

See discussions, stats, and author profiles for this publication at: <https://www.researchgate.net/publication/244060723>

"It was meant to be": Retrospective meaning construction through mental simulation

Chapter · January 2013

DOI: 10.1037/14040-017

CITATIONS

4

READS

323

3 authors, including:



Keith D Markman

Ohio University

84 PUBLICATIONS 3,489 CITATIONS

SEE PROFILE



Hyeman Choi

Gachon University

4 PUBLICATIONS 7 CITATIONS

SEE PROFILE

Some of the authors of this publication are also working on these related projects:



Counterfactual Thinking and Imagination [View project](#)



Counterfactual Thinking and Imagination Page [View project](#)

17

“IT WAS MEANT TO BE”: RETROSPECTIVE MEANING CONSTRUCTION THROUGH MENTAL SIMULATION

MATTHEW J. LINDBERG, KEITH D. MARKMAN, AND HYEMAN CHOI

Shortly before 9 a.m. on September 11, 2001, Greer Epstein, an executive director at Morgan Stanley, received a phone call from a friend asking if she was interested in taking a cigarette break. On the elevator ride down from the 67th floor, Epstein noticed a jolt but chalked it up to typical problems with the elevators. When she stepped out of the South Tower, she noticed the damage done to the North Tower by the first plane right about the time the second plane struck less than a dozen floors above her office (Park, 2011). Reflecting on the events of that day, Epstein said,

I never took a break before noon, it was something that happened that day. And thank God for it. I was safely out of the building when the plane hit. A fireball went through my office. Had I been sitting there, who knows what would've been? (Park, 2011)

Epstein and many other individuals that day would have lost their lives had it not been for the occurrence of coincidental events such as scheduling errors, traffic jams, and illness.

DOI: 10.1037/14040-017

The Psychology of Meaning, Keith D. Markman, Travis Proulx, and Matthew J. Lindberg (Editors)
Copyright © 2013 by the American Psychological Association. All rights reserved.

When individuals attempt to make sense of unexpected events, they are often struck by the feeling that larger forces were at work—fate, perhaps, or the intervention of some deity. Moreover, the perceived meaning and purpose of life events can seemingly be clarified by the occurrence of later events. For some, the events that altered the course of the day—the decision to stay and have breakfast, take one’s child to the first day of school, swing by the post office on the way to work, and even step out for a cigarette break—take on a sense of meaning when they consider what might have happened if they had made it to work on time or had still been in their office that day in September.

For much of America and the world, the factual events of 9/11 were traumatic enough. But for many, the events that did not happen, but could have or would have happened had a single preceding event transpired differently, can be equally traumatic. The mental simulation of outcomes and events that did not happen, that are contrary to the factual events, has been labeled *counterfactual thinking*. These thoughts of “what might have been” invoke counterfactual simulations of alternative realities, a process that has been shown to impact numerous domains of social and psychological life, including causal reasoning (e.g., Hilton & Slugoski, 1986; Mandel & Lehman, 1996; Wells & Gavanski, 1989), emotion (e.g., Connolly & Zeelenberg, 2002; Mellers, Schwartz, Ho, & Ritov, 1997), blame (Alicke, Buckingham, Zell, & Davis, 2008; Miller & Gunasegaram, 1990), and behavior (Markman & McMullen, 2003; Roese, 1994; Sanna, 1996).

To date, researchers in this area have primarily explored two functions of counterfactual thinking: an affective function and a preparative function. Research on the affective function suggests that the comparison of reality with a simulated better or worse alternative evokes affective contrast (e.g., Markman, Gavanski, Sherman, & McMullen, 1993; Roese, 1994; Taylor & Schneider, 1989; but for exceptions, note Markman & McMullen, 2003). Reflecting on how an outcome could have been worse—*downward* counterfactual thinking—often ameliorates affect and may thereby aid in coping and psychological adjustment. With regard to the preparative function, on the other hand, reflecting on how an outcome could have been better—*upward* counterfactual thinking—may serve to identify behaviors or actions that will elicit more desirable outcomes in the future (e.g., Epstude & Roese, 2008; Kray, Galinsky, & Markman, 2009; Nasco & Marsh, 1999). The goal of the current chapter is to discuss how counterfactual thinking serves a more general sense-making function and to delineate the mechanisms by which this may occur (see also Chapter 16, this volume).

