

Research Article

The Propensity Effect

When Foresight Trumps Hindsight

Neal J. Roese,¹ Florian Fessel,¹ Amy Summerville,¹ Justin Kruger,² and Michael A. Dilich³¹University of Illinois; ²New York University; and ³Triodyne, Inc., Northbrook, Illinois

ABSTRACT—*The hindsight bias is an inability to disregard known outcome information when estimating earlier likelihoods of that outcome. The propensity effect, a reversal of this hindsight bias, is apparently unique to judgments involving momentum and trajectory (in which there is a strongly implied propensity toward a specific outcome). In the present study, the propensity effect occurred only in judgments involving dynamic stimuli (computer animations of traffic accidents vs. text descriptions), and only when foresight judgments were temporally near to (vs. far from) a focal outcome. This research was motivated by the applied question of whether the courtroom use of computer animation increases the hindsight bias in jurors' decision making; findings revealed that the hindsight bias was more than doubled when computer animations, rather than text-plus-diagram descriptions, were used. Therefore, in addition to providing theoretical insights of relevance to cognitive, perceptual, and social psychologists, these results have important legal implications.*

Increasingly used as persuasive evidence in courts of law are computer-animated video presentations, akin to brief movies, that depict mishaps such as traffic accidents with striking visual clarity (Kassin & Dunn, 1997; Stuart, 2001). These forensic animations are based on evidence recovered during accident-scene investigations (e.g., vehicle damage, tire marks on the road) and entered as variables into computer models that reproduce the basic laws of physics. This application of new computer technology is particularly effective in conveying complicated systems of motion, as when serious traffic accidents involve multiple vehicles (and high-stakes litigation). But can the enhanced clarity of these visually realistic animations exacerbate the hindsight bias (Hawkins & Hastie, 1990; Roese, 2004), which is the tendency to have “known it all along” (i.e., to exaggerate the past predictability of once-future outcomes)?

Accident reconstruction contains inherent uncertainty that visually impressive computer animation may obscure. In judgments of liability, the onus under American law is to judge only on the basis of what the accused knew at the time of the accident, not on the basis of information knowable only in hindsight, and much research has already illuminated the problem of hindsight bias in legal decision making (Hastie, Schkade, & Payne, 1999; Kamin & Rachlinski, 1995; Rachlinski, 1998). Yet to date, no research has tested the impact of computer animation on hindsight bias within legal decision making.

The theoretical underpinning of hindsight bias suggests at least one cause for concern regarding the use of forensic animation in courtroom settings. Specifically, memory updating has been identified as a principal mechanism underlying hindsight bias. When an outcome becomes known as fact, new associative links in memory are forged between that outcome and other, outcome-consistent information (Hawkins & Hastie, 1990; Hoffrage, Hertwig, & Gigerenzer, 2000). In attempting to recapture earlier prospects, people have difficulty disregarding this outcome-consistent information activated by consideration of the known outcome. Misattribution of processing fluency, a conceptualization that builds on the notion of memory updating, offers a specific reason why computer animation may elevate hindsight bias. When the joint retrieval of outcome information with outcome-consistent information proceeds fluently, a subjective feeling of coherence may be misattributed to judgments such as those involving confidence or likelihood (Whittlesea & Leboe, 2003). Thus, hindsight bias is elevated when a coherent causal explanation accounts for the outcome (Roese & Olson, 1996), when case-relevant information feels familiar because of prior exposure (Harley, Carlsen, & Loftus, 2004), and when case-relevant information feels subjectively easy to bring to mind (Sanna, Schwarz, & Stocker, 2002). Computer animation may increase hindsight bias because the clarity of visual presentation enhances processing fluency.

This fluency-misattribution hypothesis also raises the intriguing possibility that the hindsight bias might reverse under certain conditions. Fluency defined in terms of conceptual or semantic coherence, as just discussed, might be termed con-

Address correspondence to Neal Roese, Department of Psychology, University of Illinois, Champaign, IL 61820, e-mail: roese@uiuc.edu.

ceptual fluency. But fluency may derive also from more basic perceptual elements, such as the vividness of visual stimuli (Reber, Winkielman, & Schwarz, 1998). Object motion involving trajectory, momentum, and gravity is typically apprehended and processed with remarkable ease (Cutting, 1986; Hubbard, 1985; Sheperd, 1984). People so readily infer trajectory that they systematically “jump the gun” in estimations of past position involving motion, exaggerating the distance an object has traveled along a path of forward momentum after the object has stopped (Freyd & Finke, 1984), and exaggerating the initial position of the object in the direction opposite to forward momentum (Hubbard & Motes, 2002).

