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## COUNTERFACTUAL THINKING AND SOCIAL PERCEPTION: THINKING ABOUT WHAT MIGHT HAVE BEEN

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### I. Introduction

The evaluation of experience is relative. Reactions to events depend not only on what the events are but on what they are not. The mental representations to which an event is compared may be precomputed and exist prior to the occurrence of the event. Expectancies provide the clearest example of this class of representations. Consider students' reactions to their exam scores. One important determinant of their reactions will be their expectancies. Students generally will be satisfied if their scores are close to or higher than the scores they expected but dissatisfied if the scores are significantly lower. Students' conceptions of what constitutes a fair score is another type of precomputed representation that can affect their reactions. Even scores that exceed students' expectations may still disappoint them if they fall below those that the students felt they deserved.

Reality is also compared to postcomputed representations, those that are neither consciously nor unconsciously held prior to an event but which are generated post hoc by the event itself (Kahneman & Miller, 1986). Whereas precomputed representations focus on thoughts of what was expected to be or what should have been, postcomputed representations focus on counterfactual thoughts of what might have been. The postcomputed or counterfactual representations that are evoked by experience can shape people's reactions every bit as powerfully as the precomputed ones they bring to the experience. For example, students who receive a score that falls one short of that required for a higher grade may still be disappointed even though that score met both their expectations and their perceptions of fairness. The disappointment, in this case, would stem from the contrast between what happened and postcomputed counterfactual thoughts of what almost happened.

The precomputed representations that exist prior to an event, combined with the postcomputed counterfactual thoughts, images, and scenarios that are evoked by the event itself, comprise what Kahneman and Miller (1986) have termed the event's *norm*. The discrepancy between an event and the norm that it evokes defines the event's normality. The more discrepant an event is from the representations (precomputed or postcomputed) that it evokes, the less normal (more abnormal) the event is said to be.

The norm to which an event is compared may be dominated by precomputed representations or by postcomputed representations. In this article we examine how norms dominated by postcomputed representations influence perceptions of social events. Our aim is not to deny the importance of anticipation and expectation in social perception but simply to encourage consideration of the role that counterfactual thinking plays in this process. To accomplish this, we will show that people's reactions to social events that evoke the same precomputed representations will vary if those events evoke different postcomputed counterfactual representations. Our discussion focuses on three factors that influence the relation between the target event and the postcomputed representations it evokes. These factors are (1) the ease with which actions leading to the event can be undone mentally, (2) the ease with which the event itself can be undone mentally, and (3) the ease with which the event can be replicated mentally.

## II. Mentally Undoing Actions

Consider the <sup>fact</sup> of an individual who is killed in the crash of a commercial airliner after switching from another flight only minutes before takeoff. If your reactions are similar to our own, you will find it difficult to resist the thought that this passenger would not have been killed "if only" he or she had not switched flights. You might also feel that the fate of this person is more poignant or tragic than the death of a passenger who had been booked on the fatal flight for some weeks. What prompts these reactions? After all, the outcome is identical in both cases. And the two fates surely do not differ in their probability or foreseeability. Switching flights is neither perceived to increase nor decrease one's probability of crashing. Nor do moral prescriptions concerning what one ought to do account for the different affective reactions in the two cases. What then is the difference? We propose that the differential reactions arise because of the differential ease of mentally simulating or imagining a more positive alternative in the two cases (Kahneman & Miller, 1986; Kahneman & Tversky, 1982). The counterfactual world in which the victim escaped the actual fate is imaginatively "closer" or more available in the "changed flight" version of the scenario. The reason for this, we propose, is that it is so easy to imagine the victim having not changed flights. It is true that the victim's fate in the "unchanged flight" version of the

scenario would have been avoided if he or she had switched flights, but there is little tendency in this case to say "if only the flight had been switched" because that counterfactual alternative is not easily imagined (Kahneman & Tversky, 1982; Wells, Taylor, & Turtle, 1987).

Following Kahneman and Miller (1986), we use the term *abnormal* to refer to actions that can easily be imagined otherwise. Outcomes that follow from abnormal actions, and thus are themselves easily imagined otherwise, we will refer to as abnormal outcomes. The readiness with which people say "if only" in referring to an action is one way of estimating the normality of both the action and the outcome to which it leads.

### A. NORMALITY AND EMOTIONAL AMPLITUDE

The normality of an outcome is reflected in the intensity of the reaction it provokes. The more strongly an event evokes imagined representations that are dissimilar to it, the stronger will be the emotional response evoked by that event (Kahneman & Miller, 1986). Because the crash victim who switched flights evokes a contrasting scenario more powerfully than does the crash victim who did not switch, the former's fate evokes a stronger reaction than does the latter's. In this respect, postcomputed representations function similarly to precomputed representations. In both cases, emotional reaction intensifies as a function of the availability and discrepancy of the evoked alternative. But what are the determinants of normality? Why is it easier to imagine or mentally simulate some actions being different than it is others? The determinants of an action's normality are not well understood but we will consider three potential candidates.

#### 1. Exception versus Routine

In a seminal analysis of counterfactual thinking, Kahneman and Tversky (1982) proposed that when people generate alternatives to outcomes they generally do so by imagining routine or default actions in the place of exceptional ones rather than the converse. This proposition is illustrated by the plane crash example. Because switching flights at the last minute is more exceptional than not switching flights, it is easier to imagine a victim not switching than it is to imagine a victim switching.

In another test of the hypothesis that fates preceded by exceptional actions will generate stronger affective reactions than fates preceded by routine actions, Kahneman and Tversky (1982) presented subjects with the following scenario:

Mr. Adams was involved in an accident when driving home after work on his regular route. Mr. White was involved in a similar accident when driving on a route that he only takes when he wants a change of scenery.

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Even though the fates of the two individuals in this scenario were identical, the majority of subjects (82%) predicted that the victim whose fate was preceded by an exceptional action (Mr. White) would be more upset than the victim whose fate had been preceded by a routine action (Mr. Adams).

Further support for the link between the routineness of an action and the normality of the ensuing outcome comes from studies conducted by Johnson (1986) and Miller and McFarland (1986). These studies demonstrate that observers' reactions to victims of misfortune are also stronger when the victim's actions are exceptional than when they are routine. Johnson (1986) presented subjects with a scenario that described various aspects of the life of a college student named Debbie. In the most relevant condition, the scenario ended by relating the following event:

Attending a rock concert, Debbie momentarily occupied seat 2047, but moved when a tall person sat in front of her. At intermission, the person sitting in seat 2047 was randomly chosen (by number of seat currently occupied) to win a trip around the world for two.

Subjects who read the description of Debbie that included the fact that she narrowly missed receiving a positive outcome rated her more negatively on both semantic differential scales and on various other measures than did subjects who read a description that omitted the information about the "near miss." Johnson's (1986) research indicates that it is not only people who have bad things happen to them who are derogated (Lerner & Miller, 1978) but also people who come close to having good things happen to them.

