sub>a</sub>	7.62 <sub>b</sub>	7.76 <sub>b</sub>
Process accountable	4.59 <sub>a</sub>	5.62 <sub>b</sub>	6.43 <sub>b</sub>	7.60 <sub>c</sub>
Satisfaction ratings				
Not accountable	3.13 <sub>a</sub>	3.37 <sub>a</sub>	7.42 <sub>b</sub>	8.06 <sub>b</sub>
Outcome accountable	3.52 <sub>a</sub>	3.30 <sub>a</sub>	7.37 <sub>b</sub>	7.77 <sub>b</sub>
Process accountable	2.84 <sub>a</sub>	4.19 <sub>b</sub>	7.03 <sub>c</sub>	8.46 <sub>d</sub>

NOTE: Row means that do not share common subscripts differ at the  $p < .05$  level.

when they nearly won ( $M = 5.44$ ) than when they clearly lost ( $M = 3.89$ ),  $t(16) = 3.44$ ,  $p = .005$ , whereas OAs did not significantly differ from one another ( $M$ s of 3.67 and 3.90, respectively),  $t < 1$ . NAs also did not differ from one another ( $M$ s of 4.28 and 4.07, respectively),  $t < 1$ . These results are consistent with those found on the measures of affect.

It also was hypothesized that PAs should be more likely than OAs to defend the quality of their decisions when they nearly win but should be less likely than OAs to defend the quality of their decisions when they nearly lose. Consistent with predictions, PAs rated the quality of their decisions higher when they nearly won ( $M = 5.44$ ) than did OAs ( $M = 3.67$ ),  $t(32) = -2.77$ ,  $p = .01$ , whereas NAs did not differ from PAs or OAs, all  $p$ s  $> .18$ . As predicted, PAs also rated the quality of their decisions lower when they nearly lost ( $M = 5.71$ ) than did OAs ( $M = 7.51$ ),  $t(32) = 2.86$ ,  $p = .009$  (see Table 4). OAs were not different from NAs here,  $t < 1$ , but PAs did rate the quality of their decisions lower when they nearly lost than did NAs ( $M = 6.59$ ),  $t(32) = 2.06$ ,  $p = .03$ .

Judgments of decision quality also were positively correlated with assimilative counterfactual thinking in the near-win condition,  $r(51) = .31$ ,  $p = .03$ , but negatively correlated with assimilative thinking in the near-loss condition,  $r(51) = -.34$ ,  $p = .02$ . In turn, judgments of decision quality also appeared to be particularly strong predictors of future investment behavior,  $r(51) = .59$ ,  $p < .001$ .

*Investment Ratings*

Turning to these investment ratings, a  $2 \times 4$  ANOVA yielded a significant Accountability  $\times$  Outcome interaction,  $F(3, 96) = 8.44$ ,  $p < .001$ . As predicted, PAs were significantly less willing to reinvest money in their chosen stock when they nearly lost ( $M = 523.31$ ) than were OAs ( $M = 792.81$ ),  $t(32) = 2.75$ ,  $p = .01$ . In addition, PAs also

**TABLE 4: Decision Quality and Investment Ratings as a Function of Accountability and Outcome**

Accountability	Outcome			
	Clear Loss	Near Win	Near Loss	Clear Win
Decision quality ratings				
Not accountable	4.07 <sub>a</sub>	4.28 <sub>a</sub>	6.59 <sub>b</sub>	7.33 <sub>b</sub>
Outcome accountable	3.90 <sub>a</sub>	3.67 <sub>a</sub>	7.51 <sub>b</sub>	7.60 <sub>b</sub>
Process accountable	3.89 <sub>a</sub>	5.44 <sub>b</sub>	5.71 <sub>b</sub>	7.88 <sub>c</sub>
Investment ratings				
Not accountable	303.17 <sub>a</sub>	364.62 <sub>a</sub>	781.59 <sub>b</sub>	848.85 <sub>b</sub>
Outcome accountable	209.44 <sub>a</sub>	278.11 <sub>a</sub>	792.81 <sub>b</sub>	882.83 <sub>c</sub>
Process accountable	348.72 <sub>a</sub>	475.55 <sub>b</sub>	523.31 <sub>c</sub>	874.13 <sub>d</sub>

NOTE: Row means that do not share common subscripts differ at the  $p < .05$  level.

were significantly less willing to reinvest when they nearly lost than were NAs ( $M = 781.59$ ),  $t(32) = 2.86$ ,  $p = .009$ . Also consistent with predictions, PAs were more willing to reinvest when they nearly won ( $M = 475.55$ ) than were OAs ( $M = 278.11$ ),  $t(32) = 2.27$ ,  $p = .03$ . NAs did not differ from PAs or OAs, all  $p$ s  $> .23$ .