Although
of ways to ap
meaning has l
ships” (Proul
When consic
and Del Gais
may be exper
beyond the t
ence that tra
between the
defining the
people’s desi
of the meani
Sullivan, & I
attempt to be
in the afterm
(1998) propo
tualized as tv
making (see :

Constru
personal sign
not on under
context of ex
that when a
worldview th
make sense o
found eviden
psychologica
clude that th
logical mech
processes by
meaning and
unexpected c

Benefit Find

Althou
sonal benefi
ened relation

TWO TYPES OF MEANING

Although many researchers study meaning, there remain a multitude of ways to approach and define meaning. At perhaps the broadest level, *meaning* has been defined as “mental representations of expected relationships” (Proulx & Heine, 2006, p. 310; see also Chapter 4, this volume). When considering what makes one’s life meaningful, King, Hicks, Krull, and Del Gaiso (2006; see also Chapter 22, this volume) proposed that “lives may be experienced as meaningful when they are felt to have significance beyond the trivial or momentary, to have purpose, or to have a coherence that transcends chaos” (p. 180). Steger and colleagues distinguished between the presence of meaning in one’s life and the search for meaning, defining the search for meaning as “the strength, intensity, and activity of people’s desire and effort to establish and/or augment their understanding of the meaning, significance, and purpose of their lives” (Steger, Kashdan, Sullivan, & Lorentz, 2008, p. 200; see also Chapter 11, this volume). In an attempt to better understand the psychological processes of finding meaning in the aftermath of loss and trauma, Davis, Nolen-Hoeksema, and Larson (1998) proposed that the various definitions of meaning could be conceptualized as two separate construals of meaning—benefit finding and sense making (see also Janoff-Bulman & Frantz, 1997; Chapter 10, this volume).

Construing meaning as benefit finding involves assigning value and personal significance to the experience of the event or trauma. The focus is not on understanding the event but rather on understanding the self in the context of experiencing the event. In contrast, Davis et al. (1998) argued that when a traumatic event is perceived as a threat to one’s assumptive worldview that the world is meaningful, just, and controllable, one must make sense of the event by reconciling it with one’s worldview. Davis et al. found evidence that these two construals of meaning independently fostered psychological adjustment to the loss of a loved one, leading them to conclude that the two construals of meaning are the result of different psychological mechanisms. Using this framework, we hope to delineate the distinct processes by which counterfactual thinking provides personally significant meaning and enhances the coherence and comprehensibility of unusual or unexpected events.

Benefit Finding

Although much of the research on benefit finding has focused on personal benefits (e.g., growth in character, change in life perspective, strengthened relationships), work investigating the affective function of counterfactual

thinking has demonstrated that individuals can also find comfort in simulating how events could have turned out worse (Markman et al., 1993; McMullen & Markman, 2000; White & Lehman, 2005). Downward counterfactual thinking, the mental simulation of worse possible outcomes, has been found to be a robust reaction to negative events. Burgess and Holmstrom (1979) reported that rape victims frequently consider how they could have suffered more violently or been killed, and Taylor, Wood, and Lichtman (1983) found that cancer patients frequently considered how their bout with cancer could have lasted longer or resulted in death. Comparison of one's situation with a worse alternative is a commonly reported experience across clinical populations. Often, downward counterfactual thinking serves to make one feel better by identifying the "silver lining" or helping to find "the good in the bad" (Gilovich & Medvec, 1995).

Koo, Algoe, Wilson, and Gilbert (2008) found that mentally undoing positive life events—by considering how they might not have occurred—led to more surprise and positive affect than simply reflecting on the occurrence. Additionally, the surprise generated from considering how one might *not* have met their romantic partner led participants to feel more satisfied with the relationship than when they simply thought about how they met their romantic partner. Kray et al. (2010) provided an even more direct demonstration of how mentally undoing major life moments enhances personal meaning. After having participants reflect on their decision to attend a particular college, Kray and colleagues had some of them engage in counterfactual thinking by describing how events could have turned out differently following an alternative college decision. After simulating how their lives might have changed had they chosen to attend a different college, the actual college decision they made attained more personal meaning and significance.

In addition to creating personal meaning, Kray et al. (2010) proposed an ironic effect of considering counterfactual alternatives, specifically, that counterfactual thinking could enhance meaning perceptions through its effects on heightening fate-based explanations. By revealing all the possible alternative ways that a life event could have turned out differently, counterfactual thinking highlights the *improbability* of the way events *did* unfold. The sense of defying the odds, that the event was the product of fate, "amounts to rejecting that counterfactual world as somehow not 'fitting' one's evolving life narrative, and instead embracing life as it is" (Kray et al., 2010, p. 110). Consistent with the defying the odds account, the increase in positive affect reported by Koo et al. (2008) was mediated by feelings of surprise, suggesting that counterfactual thinking reduces the perceived probability of a focal event. In support, Kray et al. (2010) found that having participants reflect on a turning point in their life and how their life would have been different had the event not occurred made the event personally meaningful by influencing

the perception that the event was the product of fate. From this perspective, then, considering counterfactual alternatives serves to highlight the improbability of factual life events, thereby highlighting the benefits to be found in the way events actually did turn out.

Sense Making

In addition to enhancing benefit finding within the domain of the self, there is good reason to believe that counterfactual thinking serves a more general epistemic function. The consideration of counterfactual alternatives can serve to elucidate an underlying order to events and facilitate the creation of a comprehensible account of how event outcomes are consistent with fundamental assumptions about the world. Rather than serving as a standard against which to assess the probability of an event, a counterfactual in this case would serve to highlight what would have happened had some external force, fate or destiny, not intervened to change the course of events. We propose that counterfactuals provide a sense of causal coherence to chains of events that elicit the conclusion that “things happen for a reason.” Furthermore, we suggest that when individuals perceive that an outcome was “meant to be,” they are acknowledging the existence of external forces that help ensure that life events unfold in meaningful and coherent ways, thereby assimilating the outcome to their worldview.