These demonstrations of *representational momentum* suggest another prediction, that judgments involving intuitive physics, such as mental models of trajectory and momentum, are made with reflexive automaticity, and therefore these mental models may apply also to the level of higher-order judgments such as those involved in hindsight bias. That is, the hindsight bias might be reversed (i.e., foresight likelihood estimates might exceed hindsight likelihood estimates) when motion perception involves easily grasped trajectories. Seeing a stream of events in which there is a clear trajectory, or progression toward a target outcome that has yet to happen (e.g., a baseball sailing toward the bleachers), might evoke a feeling of knowing that elevates likelihood estimates even higher than when the outcome is actually known (i.e., after seeing the home run scored). Indeed, Kahneman and Varey (1990) discussed how perceptions of propensity, with regard to a rolling progression or accelerating movement toward a focal outcome, spring easily to mind from minimal cues.

Such a propensity effect would be expected only when a collision or other such fluidly unfolding outcome seems temporally near (i.e., when there is a strong propensity toward its occurrence). Earlier in a sequence of motion, before the trajectory can be fully understood, the more typical hindsight effect should be evident (i.e., foresight likelihood estimates should be lower than hindsight likelihood estimates). To test this idea, the present research employed a manipulation of the timing of likelihood judgments made in foresight: They were made either temporally far from or near to the occurrence of the target outcome.

This research was therefore uniquely positioned to address questions of both an applied and a theoretical nature. It tested the applied question of whether the use of computer animation, compared with more traditional text conveyance of case information, increases the magnitude of hindsight bias, and it tested the theoretical question of whether timing of judgment is a critical moderator of hindsight bias when judgment centers on dynamically rather than statically presented events. Although investigations of hindsight bias date to the 1970s (e.g., Fischhoff, 1975), only recently have the first demonstrations of hindsight bias in visual perception appeared (Bernstein, Atance, Loftus, & Meltzoff, 2004; Harley et al., 2004). However,

these have relied on sequences of static image frames (varying in visual clarity). The present research was thus the first to examine hindsight bias in perceptions of dynamic visual stimuli (i.e., motor vehicles moving and colliding).

The experiment was structured around the standard between-subjects hindsight paradigm in which judgments made in foresight (no outcome) are compared with judgments made in hindsight (outcome). The outcome manipulation was crossed orthogonally with a manipulation of mode of presentation (computer animation vs. text plus diagram). Participants either viewed two computer animations (both depicting vehicle collisions) or read text-plus-diagram descriptions of these same cases. Timing of foresight judgments was also manipulated, such that in one condition the sequence terminated early, with little indication of the possibility of collision (the far no-outcome condition, akin to traditional foresight conditions in the hindsight-bias literature), whereas in another condition, the sequence terminated temporally nearer to the outcome, just after the initiation of the chain of events culminating in collision (the near no-outcome condition). An additional control condition using still frames from the computer animations was included to isolate the contribution of motion perception to the propensity effect.

METHOD

Participants and Design

Participants were 117 undergraduates who were tested using Pentium 4 desktop computers with 17-in. monitors. The experiment used a $2 \times 3 (+1)$ factorial between-subjects design, in which two kinds of depiction (computer animation vs. text plus diagram) were crossed with three outcome conditions (outcome, far no-outcome, near no-outcome). The additional seventh condition was a no-motion control condition, described in the Results section.

Stimuli

The computer animations had been prepared for real court cases and were provided to us by Eleventh Hour Animation of Skokie, IL. The first depicted an automobile following a semitrailer on a two-lane highway, attempting a pass, then colliding with a second semitrailer approaching from the opposite direction (duration = 19 s). The second depicted a semitrailer avoiding a slow-moving automobile turning in front of it onto a two-lane highway, then colliding with a bus approaching from the opposite direction (duration = 11 s). Both animations portrayed events from an oblique (bird's-eye) view that illustrated the simultaneous convergence of vehicles. The text-and-diagram control version of each case included a short paragraph-length text description, accompanied by simple plan-view (looking straight down from above) diagrams, assembled into a sequence of PowerPoint slides that were controlled by Medialab software.

Procedure

Participants were told that they would see information pertaining to traffic situations, and that some cases would involve accidents and some would not (in actuality, both cases involved serious accidents). Participants in the outcome condition saw the complete cases, which ended after the colliding vehicles came to rest. In the far no-outcome condition, the cases terminated before any driver error became apparent. In the near no-outcome condition, the cases terminated after the driver error but before the collision.