Miller and McFarland (1986, Study 1) also probed observers' reactions to victims. The cover story in their study described subjects' task as that of helping provide information to a victim compensation board on the public's reaction to various types of victims. The description of the victim and the circumstances of the victimization were identical across two versions of a scenario, with the only difference being the normality of the victim's fate. Normality was manipulated by describing the action leading to the victimization as being either an exception to or in accordance with the victim's routine actions. The victim was a man who had been severely injured during a robbery. In one condition, the robbery took place in the store he most commonly frequented. In a second condition, the robbery took place in a store the victim did not commonly frequent but had decided to go to "for a change of pace." The conditions were designed to parallel the example of the crash victim who had or had not engaged in the exceptional action of switching flights. Miller and McFarland (1986) predicted that subjects would experience the fate that befell the victim in the "unusual" store condition as more abnormal, and hence more deserving of sympathy, than the fate that befell the victim in the "usual" store condition. Consistent with this

hypothesis, subjects recommended significantly more compensation (over \$100,000 more) for the same injury in the exceptional context than they did in the routine context.

The latter study demonstrates that even morally charged judgments such as those involving compensation can be influenced by the normality of the outcome. It is as though a negative fate for which a more positive contrast is highly available is worse, or more unfair, than one for which there is no highly available positive alternative (cf. Folger, 1986). Before leaving this example, note that the different reactions to the two victims are not owing to differences in the perceived probabilities of their fates. Subjects' judgments of the probabilities of being shot in the two stores were low and indistinguishable from one another.

## 2. Omission versus Commission

A second asymmetry in counterfactual thinking noted by Kahneman and Tversky (1982) concerns the distinction between acts of commission and acts of omission. They propose that it is usually easier to imagine oneself abstaining from actions that one has carried out than carrying out actions that were not in fact performed. Or to put it somewhat differently, it is easier to generate alternatives to outcomes that follow from actions than it is to generate alternatives to outcomes that follow from inactions. One way to test this hypothesis is to see if the negative consequences of actions evoke stronger emotional responses than do the negative consequences of failures to act. Kahneman and Tversky (1982) performed this test with the following vignette:

Mr. Paul owns shares in company A. During the past year he considered switching to stock in company B, but decided against it. He now finds that he would have been better off by \$1200 if he had switched to the stock of company B. Mr. George owned shares in company B. During the past year he switched to stock in company A. He now finds that he would have been better off by \$1200 if he had kept his stock in company B.

Although both men lost the same amount of money, most of the subjects predicted that Mr. George, who lost his money by switching stocks, would experience more regret than Mr. Paul, who lost his money by not switching stocks (92 vs. 8%). The finding that acts of commission produce greater regret than acts of omission was replicated in a series of studies conducted by Landman (1988).

## 3. Constrained versus Unconstrained Behavior

The number of alternatives available to the actor at the time of his or her action also seems to affect the normality of both the action and its consequences. The

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greater the number of predecision options available in a situation, the less normal the action taken is perceived to be. A study by Wells and Gavanski (1989, Experiment 1) offers strong support for this hypothesis. Subjects read a story about a woman, Karen, who went to lunch with her boss, Mr. Carlson. Unaware that Karen was allergic to wine, Mr. Carlson ordered a dish for her that contained wine. As a consequence of eating that dish, Karen died. There were two versions of the story. In the "one wine" version, the vignette described Mr. Carlson as first having considered some other dish that did not contain wine before he decided to order the fatal one. In the "two wine" version, the vignette described Mr. Carlson as first having considered another dish that also contained wine before he decided to order the fatal one. When asked to list things in the story that, had they been different, would have prevented Karen's death, 36% of the subjects in the "one wine" condition listed the ordering decision, whereas only 11% of the subjects listed that decision in the "two wine" condition. An additional finding of this study was that 85% of the subjects rated the ordering decision as a cause of Karen's death in the "one wine" condition, whereas only 48% listed that decision as a cause of her death in the "two wine" condition. The findings of Wells and Gavanski (1988) indicate that people are more likely to mentally undo actions the greater the number of alternative courses of actions considered by or available to the actor.

A study by Turnbull and Mawhinney (1986) indicates that victims who experience negative outcomes following unconstrained (and hence undouble) actions may be especially predisposed to self-blame. Subjects were presented with a vignette depicting a woman who parked in a shopping mall lot in either the only spot available or in one of many available spots. On leaving the lot, both the protagonist and another driver backed out at the same time and bumped into one another, causing minor damage to both cars. The protagonist was covered by a no deductible insurance policy, but the other driver had a \$200 deductible. Subjects were asked to predict how much money the protagonist would pay toward the other person's deductible as well as the amount of self-blame the protagonist would accept for the accident. There were significant differences on both measures: The protagonist was expected to pay more money and blame herself more when there had been many parking spots available than when there had been only one. Subjects apparently reasoned that a person who need not have taken the "accident-destined" spot would feel more responsible for the accident than would the person who had no choice but to take that spot. As with the protagonist in the Johnson (1986) "rock concert" scenario, responsibility appears to be assigned as a consequence of the case with which the protagonist can be imagined having engaged in an alternative action that would have led to an alternative outcome—a more positive outcome in the Johnson (1986) study and a less negative one in the Turnbull and Mawhinney (1986) study.

## B. UNDOING ACTIONS AND BLAME ASSIGNMENT

As well as identifying features of actions that affect the strength with which alternative actions (and hence alternative outcomes) are evoked, the studies we have reviewed explore the role that postcomputed thoughts plays in reactions to misfortune. At this point we consider the more general significance of this research for an understanding of reactions to victimization.

### 1. Victim Reactions

How does the normality of a victim's fate affect his or her reaction to it? We saw that the more abnormal the victim's actions preceding misfortune (1) the more upset the victim was expected to be (Kahneman & Tversky, 1982), (2) the more regret the victim was expected to experience (Kahneman & Miller, 1986), and (3) the more self-blame the victim was expected to accept (Turnbull & Mawhinney, 1986). Why should victims be harder on themselves when their misfortunes are preceded by abnormal actions? Any perceived differences in responsibility cannot be accommodated by conventional analyses of responsibility, such as those pertaining to the five levels of responsibility identified by Heider (1958) and elaborated by Shaw and Sulzer (1964). Of these various levels—responsibility by association, commission, foreseeability, intention, and the absence of justification—the only the responsibility of foreseeability seems even superficially relevant to the variable of normality.

Foreseeability and normality are importantly different, however, as a close examination reveals. The ascription of responsibility by virtue of foreseeability requires that the perceiver believe that Y would not have occurred if the target had not done X and that the target should have known that X could have led to Y. By way of illustration, consider the familiar refrain, "If only I had been more careful, this wouldn't have happened." The speaker of this statement is accepting responsibility for a misfortune not only because of the acknowledgment that his or her carelessness played a causal role in the occurrence of the misfortune but also because of the acknowledgment that there is a positive correlation between amount of carelessness and the probability of experiencing a misfortune.