Hindsight Bias

A common finding regarding reactions to unexpected events is that after having learned the outcome, the event seems in hindsight to have been more predictable and inevitable than it would have been without the benefit of outcome knowledge. This phenomenon, known as the *hindsight bias*, has been described as a projection of new knowledge into the past paired with a denial of the influence of outcome information (Hawkins & Hastie, 1990). In a landmark study exploring the hindsight bias (Fischhoff, 1975), participants read about an obscure historical event, the 19th century wars between the British and the Ghurka of Nepal. Some participants read of a battle that ended with a British victory, others with a Ghurka victory, and some were provided with no outcome information. Those participants who received outcome information reported a higher a priori likelihood of that outcome occurring than did those who did not receive outcome information. The result is what Fischhoff (1975) aptly described as “creeping determinism”: a post hoc perception of outcome inevitability. Attempts to make sense of the outcome and create a coherent causal narrative lead one to selectively recall outcome-consistent antecedent information and assimilate it with outcome knowledge.

It seems intuitive that the consideration of counterfactuals would diminish the hindsight bias. Indeed, counterfactual thinking was originally thought to reduce inevitability perceptions by illustrating how alternative outcomes were in fact possible. Sherman (1991) succinctly argued that “to the extent that counterfactuals are easily and spontaneously generated, the past seems less inevitable: other outcomes were clearly possible” (p. 182). Fischhoff and colleagues were able to reduce the strength of the hindsight bias by instructing participants to consider alternative outcomes (Fischhoff, 1976; Slovic & Fischhoff, 1977). Considering opposing or alternative outcomes aids in shifting the focus from the focal hypothesis—that the focal outcome had to occur—to an alternative hypothesis that a different outcome could have occurred (Hirt & Markman, 1995; Koehler, 1991). Thus, the consideration of how the same antecedent events could lead to a different outcome has been found to reduce the hindsight bias.

However, others have argued that counterfactual thinking could lead individuals to perceive events as *more* rather than less determined. Roese and colleagues proposed that counterfactual thinking would actually enhance the hindsight bias to the extent that counterfactual thinking could aid in the identification and creation of a coherent causal narrative (Roese & Maniar, 1997; Roese & Olson, 1996). These researchers suggested that counterfactual thinking does not necessitate the consideration of an alternative outcome but rather can be used to make sense of the outcome.

Roese (2004) argued that a single counterfactual inference identifying a causal connection between antecedent and consequent events may provide a satisfying feeling of coherence and comprehension that leads to greater post hoc certainty. To illustrate, Roese and Maniar (1997) described how a sports fan could make sense of a team’s loss by suggesting a counterfactual that the team would have won had it not been for an injury that occurred earlier in the game. In the absence of the injury the team would have won, but given the injury, the loss is construed as inevitable. Using both laboratory studies and field research, Roese and colleagues found that counterfactual thinking directed toward an explanation led to increases in the hindsight bias (Roese & Maniar, 1997; Roese & Olson, 1996). Similarly, Nestler and von Collani (2008) found that both priming counterfactual thinking and activating a counterfactual mind-set led to an increase in the hindsight bias.

Fatalistic Determinism

Thus, it appears that counterfactual thinking directed at undoing a focal outcome reduces the hindsight bias, whereas counterfactual thinking directed at understanding *why* a specific outcome occurred enhances the perception that the event was meant to be. The specific type of determinism to which Roese and his colleagues (e.g., Roese, 2004; Roese & Maniar, 1997) referred

is *scientific determinism*: To the extent that a counterfactual alternative helps explain the occurrence of a factual event, then the factual event is perceived as more certain. However, when the event that needs to be explained is a counterfactual event, deterministic perceptions may take on a more fatalistic nature. In this way, a previously inexplicable factual event may be perceived as “happening for a reason” when that event is used to explain why a counterfactual event did *not* occur. Downward counterfactual thinking of this sort not only renders a negative outcome as “not so bad” in comparison with a worse alternative but also may suggest that greater, perhaps external, forces are at work.

The counterfactual fallacy as proposed by Miller and Turnbull (1990) refers to “the confusion of what *might have been* the case and what *ought to have been* the case” (p. 2; italics in original). This phenomenon is particularly relevant to downward counterfactual thinking because it suggests that the easier it is to imagine a worse alternative, the more likely it will seem that the alternative *ought* to have happened and, further, that the alternative was more likely to *have* happened. For example, Teigen (1998) found that in hindsight, participants perceived that a car hit by a boulder in a rockslide had a lower probability of being hit than the car parked next to it. In other words, the car that *almost* got hit, but did not, was perceived to have had a higher a priori chance of getting hit than the car that *actually* got hit by the boulder. Making use of autobiographical accounts of traffic accidents and near accidents, Teigen (2005) found that participants believed the probability of death was three times higher when they were *nearly* in an accident than when an accident *actually* occurred. Moreover, “close-call” accidents in industrial settings are considered to be even more predictive of future disaster than actual accidents. Taken together, these studies demonstrate that the easier it is to imagine a worse outcome occurring, the higher the perceived a priori probability that it would have occurred.