The main dependent measure was estimated likelihood that a serious accident would occur. Participants gave estimates for three possible outcomes: no accident, minor accident, and serious accident (because the latter is what actually occurred, this estimate was used to compute the index of hindsight bias). Participants assigned likelihoods ranging from 0 to 100% using a computer interface that forced them to assign likelihoods that summed to 100% across the three outcomes. For participants in the no-outcome conditions, these percentages were likelihood estimates for the three possible outcomes. Participants in the outcome condition were told to disregard their knowledge of the observed outcome, place themselves in the shoes of those in the near no-outcome condition, and estimate the likelihoods that those participants perceived for the three possible outcomes (a standard hindsight-bias procedure; see Hawkins & Hastie, 1990).

An interesting complication in designing this experiment (a complication unknown in previous hindsight-bias research) was determining to what prior point in time the outcome-condition participants should attempt to discount. With the text stimuli typically used in hindsight-bias research, a single sentence describes the outcome, and participants may easily be instructed to disregard that sentence. But because our stimuli involved continuous motion, we needed to specify exactly the moment on which participants should focus. We did this by showing outcome-condition participants the same stimuli that were shown in the near no-outcome condition. To hold the number of viewings constant across conditions, we showed participants in the no-outcome conditions the same stimuli twice. Implications of the procedure are considered in the Discussion.

RESULTS

We conducted two sets of analyses to address the applied and the theoretical questions of interest. In all analyses, data from the two accident cases were combined (all findings were equally evident in the two cases).

Legal Application

To test whether computer animation exacerbates the hindsight bias relative to more traditional verbal portrayals of events, the between-subjects contrast between the outcome condition and the far no-outcome condition is most appropriate. This contrast was tested as a function of mode of presentation using a 2×2

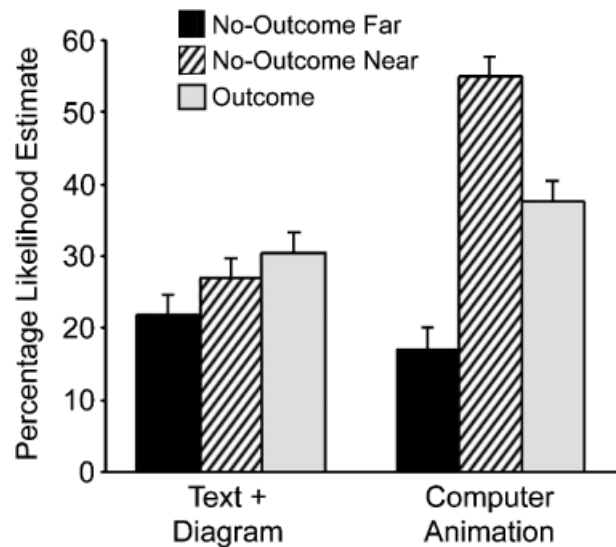


Fig. 1. Likelihood estimates as a function of mode of presentation and outcome condition. Hindsight bias is assessed by comparing the outcome and no-outcome conditions. The reversal of hindsight bias, the propensity effect, is evident in the computer-animation condition (no-outcome near vs. outcome).

analysis of variance (ANOVA). The hindsight main effect was significant: Participants in the outcome condition gave higher likelihood estimates ($M = 34.1\%$, $SE = 2.1$) for the occurrence of a serious accident than the participants in the no-outcome conditions ($M = 19.5\%$, $SE = 2.2$), $F(1, 113) = 23.0$, $p < .001$, $d = 0.90$. The interaction of outcome condition and mode of presentation was also significant, $F(1, 113) = 3.93$, $p = .05$, $d = 0.37$; presentation via computer animation more than doubled the effect size of hindsight bias ($d = 1.34$ vs. 0.52 ; see Fig. 1).¹

The Propensity Effect

The propensity effect was apparent in a 2×3 ANOVA testing the full design, which included the near no-outcome condition. The main effects of outcome condition and mode of presentation were significant, as was their interaction, $F(1, 171) = 16.4$, $p < .001$, $d = 0.62$ (see Fig. 1). When information was presented as text plus diagram, the near no-outcome condition yielded a mean likelihood estimate ($M = 26.9\%$, $SE = 2.9$) that would be predicted on the basis of extant theory, in that it fell between the estimates in the far no-outcome condition ($M = 21.9\%$, $SE = 2.8$) and the outcome condition ($M = 30.5\%$, $SE = 2.8$). But when the presentation involved computer animation, likelihood estimates were much higher in the near no-outcome condition