A further set of contrasts revealed that PAs were more willing to reinvest money when they nearly won ( $M = 475.55$ ) than when they clearly lost ( $M = 348.72$ ),  $t(16) = -2.17$ ,  $p = .05$ , whereas OAs did not significantly differ from one another ( $M$ s of 278.11 vs. 209.44, respectively),  $t(16) = -1.80$ ,  $p = .09$ . NAs also did not significantly differ from one another ( $M$ s of 364.62 vs. 303.17, respectively),  $t(16) = -1.72$ ,  $p = .10$ . In addition, both PAs and OAs were less willing to reinvest when they nearly lost than when they clearly won,  $M$ s of 523.31 versus 874.13,  $t(16) = 4.90$ ,  $p < .001$ , for the former comparison,  $M$ s of 792.81 versus 882.83,  $t(16) = -2.29$ ,  $p = .04$ , for the latter. NAs also were less willing to reinvest when they nearly lost ( $M = 781.59$ ) than when they clearly won ( $M = 844.85$ ), but not significantly,  $t(16) = 1.79$ ,  $p = .10$ .

The relationship between counterfactual mode and investment behavior was particularly strong: Assimilation and willingness to reinvest were positively correlated in the near-win condition,  $r(51) = .45$ ,  $p < .001$ , but were negatively correlated in the near-loss condition,  $r(51) = -.48$ ,  $p < .001$ . Thus, it appears that vividly imagining a counterfactual (i.e., without explicitly comparing the counterfactual to reality) can exert a powerful effect on the choices an individual makes in the future (see McMullen & Markman, 2000, for a related set of findings).

*Responsibility and Foreseeability*

It also was hypothesized that PAs would be more likely than OAs to deny responsibility and foreseeability for close-call outcomes (i.e., when they nearly won and nearly lost). Because these two measures were substan-

tially correlated,  $r(51) = .35, p = .01$ , they were combined to create one general responsibility measure. A 2 (accountability)  $\times$  4 (outcome) ANOVA was then computed on the responsibility measure. Consistent with predictions, planned contrasts revealed that PAs accepted less responsibility when they nearly lost ( $M = 5.02$ ) than did OAs ( $M = 6.54$ ),  $t(32) = 2.38, p = .02$ , whereas NAs did not differ from PAs and OAs here,  $ps > .25$ . However, PAs did not significantly differ from OAs when they nearly won,  $t(32) = 1.57, p = .14$ , and NAs also did not differ from PAs and OAs,  $ps > .52$ . In addition, PAs accepted less responsibility when they nearly lost ( $M = 5.02$ ) than when they clearly won ( $M = 6.22$ ),  $t(16) = -3.78, p = .001$ , whereas OAs actually accepted greater responsibility when they nearly lost ( $M = 6.54$ ) than when they clearly won ( $M = 5.98$ ),  $t(32) = 2.07, p = .05$ . NAs did not differ here ( $M$ s of 5.90 and 6.11, respectively),  $t < 1$ . Neither PAs nor OAs nor NAs differed, however, when they nearly won as compared to when they clearly lost,  $ps > .22$ . In brief, there is some—although not decisive—support for our predictions regarding responsibility and foreseeability.<sup>3</sup>

#### DISCUSSION

The data underscore the complex and sometimes subtle ways in which the regulatory rules of accountability systems interact with basic cognitive and motivational propensities of perceivers. Across a host of dependent variables—including emotional reactions to decision outcomes, the tendency to defend past decisions, and the tendency to extend past decisions by investing additional resources—quite similar interactions emerged between the manipulations of accountability ground rules and the manipulations of decision outcomes. Relative to people accountable only for the bottom-line outcome, people who were accountable for the process by which they made decisions had more negative emotional reactions to nearly losing (compared to clearly winning) and had more positive emotional reactions to nearly winning (compared to clearly losing). Relative to outcome-accountable participants, process-accountable participants also thought they did a worse job when they nearly lost as opposed to when they clearly won and thought they did a better job when they nearly won as opposed to when they clearly lost. Relative to outcome-accountable participants, process-accountable participants also were less willing to reinvest money in their chosen stock when they nearly lost and were more likely to reinvest money when they nearly won. Finally, and importantly, the assimilative versus contrastive quality of counterfactual thinking was found to be strongly influenced by the manipulations of accountability, as well as substantially associated with participants' reactions to the other dependent variables.

It is instructive to compare the present findings with those of Medvec and Savitsky (1997) and Medvec et al. (1995). According to Medvec and Savitsky (1997), "When one's actual outcome lands just shy of the boundary for a preferred category, one's thoughts may focus on having almost made it into that category" (p. 1284). Thus, the authors argue, the consideration of an upward counterfactual will therefore reduce satisfaction through affective contrast. But, "Individuals who barely make a cutoff are likely to compare their outcomes to the worse possible alternative of not having made it into the category at all" (p. 1284). In this case, the authors argue, the consideration of a downward counterfactual will enhance satisfaction, once again through affective contrast. Across three studies, Medvec and Savitsky (1997) demonstrate that individuals who just barely made a cutoff regarding academic performance (e.g., 87 is the cutoff for a B+) are actually more satisfied than those who just missed a cutoff (e.g., 89 is the cutoff for an A-), even though the latter score reflects better objective performance (assuming the same distribution of scores).