When one imagines a worse alternative that *ought* to have happened but did not, one is more likely to believe that extrapersonal forces played a role in preventing the worse outcome from happening. For example, after surviving a horrific car crash in which their vehicle flipped over a guardrail and plummeted 60 feet, survivors later reflected, “We both believe there is a higher power out there who said, ‘It’s not their time,’” suggesting that the accident would have been worse had someone or something not intervened. Moreover, the state police sergeant who was at the scene of the accident commented, “These people are extremely lucky they were able to come through the way that they did” (Ellis, 2010, p. 1). The salient counterfactual—they could have died in the accident—is potent enough to imply that they *should* have died. Rather than rejecting the counterfactual, the perception of extrapersonal forces at work amounts to an *embracing* of the counterfactual. This

sort of reaction is not unusual; newspapers frequently describe situations in which luck, fate, and higher powers are assumed to have served as causal agents intervening on the behalf of individuals (Teigen, 1988).

HOLY CROSS VERSUS BOSTON COLLEGE, 1942

To demonstrate the meaning as sense-making function of counterfactual thinking, we (Lindberg & Markman, 2012) selected a historical event that was likely to be compelling to most student participants, yet not one with which most students would be familiar. This allowed for the manipulation of event details for the purpose of examining underlying cognitive mechanisms believed to influence the sense-making process. A real-life event borrowed from the headlines of Boston newspapers afforded us such an opportunity. In 1942, football rivals Boston College (BC) and Holy Cross (HC) met for the final game of the season. A heavily favored BC (9–0), seeking to finish the season undefeated, experienced a surprising upset at the hands of HC (4–4–1), losing by a score of 55–12. After losing the game, the dejected BC players chose not to attend a celebration planned for the evening at the Cocoanut Grove nightclub. That night, a fire broke out at the Grove, killing more than 500 patrons. Newspaper accounts of this event over the years have run with headlines such as “Hands of Destiny—Football Upset Spared BC Players from Tragedy 50 Years Ago” (Tye, 1992). The most salient counterfactuals evoked by this event are that the BC players “almost” died in the fire and that “if BC had won the game, they would have died in the fire.”

Study Set 1

We first examined whether present-day students would have a similar reaction to reading about the football game as did Bostonians back in 1942. Participants read a condensed version of a *Boston Globe* article from 1992 that marked the 50-year anniversary of the BC defeat and subsequent tragedy at the Cocoanut Grove nightclub. Participants were prompted to write their reactions to the article, after which they responded to questions assessing their perceptions of fate and meaning about the outcome of the football game. Roughly half of the participants did spontaneously generate counterfactual thoughts in their written reactions, and these thoughts were positively related to their fate and meaning judgments.

The next step was to demonstrate that counterfactual thinking elicited by the sequence of events, rather than simply the unexpected outcome of the football game, was responsible for heightening fate and meaning judgments. In a second study, some participants read the counterfactual eliciting

article, whereas others read a control version that omitted any information about the subsequent fire. After reading the article, participants provided written reactions. These written protocols were then submitted to the Linguistic Inquiry and Word Count text analysis program (Pennebaker, Francis, & Booth, 2001). A dictionary was created to determine the number of words related to sense making that were spontaneously evoked (e.g., *fate*, *meaning*, *luck*, *reason*, *purpose*). As predicted, the counterfactual version elicited more words related to sense making than did the control version.

Study 3 was then designed to directly demonstrate that thinking counterfactually about the fire enhanced judgments of fate and meaning with regard to the outcome of the HC–BC football game. Participants read about the rivalry and game and were either provided with information about the subsequent fire at the Cocoanut Grove (counterfactual version) or received no information about the fire (control version). As predicted, participants who read the counterfactual version exhibited stronger fate and meaning judgments about the outcome of the game than did participants who read the control version. Thus, considering BC’s surprising loss within the context of the subsequent counterfactual appears to have imbued their loss with greater meaning.

We then shifted our attention toward demonstrating that counterfactual thinking serves a mediating role in enhancing ascriptions of fate and pre-determination. Rather than using the same open-ended format for assessing counterfactual thinking, in Study 4 we used questions that were created to provide continuous measures of counterfactual thinking (cf. Miller, Visser, & Staub, 2005). The first question focused on an *antecedent–consequent* relationship: “To what extent are you thinking about ways in which the outcome of the football game could have turned out differently?” The second question, by contrast, focused on a *consequent–subsequent* relationship: “To what extent are you thinking about what would have happened if Boston College won the game against Holy Cross?” The last pair of questions then assessed agreement with two counterfactual statements that focused on the relationship between the outcome of the game and events that occurred later that evening: “Boston College lost the game [Holy Cross won the game], which prevented the Boston College players from going to the Cocoanut Grove.”