¹The effect size for hindsight bias in the text-plus-diagram condition (.52) falls between the mean effect sizes of .36 (Guilbault, Bryant, Brockway, & Posavac, 2004) and .61 (Christensen-Szalanski & Willham, 1991) reported for this type of hindsight-bias paradigm in two meta-analytic reviews. Note that in both reviews, the relevant paradigm was labeled "case history," and elsewhere it has been labeled the "hypothetical paradigm" (see Roese, 2004). Christensen-Szalanski and Willham reported an effect-size r (.29), which we converted to d for ease of comparison.

($M = 55.0\%$, $SE = 2.8$), exceeding significantly the estimates in the outcome condition ($M = 37.6\%$, $SE = 2.9$), $t(59) = 4.09$, $p < .001$, $d = 1.06$.

Given this finding, we used another control condition designed to test whether the perception of motion contributed to the observed effect. For this additional condition, we extracted for each accident case a sequence of four still frames from the same stimuli presented in the computer-animation, near no-outcome condition. These still frames were assembled into a PowerPoint slide show that participants could advance at their discretion. Hence, compared with the computer-animation conditions, this no-motion control condition conveyed similar visual information (in terms of overall event sequence), but removed the element of real-time motion, and along with it perceptions of momentum and trajectory. The mean likelihood estimate for this condition ($M = 44.7\%$, $SE = 2.9$) was significantly lower than that for the computer-animation, near no-outcome condition ($M = 55.0\%$), $t(52) = 2.28$, $p = .03$, $d = 0.63$, but did not differ from the estimate in the computer-animation, outcome condition ($M = 37.6\%$), $t(52) = 1.37$, $p = .18$.

DISCUSSION

A first examination of the impact of forensic animation on judgment, this research yielded insights of both a theoretical and an applied nature. First, we found evidence for a propensity effect: People became hyperconfident of impending events that involved motion and trajectory, giving higher likelihood estimates for an outcome that might happen than for an outcome they had actually seen. This propensity effect is perhaps unique to perception of dynamically changing stimuli, as it was absent from control conditions in which the same event information was presented using static text and diagrams or still frames.

The propensity effect is best described as a reversal of the traditional hindsight bias, which was also observed in this experiment. The key moderator was time: When hindsight judgments were compared with foresight judgments that were temporally distant from the focal motion outcome, the traditional hindsight bias was evident. But when foresight judgments were temporally near to the focal outcome, the reversal occurred. The propensity effect is an entirely new phenomenon that stands alongside the hindsight bias, apparently born of the unique combination of motion perception plus an inference of propensity toward a salient end point.² A compelling, albeit speculative, explanation for this propensity effect centers on fluency misattribution (e.g., Bernstein, Whittlesea, & Loftus, 2002; Harley et al., 2004; Whittlesea & Leboe, 2003), in which the

relative ease of visual processing of trajectory motion (“I just know it’s headed over there”) is misattributed to higher-order event judgments, such as likelihood estimates. We suggest that this propensity effect is quite common, for example, in reactions to sporting events. The momentary feeling of “knowing” that a baseball is sailing out of the park, that a horse is gaining on the leader, or that the eight ball is destined for the side pocket fuels a momentary excitement that may indeed transcend the after-the-fact satisfaction in seeing the successful home run, the victorious horse, or the sunken eight ball. Seen in this light, the propensity effect might be related to the tendency of drivers both to underestimate the time remaining before a vehicle collision (e.g., Sidaway, Fairweather, Sekiya, & McNitt-Gray, 1996) and to “give up” (i.e., cease active attempts at avoidance) when a collision seems imminent (e.g., Koppa & Hayes, 1976).

The propensity effect might generalize beyond perceptions of dynamic stimuli, perhaps being rooted most essentially in the presence of a sufficient amount of information, visual or otherwise, that enables individuals to mentally simulate a possible outcome. For example, estimates of the likelihood of a hypothetical outcome are inflated to the extent that it is easy to construct a mental image of that outcome, a tendency termed the simulation heuristic (Kahneman & Tversky, 1982). Stereotypes and other kinds of strong expectancies can evoke such simulations, and expectancies have been shown to mitigate, though only rarely reverse, the hindsight bias (Bodenhausen, 1990; Ofir & Mazursky, 1997). The present demonstration of the propensity effect is unique in documenting a reversal of the hindsight bias. Whether the propensity effect may be obtained using stimuli that do not involve perception of motion or trajectory, and hence whether it is an instance of the more general simulation heuristic, is a question we hope future research can address.