Intelligent people know that carelessness can lead to misfortunes, just as they know that cheaters never prosper, that people should look before they leap, and so forth. For this reason, foreseeable fates can be expected to be more easily imagined otherwise than unforeseeable fates. If the victim had followed the dictates of rationality and morality, the misfortune would have been avoided. On the other hand, not all highly abnormal fates will qualify as foreseeable. A man who has an accident after taking an unusual route home might say, "If only I had

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taken my usual route, this would not have happened." But we need not assume that he believes he "should have known" that the action he took would increase the probability of having an accident. Yet in some important sense he may feel very similar to people who bring their misfortune upon themselves by careless or foolish actions. Because people say "if only" when unintended negative consequences were foreseeable, it may be difficult for them to not hold themselves responsible in other circumstances in which they find themselves saying "if only."

## 2. Observer Reactions

The two studies (Miller & McFarland, 1986, Study 1; Johnson, 1986) that we presented pertaining to observers' reactions to misfortunes both demonstrated that the case of mentally undoing a negative fate affects how observers react to the victim. However, the nature of the link between normality and sympathy that the two studies revealed was quite different. Suffering a fate that could be undone easily elicited higher derogation from subjects in Johnson's (1986) study, whereas it elicited higher compensation from subjects in Miller and McFarland's (1986) study. How can these conflicting reactions to victims who were very close to being nonvictims be resolved? At least two possibilities exist. First, Miller and McFarland's subjects may have recommended greater compensation to the victim of the easily undone fate because they realized that this victim would be tortured more by self-blame and "if only" thoughts. A second, and we think more likely, possibility emerges from a consideration of the well-established finding that observers will derogate innocent victims only if the victims cannot be compensated (Lerner, 1970; Lerner & Miller, 1978). A sense of injustice generally will elicit efforts to restore justice, but if this proves impossible, observers may attempt to reduce their sense of injustice by derogating the victim. Thus, Johnson's (1986) subjects might have compensated the woman who narrowly missed winning the trip around the world if they had been given the opportunity to do so, and Miller and McFarland's (1986) subjects might have derogated the robbery victim if they had not been provided with the opportunity to compensate him.

This last point suggests a caveat concerning the application of Kahneman and Miller's (1986) model of counterfactual thought to the victim domain. This model predicts the amplitude of emotional reactions to victims, but it does not constitute a theory of justice per se. It makes predictions about the factors that influence the intensity of people's reactions to morally charged events, not the direction of these reactions. Still, as our literature review suggests, the affective reactions elicited by an event can guide a wide array of responses that bear directly on moral reactions. The precise means by which this occurs remains a question for future research, as does the more preliminary question of why it is

easier to generate counterfactual alternatives to some events (e.g., acts of commission and omissions) than to others (e.g., acts of omission and routines).

## III. Mentally Undoing Outcomes

In their original discussion of undoing, Kahneman and Tversky (1982) provided the following vignette:

Mr. Crane and Mr. Tees were scheduled to leave the airport on different flights, at the same time. They travelled from town in the same limousine, were caught in a traffic jam, and arrived at the airport 30 minutes after the scheduled departure of their flights. Mr. Crane is told that his flight left on time. Mr. Tees is told that his flight was delayed and just left five minutes ago.

The fates of Mr. Tees and Mr. Crane were identical, as was the relation between their expectancies and their fates (they both expected to miss their flight). Nevertheless, the fate of Mr. Tees seems worse. Indeed, subjects overwhelmingly predicted that Mr. Tees would be more upset than would Mr. Crane (96 vs. 4%). Why? In this case, the impact of Mr. Tees' fate does not seem to depend on the ease of modifying any particular action in the causal chain that preceded his fate. There is no specific factor that led Mr. Tees to arrive 5 minutes after the departure of his flight. Still, the perception that Mr. Tees would be more upset does appear to be tied to the differential availability of a postcomputed rather than a precomputed representation. It is the discrepancy between what did happen and what easily might have happened, not what was expected to happen or what should have happened, that produces the variations in affective reaction. But if it is not the greater abnormality of the actions tending to Mr. Tees fate that produces the stronger reaction to it, what then is it?

### A. MENTAL MODELS AND NORMALITY

We suggest that people's differential reactions to Mr. Tees and Mr. Crane reflect the relative ease with which they can mentally revise the parameters of the mental model they apply when analyzing the fates of these men. By the term mental model, we refer to content-based rules of thumb about the ways that systems operate. These rules specify the ways that systems can be transformed from one state to another, as well as the critical range of values around which parameters of the model can be manipulated or set. Any particular value that falls within this critical range is easily imagined changed to some other value within that range (see Rip's [1985] discussion of "figurative" mental models for an

elaboration of this concept). As a general proposition, we contend that the smaller the imagined change one has to make to the causal model of an event in order to imagine or mentally simulate an alternative outcome, the more available that alternative will be, and the greater, in turn, the affective reaction to the event will be.

A close examination of the case of Mr. Tees and Mr. Crane will help clarify this proposition. The relevant mental models in this example are those pertaining to traffic flow and plane delays. From the vantage point of these mental models, it is easier to imagine Mr. Tees making his flight than it is to imagine Mr. Crane making his. Most people can easily imagine a traffic jam that impeded a person for 25 minutes, impeding him for only 20 minutes instead. The parameters that control traffic jams are such that fluctuations of 5 minutes in either direction are easily imagined, at least much more easily imagined than fluctuations of 25 minutes. For this reason, one is more likely to say, "If only the driver had made up 5 minutes," than "If only the driver had made up 25 minutes." A similar argument can be extended to the case of plane delays. A plane delay can be caused by many factors, but most of the scenarios in which a plane was delayed for 25 minutes would require very little parametric alteration for them to accommodate a 30-minute delay. It is not necessary to know what caused the delay to believe that it easily could have extended another 5 minutes.

Although 5 minutes is easily undoable in the "missed plane" example, there are many other instances of temporal misses in which the same difference would not create a sense of a "near miss." Five minutes in a scenario involving a traffic jam or plane delay is a psychologically short time, but 5 minutes in scenarios involving competitors in a mile run is not. One would not say that a runner who was 5 minutes behind the winner of a mile race was close to winning. One's understanding of competitive running might permit one to say, "If only he had cut his time down by 5 seconds he would have won," but almost certainly not, "If only he had cut his time down by 5 minutes he would have won." Thus, whether a temporal miss of a particular duration is perceived to be a "near miss" depends on the observer's mental model of the event in question.

Because people may have different mental models of traffic jams and plane delays, not everyone will find it equally easy to imagine a counterfactual world in which a person who missed a plane by 5 minutes actually caught it. Neither will people have a single model of events such as traffic jams or plane delays. A plane delay of 25 minutes will elicit different imagined scenarios than will one of 2 hours. Furthermore, the particular scenario that is imagined or accessed when one hears of a plane delay will affect the ease of imagining an additional delay of 5 minutes.