Although we agree that categorical cutoff points may readily trigger counterfactual thoughts, the results of the present study suggest that the boundaries between categories do not necessarily invoke contrast. Rather, it appears that the PAs in our study engaged in assimilation after experiencing close-call outcomes; relative to NAs and OAs, the counterfactual thoughts of PAs were especially assimilative in nature. Moreover, across a range of affective, cognitive, and behavioral measures, PAs reacted more negatively to near losses than to clear wins and more positively to near wins than to clear losses. Taken together, then, the work of Medvec and her colleagues and the present study suggest that one can have either contrastive or assimilative reactions to close-call outcomes.

Why was there more evidence of contrast in the Medvec et al. studies and more evidence of assimilation in the present study? One potential explanation invokes the focus of attention. In the present experiment, the performance of the chosen and unchosen stock slowly and dramatically unfolded on the computer screen, rendering the counterfactuals in the close-call near-win and near-loss conditions perceptually salient. People could literally see that the counterfactual alternative to reality nearly occurred. As McMullen (1997) has suggested, contextual features that focus attention on the counterfactual event should lead to assimilation. In the present study, then, the salience of the counterfactual outcomes may have diverted participants' attention from evaluating their actual outcomes, thereby producing assimilative reactions. Moreover, although PAs demonstrated assimilation across nearly all of the dependent measures in the present study, evidence that assimilation

was the default reaction (cf. Wegener & Petty, 1997) to this experimental situation was seen in the reactions of NA (i.e., control) participants. Collapsing across the four outcome conditions, NAs displayed a tendency to engage in assimilative counterfactual thinking by exhibiting a mean of 5.1 on the 1 (*contrastive*) to 7 (*assimilative*) counterfactual mode scale. Moreover, NAs demonstrated both upward and downward assimilation on the mood measure and downward assimilation on the investment ratings. Finally, although the reactions of OAs to the various dependent measures resemble, at least ostensibly, simple outcome effects, a mean of 4.1 on the counterfactual mode scale (i.e., after collapsing across the four outcome conditions) suggests that OAs were engaging in a mixture of assimilative and contrastive counterfactual thinking.

The experimental contexts investigated by Medvec and her colleagues may encourage counterfactual contrast effects. For instance, with the eyes of the world on them, Olympic silver medalists (Medvec et al., 1995) may be particularly focused on their actual outcomes and how they compare to an imagined better outcome—Olympic gold. When attention is focused on the actual event, as it is here, affective contrast is likely (McMullen, 1997). As a consequence, silver medalists experience greater performance dissatisfaction than do bronze medalists, who appear to evaluate their own performance by comparing it to an imagined worse outcome—not winning a medal at all.

Granting that the contextual features of an event can encourage assimilative reactions to some close-call outcomes and contrastive reactions to others, the most distinctive contribution of the current research may well be the findings that PA and OA can respectively amplify and attenuate reactions to these close-call outcomes. As suggested earlier, the vividness of the close-call counterfactuals in our stock investment simulation may have made assimilation the natural first-order cognitive reaction. Across most of the dependent measures, however, the results of the present study suggest that PAs have more positive reactions to near wins and more negative reactions to near losses than do OAs. These findings, then, suggest that when the contextual features surrounding close-call outcomes produce assimilation by default (cf. Wegener & Petty, 1997), PA amplifies such assimilative reactions, whereas OA attenuates such reactions. It would be theoretically important to investigate the effects of OA and PA in contexts that tend to produce contrast by default (cf. Stapel, Koomen, & Zeelenberg, 1998). For example, the default reaction to receiving an 89 and just missing an A- appears to be relative dissatisfaction (Medvec & Savitsky, 1997), a contrastive reaction that, we would argue, might be amplified by OA, which focuses individuals on bottom-line outcomes. PA, how-

ever, might attenuate contrastive reactions here. By focusing students on the process used to study for and take an exam (cf. Pham & Taylor, 1999) and, thus, diverting attention away from the actual outcome, the negative affect that often derives from evaluating one's grades in comparison to an imagined better grade might be attenuated.

#### NOTES

1. Participants' second choice was between Cooper and Taylor, both automobile companies. Their third choice was between Smith, a designer of DNA testing systems, and Martin, a manufacturer of air pollution equipment. Finally, participants chose between Sheppard, a distributor of consumer entertainment products, and Wilson, a software company.

2. The remaining omnibus ANOVAs conducted to examine the principal hypotheses did not include participants in the NA condition. Instead, NA cells were compared to OA and PA cells by means of Dunnett tests.

3. A previous study using 51 Ohio State University undergraduate participants replicated the general pattern of results reported in this article.

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