For this study, it was predicted that there would be no difference between the counterfactual and control conditions on the antecedent–consequent question—in both conditions, participants read about the surprising outcome of the football game and thus should have engaged in similar levels of counterfactual thinking regarding how the game could have turned out differently. However, because the two conditions differed with regard to the subsequent information provided, it was predicted that participants who read about the fire would engage in more consequent–subsequent thinking

than would those who did not read about the fire. In turn, it was predicted that an increase in consequent–subsequent thinking would yield enhanced ascriptions of fate and predetermination.

Consistent with the previous studies, participants in the counterfactual condition did in fact endorse more fate and meaning ascriptions for BC's surprising loss than did those in the control condition. As predicted, there was no difference in counterfactual thinking on the antecedent–consequent question (i.e., the extent to which participants indicated that they were considering how the game could have turned out differently). On the other hand, participants in the counterfactual condition did report engaging in significantly more consequent–subsequent counterfactual thinking (i.e., what would have happened if BC had won). Additionally, and importantly, the measure of consequent–subsequent counterfactual thinking was found to statistically mediate the positive relationship between scenario type (counterfactual vs. control) and the strength of the fate and meaning ascriptions.

Study Set 2

The first set of studies established that counterfactual thinking lends explanatory coherence to surprising events, imbuing the unexpected with perceived meaning and purpose. These studies also established that the consideration of counterfactuals that arise *after* a focal event can still impact one's construal of that focal event. The second set of studies then sought to identify contextual factors that render factual outcomes particularly amenable to such a retrospective sense-making process.

Part of what makes a traumatic event so psychologically devastating is that it can call into question many of our assumptions regarding the nature of the world around us (Janoff-Bulman, 1992). At a more basic level, research on causal attribution has found that individuals are particularly prone to engage in causal reasoning in the face of disconfirmed expectancies (e.g., Clary & Tesser, 1983; Hastie, 1984; Newton, 1973; Pyszczynski & Greenberg, 1981; Stern, Marrs, Millar, & Cole, 1984). In such cases, individuals focus more attention on unexpected than expected events (Newton, 1973), engage in more cognitive activity (Stern et al., 1984), and spontaneously generate explanations (Clary & Tesser, 1983).

Consistent with these attributional findings, the search for meaning that typically occurs following events that challenge assumptive worldviews focuses on assimilating the event with preexisting worldviews. Individuals spontaneously engage in sense making with the goal of construing the outcome as congruent with their worldview. If an event outcome is already consistent with individuals' worldview, on the other hand, then there is no need to initiate a search for meaning.

Thus, in Study 5 we manipulated expectations regarding the outcome of the focal (i.e., factual) event. To do so, two versions of the *Boston Globe* article were created. Both versions described BC losing the game, electing to go to another club, and thereby avoiding the fire at the Grove. However, different expectations were created regarding who should most likely be expected to win the game. On the basis of past attributional findings, it was predicted that an unexpected loss (when BC is 9–0 and Holy Cross is 4–4–1) would be more likely to initiate a search for meaning than would an expected loss (when BC is 4–4–1 and HC is 9–0). Although there is still benefit to be gained from finding meaning in BC's expected loss, there should be substantially less motivation to engage in sense making than when BC's loss is unexpected. To this end, we assessed the effect of expectations on motivations by asking participants to indicate the extent to which they were trying to make sense of BC's loss to HC while they were reading the article.

The hypothesized relationship was supported. Participants in the *unexpected loss* condition reported engaging in more sense making than did participants in the *expected loss* condition, and those in the former condition also reported enhanced ascriptions of fate and meaning. Despite receiving the same subsequent counterfactual information in both conditions, participants were less likely to use counterfactual thinking to provide meaning when the focal event did not violate expectations. These results demonstrate that counterfactual thinking is more likely to serve a sense-making function when expectancies are violated than when they are not.

The next study was designed to examine whether sense making was more likely to occur when the subsequent counterfactual provided a satisfactory explanation for the factual outcome. Roese (2004) noted that counterfactuals enhance the hindsight bias when they provide a *satisfying* causal explanation. If counterfactual thinking is activated to provide a sense-making function, then it should only influence ascriptions of fate and predetermination to the extent that it assimilates the event into one's assumptive worldview. In kind, Janoff-Bulman (1992) argued that one of these primary assumptions is the meaningfulness of the world—that events are not random or unpredictable and that they follow notions of justice and equity.