Analyses of people's characters appear to function similarly to mental models. The ease with which observers mentally undo a person's fate will depend on the model they have of that person as well as of the circumstances (system) affecting

the person. This fact is frequently exploited for dramatic effect by skilled playwrights. In the world of drama one frequently encounters events, which from a material or physical perspective need not have happened but which from a characterological or dramatic perspective were ineluctable. What makes *King Lear* a successful tragedy, for example, is the tension between the audience's understanding that there is sufficient time between Lear's regaining of his senses and Cordelia's execution for her to be saved and its understanding that the dramatic momentum initiated by Lear's character makes her death inevitable. Shakespeare's genius succeeds in creating a dramatic context in which a fate that easily could be imagined different in another world is not easily imagined different in Lear's world. If the audience could too easily imagine Cordelia's life being saved, *King Lear* would fail as a tragedy.

#### B. MENTAL MODELS AND EMOTIONAL AMPLITUDE

The route by which a postcomputed alternative is elicited in the Mr. Tees and Mr. Crane example may be different than the one involved in the previously described "undoing action" studies, but the link between the availability of the imagined alternative and the aroused affect is the same. The more available the counterfactual scenario is, the more intense is the affective response. As another illustration of this principle, consider the following scenario from Miller (1984):

Mrs. Nelson and Mrs. Thomas each held winning lottery tickets. Mrs. Nelson bought her ticket 8 weeks before the draw. Mrs. Thomas bought her ticket an hour and a half before the draw.

When asked who would be the happier of the two winners, the vast majority of subjects (93%) designated Mrs. Thomas. This was despite the fact that the fares of the two women were the same, as were their expectancies. (One's subjective probability of winning a lottery is not affected by when the ticket is bought.) The only difference between the two individuals is how close they came to missing their good fortune. The shorter the time between the purchase of the ticket and the closing of the draw, the greater the number of different events one can imagine preventing the act of purchasing the winning ticket. As a consequence of this, people assume Mrs. Thomas will have the sense that she came very close to not buying the winning ticket and, consequently, the feeling that she was particularly lucky to have possessed the winning ticket.

The reader will note that this last example involves the positive emotion of happiness, whereas our previous examples all have involved negative emotions. The positive reaction occurs in this example because the counterfactual world

that was almost experienced is the negative one of not buying the winning lottery ticket.

Miller and McFarland (1986, Study 2) also explored outcome undoing in one of their "victim compensation" studies. The victim in this study had died from exposure after surviving a plane crash in a remote area. He had made it to within 75 miles of safety in one condition and to within 1 mile of safety in a second condition. Based on the assumption that it is easier to imagine an individual continuing another 1 mile than another 75 miles, Miller and McFarland predicted that the fate of the "close" victim would be perceived to be more abnormal, and hence more deserving of sympathy, than the fate of the "distant" victim. The results supported the prediction inasmuch as subjects once again recommended significantly more compensation for the family of the victim whose fate seemed closer to having been avoided.

### 1. Rational versus Irrational Models

In the studies of outcome undoing that we have described so far, the models that people are bringing to bear on the events seem to be rational. After all, it is physically easier to save 5 minutes than 25 minutes in a traffic jam and it is easier to walk 1 mile than 75 miles. The postcomputed scenario construction that subjects are engaging in, therefore, is grounded in reality. This may not always be the case, however, as is illustrated in a study conducted by Turnbull (1981). This study focused on subjects' reactions to the outcome of a staged lottery. Subjects knew they were one of 500 participants in the lottery and thus, not surprisingly, expressed little optimism of winning. Consistent with their low expectations, the participants generally expressed little disappointment when they discovered they had not won. The only exceptions to this were those subjects who held ticket numbers that were countably close to the number of the winning ticket. Apparently, the countable closeness of a lottery ticket to the winning ticket led to a sense of being close to winning. Being one number away from the winning ticket may leave a person with a sense of a near miss that is similar to that experienced by Mr. Crane, who missed his flight by 5 minutes, but there is an important difference between the two cases. There is a rational account of why a person who misses a plane by 5 minutes could be said to be closer to having caught it than a person who misses a plane by 25 minutes, but there is no rational account for why a person who misses a winning lottery ticket by one number could be said to be closer than a person who misses it by four numbers. The procedure by which the person drew his or her particular number was a random one, hence the chances of the person having drawn any other particular number were not affected by the closeness of that number to the one actually drawn.

The disappointment of those ticket holders with close numbers possibly arose

because they mistakenly viewed their fate from the perspective of a nonrandom model. For instance, they may have reacted to holding a number that was close to the winning number as they would to receiving an exam score that was close to a higher grade. A person who receives a score one short of that required for an A also can be expected to have the sense of a near miss, but in this case the reaction would be grounded in rationality. An exam score is not determined by random forces (despite what students may sometimes think), and those causal factors that are believed to have produced a score one short of the total required for an A could reasonably be viewed as having required little variation to have yielded one more mark.

### 2. Social Knowledge and Sympathy Reactions

A controversial incident that occurred some years ago in France illustrates how knowledge structures relating to social relations can also influence the availability of alternatives to an event and, in turn, reactions to the event. The incident was a bomb attack on a synagogue that left a number of people injured. France's prime minister at the time publicly denounced the attack and expressed his sympathy for both the Jews who were inside the synagogue and the innocent passersby. The prime minister's differentiation of the victims into Jews and innocent passersby provoked considerable controversy because many interpreted it as implying that he did not consider the Jews to be as innocent as the passersby.

Certainly, the term innocent has a clear moral connotation, but should we assume that the prime minister's remarks reflect anti-Semitism? Not necessarily. According to the present model of counterfactual thought, his failure to apply the term innocent to the Jews inside the synagogue may simply reflect the fact that his mental model of a synagogue enabled him to mentally remove passersby from the vicinity more easily than the attending Jews. That the Jews were the intended victims of the attack also makes their injuries more difficult to undo (although no more deserved) than those of the passersby. The principle of psychological operating here appears to be the following: What need not have been, ought not have been. The closer a misfortune is to not having happened, the more unfair or tragic it will appear.

A similar principle may help explain at least some of the public reaction evoked by the death of Christa McCulliffe in the Challenger shuttle explosion in 1986. There were seven people (including another female) killed by the explosion, but it was the nonastronaut—the school teacher, Christa McCulliffe—who became the focus of the nation's sympathy and public grieving. That McCulliffe was a school teacher, a mother, and an engaging person undoubtedly contributed to the response she evoked, but there also may have been something else at work here. As was the case with the injured passersby in the synagogue attack, she need not have been there. If she had been killed by a freak explosion in her

classroom, her fate would not have been so abnormal and, we suspect, not nearly as tragic.