These findings have important implications for legal practice, which in the previous decade has seen a striking increase in the use of computer-animated depictions of accidents. Our research indicates that the clarity of computer animation can obscure the underlying uncertainty of accident reconstruction, creating a biased feeling of knowing. Using an experimental design in which the same traffic-accident information was conveyed using computer animation or traditional text-and-diagram methods, we found that computer animation more than doubled the effect size of the hindsight bias (assessed using the between-subjects design frequently employed in past research). Much recent work has already pointed out the danger of hindsight bias in jurors’ decision making (e.g., Hastie et al., 1999; Kamin & Rachlinski, 1995; Rachlinski, 1998; Stallard & Worthington, 1998). At this time, however, we conclude not that computer animation is necessarily always problematic, but rather that further research may reveal how best to deploy it in court so as to minimize bias and improve judgment. For example, on the basis of the extant literature, it might be suggested that presenting a near no-outcome animation might be an effective strategy to weaken hindsight bias, but our results have revealed precisely the opposite,

²Teigen (1998) described another related finding, that judgments of close counterfactual outcomes (i.e., events that came close to happening, but clearly did not happen) are sometimes judged retrospectively to have been more likely than factual outcomes. Whereas Teigen focused on retrospections of counterfactual outcomes, our description of the propensity effect focuses on prospective judgments of factual outcomes.

thus constituting a strong warning against use of such a no-outcome strategy in courtroom presentation.

One important caveat in interpreting these findings is that in the outcome condition in this research, participants were asked to discount the known outcome to the time point at which the sequence terminated in the near no-outcome condition (cf. Teigen, 1998). The question of how far back in time discounting should be attempted has been moot in most hindsight research, as the text-based stimuli typically used are not nearly so detailed as to require such precision (e.g., typically a brief sentence conveys the outcome, and another sentence of instruction can convey what exactly should be discounted). The discounting instructions in the present outcome condition, by contrast, conveyed visually the exact moment on which participants should base their judgment. The moment on which judgments should be based may be selected arbitrarily by researchers; in the present case, it matched the termination of the near no-outcome condition. This means that the effect sizes obtained for the hindsight bias are somewhat liberal estimates, whereas the propensity effect was estimated somewhat conservatively. This procedural caveat should be kept in mind when interpreting our findings. However, this caveat in no way impinges upon the observation of a larger hindsight bias for computer-animation than text-plus-diagram presentations. Our findings reveal that computer-animated reconstructions of real accidents hold the power to alter likelihood judgments made in legal contexts.

Acknowledgments—We thank Nicholas Epley and Daniel Simons for comments on an earlier draft.