Study 6, then, was designed to examine the moderating role of assumptive worldviews in determining the relationship between counterfactual thinking and sense making. The previous five studies used a scenario that strongly implied a downward counterfactual (“If BC had won the game, they would have died in the fire”). In turn, thinking about the fire was shown to lead participants to ascribe fate and meaning to the outcome of the game. However, we theorized that the same contingency of events would not provide as satisfying a causal explanation if they instead led to tragedy and disaster. Thus, in this study we manipulated the scenario ending so that the change

in plans led the BC players to either avoid the fire (downward counterfactual condition) or perish in the fire (upward counterfactual condition). Although the counterfactual “If BC had won the players would *not* have died in the fire” could be used to make sense of the loss, the perspective that the team was *meant* to lose the game so that they could *die* in the fire is incongruent with typical assumptive worldviews. Indeed, the results supported such an interpretation. Participants in the downward counterfactual condition (the players changed plans, avoided the fire, and lived) ascribed more fate and meaning to the outcome of the game than did participants in the upward counterfactual condition (the players changed plans and perished in the fire). Despite having the same event structure—the outcome of the game led the BC players to change their plans in both conditions—the upward counterfactual apparently did not provide as satisfying an explanation as did the downward counterfactual (see Chapter 16, this volume).

Moreover, to assess for the first time the fatalistic belief that extrapersonal forces were at least in part responsible for BC’s surprising loss, participants were asked to indicate how much control they perceived the teams to have had over the eventual outcome of the game. To the extent that participants viewed the game as being influenced by fate, the less control BC should have been perceived as having had over the eventual outcome. Intriguingly, and as hypothesized, participants who read that the BC players avoided dying in the fire after changing their plans believed that BC had less control over the outcome of the game than did participants who read that the BC players perished in the fire after changing their plans.

Most importantly, differential levels of perceived control over the game were found to mediate the relationship between counterfactual direction and ascriptions of fate and meaning. These results provide further evidence of the explanatory coherence that counterfactual thinking can lead to unexpected events. The surprising loss by BC explains why the players avoided the fire at the nightclub, but a subsequent explanation is also needed to account for why BC lost when they “should have” won. Apparently, by using knowledge of the fire, participants came to believe that some external force—with knowledge, perhaps, of the future event—facilitated BC’s loss. More generally, then, individuals may be motivated to consider divine intervention when it would protect life but seem reluctant to do so when such intervention would claim life.

MAKING MEANING THE COUNTERFACTUAL WAY

Together with the research of Kray and her colleagues (2010), the current work lends further support for the sense-making function of counterfactual thinking. Against the backdrop of a well-established distinction developed in

the trauma literature between construals of meaning as benefit finding versus sense making (e.g., Davis et al., 1998; Janoff-Bulman & Frantz, 1997), we described the role of counterfactual thinking in contributing to each of these types of meaning. Consistent with Davis et al.'s (1998) suggestion that benefit finding and sense making are the result of different psychological mechanisms, we also posit that the mechanism by which counterfactual thinking impacts sense making is different for each meaning type. Kray et al. (2010) proposed a *defying-the-odds* account by which counterfactual thinking serves to highlight the improbability of life events having happened otherwise. According to this account, finding personal meaning in the life event amounts to an ironic *rejection* of counterfactual alternatives. In other words, the defying-the-odds account requires the individual to override the implications of counterfactual alternatives and conclude that the factual event is more personally significant because it occurred despite the plausibility of other possibilities.

In contrast, the present *explanatory coherence* account is congruent with the meaning as sense-making construal, and arguably, this account suggests a more direct relationship between counterfactual thinking and meaning. As opposed to the more commonly explored antecedent–consequent type of causal analysis, the explanatory coherence account is relevant for event chains in which a counterfactual is used to make sense, retrospectively, of a *prior* and surprising factual outcome. Thus, whereas the defying-the-odds account applies to conditions under which individuals question *how* a given outcome occurred, the explanatory coherence account applies to conditions under which individuals concern themselves with the perhaps deeper existential question of *why* an outcome occurred (recall Chapter 1, this volume). To test and establish the boundary conditions of both accounts, future research might be profitably directed toward delineating those factors that make individuals more or less likely to ask *how* as opposed to *why*.

REFERENCES

- Alicke, M. D., Buckingham, J., Zell, E., & Davis, T. (2008). Culpable control and counterfactual reasoning in the psychology of blame. *Personality and Social Psychology Bulletin*, *34*, 1371–1381. doi:10.1177/0146167208321594
- Burgess, A. W., & Holmstrom, L. (1979). Adaptive strategies and recovery from rape. *The American Journal of Psychiatry*, *136*, 1278–1282.
- Clary, E. G., & Tesser, A. (1983). Reactions to unexpected events: The naive scientist and interpretive activity. *Personality and Social Psychology Bulletin*, *9*, 609–620. doi:10.1177/0146167283094010
- Connolly, T., & Zeelenberg, M. (2002). Regret in decision making. *Current Directions in Psychological Science*, *11*, 212–216. doi:10.1111/1467-8721.00203