As another example of the role that social models play in reactions to victims, consider the fate of a policeman killed by a drug dealer in a New York City housing project a few years ago. The policeman was killed as he searched what he thought was an empty apartment for a young girl who was reported missing. The day following his death, the police commissioner publicly expressed sympathy to the victim's family, noting that the tragedy of his death was especially great because the little girl had been playing at a neighbor's house and was not actually lost. Why does the fact that the target of the victim's search was not lost make his brutal murder more tragic? One is surely no more deserving of being killed if one is looking for a child who is actually lost than if one is looking for a child who is only reported to be lost, any more than one is more deserving of being killed in a space shuttle explosion if one is a professional astronaut than if one is a teacher.

This reaction also cannot be accounted for in terms of any precomputed thoughts. People might justify their relatively muted reactions to the deaths of the professional astronauts by saying that "danger comes with the territory," and they may even say this in the case of Jews who live in a country with a history of anti-Semitic violence, but how does this line of reasoning help explain the reaction to the policeman's fate? We would argue that it does not. What does help is a consideration of the counterfactual possibilities that the relevant mental model makes available to us. The relevant model in this case specifies that people need not look for people who are not lost. Accordingly, anything that happens to someone who is searching for someone who is not lost need not (and thus ought not to) have happened. Searching for a child who is not lost seems senseless, and being killed during the search also seems senseless. By referring to his actions as senseless, we of course do not mean that the policeman was doing anything that deviated from his duties when he searched for the girl who was mistakenly reported as lost. He simply was engaging in an unnecessary action, one that is easy to imagine not having been undertaken.

In summary, reactions to misfortunes depend not only on their expectedness and their perceived deservedness but also on their normality. The closer one's mental model suggests a misfortune was to not happening, the more abnormal that misfortune will seem and the stronger one's affective reaction to it will be.

#### IV. Mentally Replicating Outcomes

The research described in the previous two sections shows that an event's normality—as assessed by affective reaction to it—depends on the strength with

which it evokes constructions of alternative events. In this section we present research that demonstrates that an event's normality also depends on the strength with which it evokes constructions of similar events. Events evoke counterfactual thoughts not only of how things might have been different but also of how things might have been the same. We propose that the more difficult it is to mentally replicate an event, the less normal the event will be, and the stronger, in turn the affective reaction it evokes will be. To illustrate this principle, we present a series of studies on judgments of suspiciousness (Miller, Turnbull, & McFarland, 1989). In each of these studies, subjects read one of two versions of a scenario in which a highly improbable event occurred or was alleged to have occurred. The a priori probability of the target event was kept constant across the two versions, but the normality of the event was varied by manipulating the number of ways the event could have occurred. The hypothesis that guided these studies is that two equally improbable outcomes will seem differentially surprising (suspicious) if the occurrence of one of them is more easily replicated mentally than is the occurrence of the other.

#### A. NORMALITY AND SUSPICION

##### 1. Suspicion about the Luck of the Draw

To begin, imagine that you have a young child who loves chocolate chip cookies. Imagine further that you buy your cookies in packages that include oatmeal as well as chocolate chip cookies. Your child's practice is to go to the cookie jar and select the chocolate chip cookies, leaving the oatmeal cookies to go stale. One day you think of a strategy to cope with the problem. You tell your child to close his or her eyes before reaching into the jar and to take whichever cookie is grabbed first. The child agrees to this and heads for the kitchen and the cookie jar. Returning shortly thereafter, the child exclaims that just what you said to do was done and a chocolate chip cookie was selected.

How would you react to the child's announcement? Would you accept your child's claim that, by coincidence, a coveted chocolate chip cookie was selected or would you be suspicious that the child had peeked? What factors might affect your judgment in this regard? Information you had about the child's prior behavior would be one obvious candidate for consideration. A prior history of honesty would leave you less suspicious than a prior history of dishonesty. Knowledge you had concerning the strength of the child's preference for chocolate chip over oatmeal cookies probably also would be relevant. Suspicion would be expected to increase as the child's assumed motivation to cheat increased. In addition to your knowledge of the protagonist, your level of suspicion may well be influenced by your knowledge of the contents of the cookie jar. If 50% of the cookies



were chocolate chip, you almost certainly would not be as suspicious as you would be if only 5% were. Indeed, an event could not even appropriately be termed a coincidence, let alone be expected to generate suspicion, if it were not at least moderately improbable.

The present model of counterfactual thought suggests that the relative frequency of the two types of cookies may not be the only feature of the jar's contents that would affect your suspicion. Contrast the levels of suspicion you would anticipate experiencing in two slightly different versions of the scenario. In version A there are 1 chocolate chip and 19 oatmeal cookies in the jar; in version B there are 10 chocolate chip and 19 oatmeal cookies in the jar. The relative frequency of the two types of cookies is the same in the two versions of the scenario (1 to 19), but—if you are like us—we suspect that you would be more suspicious when the child had claimed to draw the only remaining chocolate chip cookie than merely 1 of 10 remaining chocolate chip cookies.

To test this intuition, Miller, Turnbull, and McFarland (1989) presented subjects with one of the two versions of the vignette and asked them, "How suspicious would you be that the child had peeked before selecting the cookie?" As expected, subjects presented with version A of the scenario indicated that they would be significantly more suspicious than did subjects presented with version B of the scenario.

To assess whether the two versions produced different a priori subjective probability estimates as well as differences in suspiciousness, two independent groups of subjects were presented with the two versions of the scenario (omitting the alleged outcome) and were asked to indicate the likelihood that the child would select a chocolate chip cookie. Subjects answered the question on a 10-point scale that ranged from 0% to 100%. The responses of these two groups did not differ.

Why should reactions to the two scenarios be different? Basing feelings of suspicion on factors such as the actor's past behavior, his or her motivation, and the likelihood of the event occurring by chance seems fair and rational. But what is fair or rational about considering the absolute number of desired cookies in the jar? The differential reactions generated by the two scenarios may not be accounted for by naive theories of suspicion, but the present model of counterfactual thought does offer a possible account. The event of selecting a chocolate chip cookie may have been equally probable in the two scenarios (5%) but it was not equally normal or surprising. When there were 10 chocolate chip cookies, and hence 10 similar ways for the event to occur, the purported selection of a chocolate chip cookie was more normal than when there was only 1 chocolate chip cookie, and hence only one route by which the event could have occurred. In short, we propose that the selection of the chocolate chip cookie in the 10 to 19 cookies case generates less surprise (suspicion) than it does in the 1 to 19 cookies case because there are more ways to imagine the event happening in the former than in the latter case.