REFERENCES

- Bernstein, D.M., Atance, C., Loftus, G.R., & Meltzoff, A. (2004). We saw it all along: Visual hindsight bias in children and adults. *Psychological Science, 15*, 264–267.
- Bernstein, D.M., Whittlesea, B.W.A., & Loftus, E.F. (2002). Increasing confidence in remote autobiographical memory and general knowledge: Extensions of the revelation effect. *Memory & Cognition, 30*, 432–438.
- Bodenhausen, G. (1990). Second-guessing the jury: Stereotypic and hindsight biases in perceptions of court cases. *Journal of Applied Social Psychology, 20*, 1112–1121.
- Christensen-Szalanski, J.J.J., & Willham, C.F. (1991). The hindsight bias: A meta-analysis. *Organizational Behavior and Human Decision Processes, 48*, 147–168.
- Cutting, J.E. (1986). *Perception with an eye for motion*. Cambridge, MA: MIT Press.
- Fischhoff, B. (1975). Hindsight \neq foresight: The effect of outcome knowledge on judgment under uncertainty. *Journal of Experimental Psychology: Human Perception and Performance, 1*, 288–299.
- Freyd, J.F., & Finke, R.A. (1984). Representational momentum. *Journal of Experimental Psychology: Learning, Memory, and Cognition, 10*, 126–132.
- Guilbault, R.L., Bryant, F.B., Brockway, J.H., & Posavac, E.J. (2004). A meta-analysis of research on hindsight bias. *Basic and Applied Social Psychology, 26*, 103–117.
- Harley, E.M., Carlsen, K.A., & Loftus, G.R. (2004). The “saw-it-all-along” effect: Demonstrations of visual hindsight bias. *Journal of Experimental Psychology: Learning, Memory, and Cognition, 30*, 960–968.
- Hastie, R., Schkade, D.A., & Payne, J.W. (1999). Juror judgments in civil cases: Hindsight effects on judgments of liability for punitive damages. *Law and Human Behavior, 23*, 597–614.
- Hawkins, S.A., & Hastie, R. (1990). Hindsight: Biased judgment of past events after the outcomes are known. *Psychological Bulletin, 107*, 311–327.
- Hoffrage, U., Hertwig, R., & Gigerenzer, G. (2000). Hindsight bias: A by-product of knowledge updating? *Journal of Experimental Psychology: Learning, Memory, and Cognition, 26*, 566–581.
- Hubbard, T.L. (1985). Environmental invariants in the representation of motion: Implied dynamics and representational momentum, gravity, friction, and centripetal force. *Psychonomic Bulletin & Review, 2*, 322–338.
- Hubbard, T.L., & Motes, M.A. (2002). Does representational momentum reflect a distortion of the length or the endpoint of a trajectory? *Cognition, 82*, B89–B99.
- Kahneman, D., & Tversky, A. (1982). The simulation heuristic. In D. Kahneman, P. Slovic, & A. Tversky (Eds.), *Judgment under uncertainty: Heuristics and biases* (pp. 201–208). New York: Cambridge University Press.
- Kahneman, D., & Varey, C.A. (1990). Counterfactuals and propensities: The loser that almost won. *Journal of Personality and Social Psychology, 59*, 1101–1110.
- Kamin, K.A., & Rachlinski, J.J. (1995). Ex post \neq ex ante: Determining liability in hindsight. *Law and Human Behavior, 19*, 89–104.
- Kassin, S.M., & Dunn, M.A. (1997). Computer-animated displays and the jury: Facilitative and prejudicial effect. *Law and Human Behavior, 21*, 269–281.
- Koppa, R.J., & Hayes, G.G. (1976). Driver inputs during emergency or extreme vehicle maneuvers. *Human Factors, 18*, 361–370.
- Ofir, C., & Mazursky, D. (1997). Does a surprising outcome reinforce or reverse the hindsight bias? *Organizational Behavior and Human Decision Processes, 69*, 51–57.
- Rachlinski, J.J. (1998). A positive theory of judging in hindsight. *The University of Chicago Law Review, 65*, 571–625.
- Reber, R., Winkielman, P., & Schwarz, N. (1998). Effects of perceptual fluency on affective judgments. *Psychological Science, 9*, 45–48.
- Roese, N.J. (2004). Twisted pair: Counterfactual thinking and the hindsight bias. In D. Koehler & N. Harvey (Eds.), *Blackwell handbook of judgment and decision making* (pp. 258–273). Oxford, England: Blackwell.
- Roese, N.J., & Olson, J.M. (1996). Counterfactuals, causal attributions, and the hindsight bias: A conceptual integration. *Journal of Experimental Social Psychology, 32*, 197–227.
- Sanna, L.J., Schwarz, N., & Stocker, S.L. (2002). When debiasing backfires: Accessible content and accessibility experiences in debiasing hindsight. *Journal of Experimental Psychology: Learning, Memory, and Cognition, 28*, 497–502.
- Shepherd, R.N. (1984). Ecological constraints on internal representation: Resonant kinematics of perceiving, imaging, thinking, and dreaming. *Psychological Review, 91*, 417–447.

- Sidaway, B., Fairweather, M., Sekiya, H., & McNitt-Gray, J. (1996). Time-to-collision estimation in a simulated driving task. *Human Factors, 38*, 101–113.
- Stallard, M.J., & Worthington, D.L. (1998). Reducing the hindsight bias utilizing attorney closing arguments. *Law and Human Behavior, 22*, 671–683.
- Stuart, A. (2001, April). Seeing is believing: Forensic animation sheds light on the truth. *Professional Surveyor, 21*, 6–12.
- Teigen, K.H. (1998). When the unreal is more likely than the real: Post hoc probability judgments and counterfactual closeness. *Thinking and Reasoning, 4*, 147–177.
- Whittlesea, B.W.A., & Leboe, J.P. (2003). Two fluency heuristics (and how to tell them apart). *Journal of Memory and Language, 49*, 62–79.

(RECEIVED 2/23/05; REVISION ACCEPTED 6/10/05;
FINAL MATERIALS RECEIVED 6/29/05)