- Davis, C. G., Nolen-Hoeksema, S., & Larson, J. (1998). Making sense of loss and benefiting from the experience: Two construals of meaning. *Journal of Personality and Social Psychology*, *75*, 561–574. doi:10.1037/0022-3514.75.2.561
- Ellis, S. (2010, January 20). It wasn't their time: Surviving crash changed duo's view on miracles. *Idaho State Journal*, pp. 1, 7.
- Epstude, K., & Roese, J. (2008). The functional theory of counterfactual thinking. *Personality and Social Psychology Review*, *12*, 168–192. doi:10.1177/1088868308316091
- Fischhoff, B. (1975). Hindsight is not equal to foresight: The effect of outcome knowledge on judgment under uncertainty. *Journal of Experimental Psychology: Human Perception and Performance*, *1*, 288–299. doi:10.1037/0096-1523.1.3.288
- Fischhoff, B. (1976) The effect of temporal setting on likelihood estimates. *Organizational Behavior and Human Performance*, *15*, 180–194. doi:10.1016/0030-5073(76)90036-2
- Gilovich, T., & Medvec, H. (1995). The experience of regret: What, when, and why. *Psychological Review*, *102*, 379–395. doi:10.1037/0033-295X.102.2.379
- Hastie, R. (1984). Causes and effects of causal attribution. *Journal of Personality and Social Psychology*, *46*, 44–56. doi:10.1037/0022-3514.46.1.44
- Hawkins, S. A., & Hastie, R. (1990). Hindsight: Biased judgments of past events after the outcomes are known. *Psychological Bulletin*, *107*, 311–327. doi:10.1037/0033-2909.107.3.311
- Hilton, D. J., & Slugoski, R. (1986). Knowledge-based causal attribution: The abnormal conditions focus model. *Psychological Review*, *93*, 75–88. doi:10.1037/0033-295X.93.1.75
- Hirt, E. R., & Markman, K. D. (1995). Multiple explanation: A consider-an-alternative strategy for debiasing judgments. *Journal of Personality and Social Psychology*, *69*, 1069–1086. doi:10.1037/0022-3514.69.6.1069
- Janoff-Bulman, R. (1992). *Shattered assumptions: Towards a new psychology of trauma*. New York, NY: Free Press.
- Janoff-Bulman, R., & Frantz, C. M. (1997). The impact of trauma on meaning: From meaningless world to meaningful life. In M. Power & C. Brewin (Eds.), *The transformation of meaning in psychological therapies* (pp. 91–106). London, England: Wiley.
- King, L. A., Hicks, J. A., Krull, J. L., & Del Gaiso, A. K. (2006). Positive affect and the experience of meaning in life. *Journal of Personality and Social Psychology*, *90*, 179–196. doi:10.1037/0022-3514.90.1.179
- Koehler, D. J. (1991). Explanation, imagination, and confidence in judgment. *Psychological Bulletin*, *110*, 499–519. doi:10.1037/0033-2909.110.3.499
- Koo, M., Algoe, S. B., Wilson, T. D., & Gilbert, D. T. (2008). It's a wonderful life: Mentally subtracting positive events improves people's affective states, contrary to their affective forecasts. *Journal of Personality and Social Psychology*, *95*, 1217–1224. doi:10.1037/a0013316

- Kray, L. J., Galinsky, A. D., & Markman, K. D. (2009). Counterfactual structure and learning from experience in negotiations. *Journal of Experimental Social Psychology*, *45*, 979–982. doi:10.1016/j.jesp.2009.03.008
- Kray, L. J., George, L. G., Liljenquist, K. A., Galinsky, A. D., Tetlock, P. E., & Roese, N. J. (2010). From what might have been to what must have been: Counterfactual thinking creates meaning. *Journal of Personality and Social Psychology*, *98*, 106–118. doi:10.1037/a0017905
- Lindberg, M. J., & Markman, K. D. (2012). *When tomorrow explains yesterday: The retrospective meaning function of counterfactual thinking*. Unpublished manuscript, Department of Psychology, Ohio University.
- Mandel, D. R., & Lehman, R. (1996). Counterfactual thinking and ascriptions of cause and preventability. *Journal of Personality and Social Psychology*, *71*, 450–463. doi:10.1037/0022-3514.71.3.450
- Markman, K. D., Gavanski, I., Sherman, S. J., & McMullen, M. N. (1993). The mental simulation of better and worse possible worlds. *Journal of Experimental Social Psychology*, *29*, 87–109. doi:10.1006/jesp.1993.1005
- Markman, K. D., & McMullen, N. (2003). A reflection and evaluation model of comparative thinking. *Personality and Social Psychology Review*, *7*, 244–267. doi:10.1207/S15327957PSPR0703_04
- McMullen, M. N., & Markman, K. D. (2000). Downward counterfactuals and motivation: The wake-up call and the Pangloss effect. *Personality and Social Psychology Bulletin*, *26*, 575–584. doi:10.1177/0146167200267005
- Mellers, B. A., Schwartz, A., Ho, K., & Ritov, I. (1997). Decision affect theory: Emotional reactions to the outcomes of risky options. *Psychological Science*, *8*, 423–429. doi:10.1111/j.1467-9280.1997.tb00455.x
- Miller, D. T., & Gunasegaram, S. (1990). Temporal order and the perceived mutability of events: Implications for blame assignment. *Journal of Personality and Social Psychology*, *59*, 1111–1118. doi:10.1037/0022-3514.59.6.1111
- Miller, D. T., & Turnbull, W. (1990). The counterfactual fallacy: Confusing what might have been with what ought to have been. *Social Justice Research*, *4*, 1–19. doi:10.1007/BF01048532
- Miller, D. T., Visser, P. S., & Staub, B. D. (2005). How surveillance begets perceptions of dishonesty: The case of the counterfactual sinner. *Journal of Personality and Social Psychology*, *89*, 117–128. doi:10.1037/0022-3514.89.2.117
- Nasco, S. A., & Marsh, L. (1999). Gaining control through counterfactual thinking. *Personality and Social Psychology Bulletin*, *25*, 557–569. doi:10.1177/0146167299025005002
- Nestler, S., & von Collani, G. (2008). Hindsight bias and the activation of counterfactual mind-sets. *Experimental Psychology*, *55*, 342–349. doi:10.1027/1618-3169.55.5.342
- Newton, D. (1973). Attribution and the unit of perception of ongoing behavior. *Journal of Personality and Social Psychology*, *28*, 28–38. doi:10.1037/h0035584