These results indicate that the shadow of reasonable doubt accorded to the target of suspicion extends as the normality of the event increases. The more easily subjects could imagine something happening by one route (chance), the less suspicious they were that it occurred by some other route (peeking). Subjects' perceptions of the child's honesty were no doubt also affected by the probability that they assigned to the event. If 50% of the cookies were chocolate chip, the subjects surely would have expressed less suspicion. Moreover, consideration of probability in this manner would both be psychologically sensible and comport with legal philosophy. Exhortations to juries not to convict someone unless they are sure "beyond a reasonable doubt" invites them to consider the likelihood that a set of occurrences could have come about without the accused being guilty of the offense as charged. However, neither cultural nor legal dictates would seem to justify a consideration of the ease of mentally replicating the event when determining the probability that the target violated the prohibition against peeking.

## 2. Suspicion about the Fairness of a Contest

Subjects in the Miller *et al.* (1989) Study 1 were more suspicious about the legitimacy of the procedure that yielded a desired outcome the more difficult it was for them to simulate the outcome emerging by means of that procedure. Making judgments about the coincidental nature of outcomes is not restricted to contexts involving random draws. We are rarely certain that any outcome reflects only one particular cause, and thus we are constantly having to decide whether an outcome that is consistent with one particular hypothesis constitutes evidence for that hypothesis or simply represents a coincidence. Researchers are able to utilize statistics to help them make these decisions but the layperson must rely on personal intuitions.

The Miller *et al.* (1989) Study 2 examined how the normality of an outcome affected subjects' judgments in one such situation. Subjects were asked to complete a questionnaire that presented them with one of two scenarios that were identical in all respects except for the normality of the target event. The scenario appears below with the manipulated information in *italics*:

John S. is a supervisor in a local manufacturing firm. John is responsible for promoting the employees in his department. In the past he has been accused of being against equal rights and opportunities for women. There is (one) / (10) male(s) and 9 (90) female(s) in his department who are potential candidates for promotion. John decides to give these employees a written examination to help with his decision. John grades these exams himself and reports that the highest mark was obtained by a man, whom he promotes.

Consistent with the prediction, subjects expressed significantly greater suspicion that the promotion decision reflected an antifemale bias when there was only 1 male who could have received the highest score than when there were 10

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different males who could have received the highest score. Once again, this effect did not appear to stem from different a priori subjective probability estimates. The response of two independent groups of subjects who simply were asked to estimate the likelihood that the highest score would be obtained by a male did not differ.

### 3. Suspicion about the Representativeness of an Unexpected Event

The studies we have described thus far manipulated the number of legitimate ways a low-probability event could have occurred in an attempt to affect subjects' suspiciousness about the fairness of the process that generated the event. The subjects' task was to determine whether an event, which was both improbable and consistent with the protagonist's wishes, constituted a fortuitous coincidence or reflected a nonrandom and hence illegitimate procedure. By specifying the exact nature of the relevant population, these studies precluded subject suspicion about another feature of the scenario, the alleged frequency of the target attribute in the population. For example, subjects in the Miller *et al.* (1989) Study 1 were not asked whether the purported random selection of the chocolate chip cookie affected their suspicion that there were more than the alleged number of chocolate chip cookies in the jar. Similarly, subjects in the Miller *et al.* Study 2 were not asked how the fact that a male had achieved the highest score on the exam affected their suspicion that there were more than the alleged number of male employees in the department. Had the scenarios not stipulated the frequency of the event in the distribution, it is conceivable that the differential normality of the event would have resulted in differential suspicion about the event's frequency.

A third study conducted by Miller *et al.* (1989) pursued this possibility. The specific hypothesis tested was that the fewer similar instances there are purported to be in the population from which an improbable event springs, the more inclined people are to believe that the event was actually more probable than they had been led to believe. Subjects were asked to complete a questionnaire that presented them with one of two versions of a scenario that were identical in all respects except for the normality of the target event. The scenario appears below with the manipulated information in italics:

Imagine that you rented a car from a company called "Rent a Clunker." You went to this company because its rates were much cheaper than other car rental companies but you were worried about the reliability of the cars. The manager assured you that his cars were very reliable, claiming that only 2 (20) of his 20 (200) cars had ever had problems. You choose a car and leave for a long trip. Within an hour the car breaks down.

We predicted that subjects would express more suspicion about the manager's integrity when he alleged there were only 2 unreliable cars in his fleet than when

he alleged there were 20. Guiding this prediction was the assumption that encountering 1 of 2 possible unreliable cars would seem a less normal event than encountering 1 of 20 possible unreliable cars, even though the probability of encountering an unreliable car in the two cases was the same (10%). The results supported the hypothesis. Subjects expressed significantly more suspicion that the manager had lied in the small-fleet condition than in the large-fleet condition. Following the practice of the previous studies, we presented two independent groups of subjects with the scenarios (omitting the outcomes) and asked them to indicate the likelihood that someone would get an unreliable car if they were to rent one from this company. The estimates did not differ across the two conditions.

### 4. Suspicion and Stereotype Revision

The previous study has an intriguing implication for the process of stereotype revision. By way of illustration, consider the following thought experiment. Imagine that you visit a city in which there are members of an ethnic group with which you are not familiar. Assume that you have been given conflicting accounts of the group's social manner. One of these accounts suggests that the majority of the members of this group are extremely rude. The other account suggests that only a small minority (no more than 5%, say) of the group members are extremely rude and that the vast majority are very courteous. Now imagine that you have your first encounter with a member of the group and find this individual to be extremely rude. This experience obviously would be consistent with the negative account and inconsistent with the positive account that you heard. Nevertheless, it remains possible that the positive account was the correct one and that the first member of the group you encountered was atypical. Before you reflect on how prepared you would be to entertain the "atypical instance" hypothesis, consider an additional piece of information. Imagine that you know that the size of the ethnic group in the town was either small (less than 20) or very large (more than 50,000). How do you think your knowledge of the absolute number of rude group members would affect your inclination to reject the low-incidence (positive) hypothesis on the basis of an encounter with one rude member? Would you be equally willing in the two cases to dismiss your experience as unrepresentative and to continue to entertain the hypothesis that the vast majority of the group members are courteous?

The hypothesis guiding the Miller *et al.* (1989) Study 4 suggests that your confidence in the accuracy of the high-incidence (negative) account would be higher when the group was small than when it was large. The larger the group, the more rude individuals there are for you to meet, even if they are a minority, and hence the more normal it is for you to encounter one. To test this hypothesis subjects were asked to complete a questionnaire describing one of two versions of a scenario that were identical in all respects except for the normality of the

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target event. The scenario appears below with the manipulated information in italics:

Imagine that you are an anthropologist who decides to study a tribe living in a remote area of South America. Two other anthropologists, who have investigated the tribe previously, provide you with differing views of the friendliness of the tribe members. One investigator says that at least 20 (200) of the 40 (400) members are hostile and unfriendly, whereas the other investigator claims that only 2 (20) of the 40 (400) tribe members are hostile and unfriendly. You visit the tribe and the first tribe member you encounter is hostile and unfriendly.

After subjects had read the scenario, they were asked to answer the following question: "On the basis of your first encounter with a member of the tribe, how confident would you be that the investigator who had claimed that at least 20 (200) of the tribe members were hostile and unfriendly had provided the more accurate of the estimates?"

We predicted that subjects would be more inclined to believe in the validity of the high-incidence hypothesis the less normal the target event appeared to be. This prediction was confirmed. Subjects were more confident that a hypothesis specifying a high incidence of the observed characteristic (hostility) was correct when the low-incidence hypothesis specified that there were only 2 members of the population who had that characteristic than when it specified that there were 20 members who had that characteristic.

## B. SUMMARY AND IMPLICATIONS

In each of the four studies we have described, subjects expressed differential suspicion about the coincidental or chance origins of equally unexpected outcomes. The reason for this, we argued, is that people do not decide whether or not an event occurred by chance solely on the basis of its a priori probability; they do so also on the basis of the case with which they can imagine or mentally simulate the event. To be sure, a high-probability event will evoke representations of similar outcomes more strongly than will a low-probability event. But the probability of the event is not the only factor that guides the generation of the evoked norm. The absolute number of similar ways in which the same outcome could be achieved is also important. The fewer ways it could happen, the less normal it is and thus the more surprising is its occurrence.

The most obvious implication of the present findings is that people will have more difficulty convincing others that an event that confirms a suspicion is "just a coincidence" in some circumstances than in others, even when the probabilities of the events occurring are the same. This fact could influence, among other things, the way in which the person associated with the coincidence re-

sponds to an audience. So, for example, one might expect especially defensive posturing from the child who draws the last chocolate chip cookie, or from the employer who reports that the employee who received the highest grade from him was the only male employee. Similarly, the manager of the car rental company might be especially vehement in protesting his honesty when a customer returns one of only two allegedly unreliable cars.

The findings of Miller *et al.* (1989, Study 4) also have implications for relations with outgroups. From this study it appears that an unexpected experience with a member of a small outgroup will be more likely to lead people to revise their beliefs than will an equally unexpected experience with a member of a large outgroup. People's willingness to change their beliefs in the face of evidence depends not only on how probable that evidence appears to be in light of their belief but also on how normal it appears to be. Subjects in the Miller *et al.* Study 4 found it hard to believe that they "just coincidentally" encountered one of two hostile members in a tribe, and thus they assumed that there must be more than two. The more numerous the members of an outgroup, the easier it is to believe that the "rotten apple" one has encountered is not representative of the rest of the barrel.

## V. Discussion

The theme of this article is that experience is evaluated in relation to both the precomputed knowledge structures that we bring to the experience and the counterfactual representations that the experience brings to mind. The research we have reported illustrates that the availability of postcomputed representations plays an important role in many domains of social perception. One of these domains is that of reactions to negative life events. We argued that a person's reaction to his or her own misfortune, or to that of another, is not determined solely by the expectancies, prescriptive standards, or moral schemas that the person holds. The counterfactual alternatives or representations evoked by the misfortune itself are also important. Victims whose fates are easily imagined otherwise evoke more sympathy and sometimes less sympathy than those whose fates are more normal. A second domain we explored was suspicion concerning the randomness of low-probability events. Across a diverse set of situations, we demonstrated that people's suspicion that an event was not random, or that it had a probability of occurring that was higher than that alleged, depended at least partly on the ease of imagining or mentally simulating that event. In each of the judgment domains explored, we observed the same pattern: The more abnormal an event, the more intense the reaction (e.g., sympathy, suspicion) it evoked.

### A. NORMALITY AND HEURISTIC PROCESSING

An event's normality appears to have its effect on social judgment through its effect on heuristic processing. When people decide how much blame or compensation to assign a victim, or how suspicious they are that an individual misrepresented the probability of an event, it appears that they are guided by the strength of their reaction to the outcome. The stronger the reaction evoked by a victim's fate, the more intense are the blame and sympathy reactions. Similarly, the greater one's surprise about an outcome, the greater is one's suspicion that the outcome was not random. As with other forms of heuristic processing (Kahneman & Tversky, 1973), this process generally serves people well. Because people's perceptions of a victim's deservateness generally will influence their emotional reaction to the victim's fate—the less deserving, the stronger the reaction—their feelings generally will serve as a reliable index of how deserved they perceive the victim's misfortune to be, and hence how much blame or compensation they should assign. Emotional reactions, however, are not determined solely by the fit between the victim's fate and beliefs about what is just. They also are affected by the normality of his or her fate. A similar process appears to be at work in the suspicion studies we reported. Feelings of surprise constitute an ecologically valid cue to one's a priori subjective probability estimates (cf. Tversky & Kahneman, 1973) and hence to the likelihood that an occurrence was in fact random. The correspondence between surprise and subjective probability estimates will not always be perfect, however, because feelings of surprise may also reflect the event's normality.

Biassing reactions to an event on its normality may be more justified in some circumstances than in others. If people's naive theories of the determinants of regret were probed, it is possible that, along with actions that were immoral or foolish, people would identify ill-fated actions that could have been otherwise. At the very least, people are unlikely to see anything irrational or inexplicable about regretting abnormal actions (e.g., taking an unusual route home from work) more than normal actions (e.g., taking one's customary route home from work). The emotional state of regret appears to be one that is recognized as highly dependent on postcomputed thought. Indeed, the relation between regret and postcomputed thought is celebrated in John Greenleaf Whittier's famous line, "For all sad words of tongue or pen, the saddest are these: 'It might have been!'"

In other domains, the case for considering the normality of an event is harder to make. For example, a list of factors that people think should influence compensation recommendations for victims is unlikely to include reference to the case of imagining the victim escaping his or her fate. Indeed, 90% of the more than 100 subjects whom we questioned explicitly stated it would be unfair to consider this factor in determining the amount of compensation to award a

victim. The case of suspicion is similar. What do our naive theories point to as critical determinants of suspicion? Many factors probably influence how suspicious we are about the accuracy of a person's account of how something happened (e.g., the selection of a desired cookie). It is not clear, however, that included among the factors people identify as relevant would be the case of imagining the event occurring. Indeed, in light of the judgmental connotation attached to suspicion, people may explicitly exclude this factor as being pertinent to judgments of suspiciousness. Could one really defend feeling differentially suspicious about the honesty of two children as a function of the size of their family's cookie jar? Here, then, is a situation in which a particular judgment, suspicion, is affected by a factor that—far from being explicitly incorporated into naive theories pertaining to the judgment—almost certainly would be unannouncedly rejected as pertinent to the judgment.

### B. BIASING EFFECTS OF NORMALITY

One path through which an event's normality could affect the reaction it evokes is by influencing other factors that more proximally mediate reactions to the event. In the case of reactions to misfortunes, for example, normality may have its influence by guiding perceptions of responsibility. The more abnormal the misfortune, the more responsibility the victim may be assigned. Analogously, normality may affect suspiciousness about alleged coincidences by guiding perceptions of their subjective probability. The more abnormal the "coincidence," the lower its a priori probability may be assumed to be. As plausible as this link may sound, we found no evidence for it in our research. In our suspicion studies, for example, probability estimates were not affected by the normality of an alleged coincidence, even though suspicion judgments were. Nor, we suspect, would ratings of foreseeability, or any other form of responsibility, have been affected by the normality of a victim's fate, even though sympathy reactions were.

We do not wish to claim that normality would never lead to such effects, however. If subjects in the suspicion studies had not had algorithms for calculating the probability of the target events, they may very well have relied on the event's normality to estimate both its probability and the degree of suspicion it warranted. The easier it is to imagine the event occurring, the more probable it may be assumed to be. Normality, in this sense, would be functioning similarly to the availability heuristic in the memory process. On this point, Tversky and Kahneman (1973) have shown that estimates of an event's probability are often dependent on the availability of similar events in memory. The more available similar events are in memory, the more probable they are assumed to be.

The fact that normality does not have its influence on reactions to events,

exclusively, at least, through the biasing of other relevant factors (e.g., attributed foreseeability, subjective probability estimates), suggests that there may not always be an isomorphic relation between the strength of these other factors and the reaction that the event evokes. For example, one might believe that there was a reasonable probability that an event could occur by chance and still be suspicious that it did not occur by chance. Or one might believe that a person could not reasonably have foreseen that changing seats might cost her a trip around the world and still believe that she is foolish for having done so. The absence of such an isomorphism can spell trouble for unsuspecting researchers who unwittingly use dependent measures that are sensitive to postcomputed thoughts.

To illustrate the potential problems that can arise in this regard, consider the relation between those studies that measure the causal responsibility that the self accepts for negative events and those that measure the guilt that the self experiences following transgressions. For example, subjects induced to "accidentally" perpetrate a negative event, such as the destruction of some experimental equipment, have been found to display an enhanced willingness to comply with subsequent, experimentally unrelated requests for help (Carlsmith & Gross, 1969; Freedman, 1970). The transgression-compliance effect, as it is called, is presumably mediated by the guilt-reducing effects of compliance. There is a puzzling aspect to this phenomenon. The puzzle is not that the act of helping relieves feelings of guilt, but rather that the people in these experiments experience any guilt at all (Lerner, 1980; Lerner & Miller, 1978; Ross & DiTocco, 1975). Research on the attribution of responsibility shows over and over again that people are extremely hesitant to accept responsibility for any negative outcome if doing so would threaten their self-image (Shaver, 1985). So why would people accept responsibility for the outcomes that occur in the transgression-compliance studies, ones with which they have only the most tenuous connection?

One way of resolving this puzzle is to question the extent to which attributions of personal responsibility for negative outcomes are isomorphic with, and causally related to, the guilt aroused by such outcomes. The experience of guilt, or at least the affective state that predisposes individuals to comply with requests for favors, is assumed to reflect the internalization of responsibility for the accident. But it may not, just as high suspiciousness in our cookie jar study did not reflect a low-probability assignment. The point to keep in mind is that the attribution of responsibility literature and the transgression-compliance literature employ different dependent measures. The former tradition measures attributions of responsibility directly, the latter measures them indirectly. To pursue further the parallel with the cookie jar study, it is possible that the affective state experienced by transgressing subjects may not reflect high feelings of responsibility but rather the high availability of "if only" thoughts. When people can easily imagine not engaging in action that had harmful actions, they may experi-

ence guilt even if they recognize that they did nothing wrong by engaging in those actions.

### C. FUTURE DIRECTIONS

The research we have described in this article demonstrates that the contrasts that exist between an experience and the perceiver's thoughts about what might have been can have effects similar to those produced by the contrasts between an experience and a perceiver's expectancies or thoughts about what ought to have been. One task for future research is to compare more closely the effects of these two types of contrasts to assess the extent and form of their similarity (cf. Abelson, 1983).

The general question to be answered here concerns the functional similarity of norms dominated by precomputed representations and those dominated by postcomputed representations. For example, how does affect generated by contrasts between events and precomputed alternatives differ from affect generated by contrasts between events and counterfactuals? Consider two students who experience disappointment at not getting an A on an exam. The first student is disappointed because she expected an A and thus had her expectation violated. The second student is disappointed not because he expected an A but rather because he came within one mark of receiving one. How, if at all, will the affective states of these two students differ? Will the disappointment be more intense or long-lasting in one case than the other? A similar question can be posed with respect to the differences between the negative feelings that follow from the commission of ill-fated, foolish, or immoral actions and those that follow from the commission of actions that are highly mentally undoable but neither foolish nor immoral. Does counterfactual guilt persist a greater or shorter time than moral guilt, for example? And will base rate information have comparable effects on the two types of guilt? That is, does telling a guilty person that many people committed the same foolish act have effects equivalent to those produced by telling a guilty person that many people committed the same undoable act?

Much of our discussion has focused on reactions to victims of misfortunes, and here too a great deal more research is needed. Particularly useful would be research addressing the issue of how reactions arising from highly available counterfactual thoughts differ from reactions arising from the application of various precomputed knowledge structures. Contrast a person who is the victim of a highly improbable misfortune and one who is a victim of a highly undoable misfortune that is not especially improbable. Let us say that the first victim was the only member of a platoon to be seriously wounded in battle and the second victim was a member of a casualty-ridden platoon who was seriously wounded

only minutes before a cease-fire went into effect. In the first case, both the victim and observers can be expected to dwell on the contrast between the victim's fate and the more fortunate fates of others. Victims of such misfortunes are inclined to ask: "Why me?" (Janoff-Bulman & Lang-Gunn, 1988; Silver & Wortman, 1980). Without a satisfactory account of how the victim differs from the nonvictims, the victim's fate will seem devoid of meaning both to observers and to the victim. The reaction to the second, highly abnormal fate seems somewhat different. The "Why me?" question does not seem appropriate in a case such as this. In some sense, the psychological closeness of the event to its counterfactual nonoccurrence suggests its own explanation—it was meant to be.

Future research might profitably probe the hypothesis that fate is more likely to be implicated in the account of a near miss than an improbable outcome. Because something need not have been and could easily have been otherwise, one may be tempted to believe that it was meant to be. Pointing to bad luck seems psychologically more satisfying when discussing the case of a crash victim who was killed on his or her first airplane flight than it does when discussing the case of a crash victim who was killed after changing flights at the last minute. Finally, it is important for future research to explore the ways in which people resolve or cope with the cognitive and affective incoherence that an event's normality can produce. For example, how do people cope with feeling guilty over an undoable action that they know was neither foolish nor immoral? Does feeling guilty when one knows one should not feel guilty intensify the dysphoria? And how does one reconcile feelings of differential sympathy for victims whose fates cannot be discriminated on moral or rational grounds? These are just some of the fascinating questions that we hope future research will address.

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