- Park, M. (2011). *Small choices, saved lives: Near misses of 9/11*. Retrieved from <http://www.cnn.com/2011/US/09/03/near.death.decisions/>
- Pennebaker, J. W., Francis, M. E., & Booth, R. J. (2001). *Linguistic Inquiry and Word Count (LIWC)* [Computer software]. Mahwah, NJ: Erlbaum.
- Proulx, T., & Heine, S. J. (2006). Death and black diamonds: Meaning, mortality, and the Meaning maintenance model. *Psychological Inquiry*, *17*, 309–318. doi:10.1080/10478400701366985
- Pyszczynski, T. A., & Greenberg, J. (1981). Role of disconfirmed expectancies in the instigation of attributional processing. *Journal of Personality and Social Psychology*, *40*, 31–38. doi:10.1037/0022-3514.40.1.31
- Roese, N. J. (1994). The functional basis of counterfactual thinking. *Journal of Personality and Social Psychology*, *66*, 805–818. doi:10.1037/0022-3514.66.5.805
- Roese, N. J. (2004). Twisted pair: Counterfactual thinking and the hindsight bias. In D. J. Koehler & N. Harvey (Eds.), *Blackwell handbook of judgment and decision making* (pp. 258–273). Malden, MA: Blackwell. doi:10.1002/9780470752937.ch13
- Roese, N. J., & Maniar, D. (1997). Perceptions of purple: Counterfactual and hindsight judgments at Northwestern Wildcats football games. *Personality and Social Psychology Bulletin*, *23*, 1245–1253. doi:10.1177/01461672972312002
- 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. doi:10.1006/jesp.1996.0010
- Sanna, L. J. (1996). Defensive pessimism, optimism, and stimulating alternatives: Some ups and downs of prefactual and counterfactual thinking. *Journal of Personality and Social Psychology*, *71*, 1020–1036. doi:10.1037/0022-3514.71.5.1020
- Sherman, S. J. (1991). Thought systems for the past as well as for the future. In R. S. Wyer, Jr., & T. K. Srull (Eds.), *Advances in social cognition* (Vol. 4, pp. 173–195). Hillsdale, NJ: Erlbaum.
- Slovic, P., & Fischhoff, B. (1977). On the psychology of experimental surprises. *Journal of Experimental Psychology: Human Perception and Performance*, *3*, 544–551. doi:10.1037/0096-1523.3.4.544
- Steger, M. F., Kashdan, T. B., Sullivan, B. A., & Lorentz, D. (2008). Understanding the search for meaning in life: Personality, cognitive style, and the dynamic between seeking and experiencing meaning. *Journal of Personality*, *76*, 199–228. doi:10.1111/j.1467-6494.2007.00484.x
- Stern, L. D., Marrs, S., Millar, M. G., & Cole, E. (1984). Processing time and the recall of inconsistent and consistent behaviors of individuals and groups. *Journal of Personality and Social Psychology*, *47*, 253–262. doi:10.1037/0022-3514.47.2.253
- Taylor, S. E., & Schneider, K. (1989). Coping and the simulation of events. *Social Cognition*, *7*, 174–194. doi:10.1521/soco.1989.7.2.174
- Taylor, S. E., Wood, J. V., & Lichtman, R. R. (1983). It could be worse: Selective evaluation as a response to victimization. *Journal of Social Issues*, *39*(2), 19–40. doi:10.1111/j.1540-4560.1983.tb00139.x

- Teigen, K. H. (1988). Reddet av flaks [Saved by luck]. *Tidsskrift for Norsk Psykologforening*, 25, 439–446.
- Teigen, K. H. (1998). When the unreal is more likely than the real: Post hoc probability judgments and counterfactual closeness. *Thinking & Reasoning*, 4, 147–177. doi:10.1080/135467898394193
- Teigen, K. H. (2005). The proximity heuristic in judgments of accident probabilities. *British Journal of Psychology*, 96, 423–440. doi:10.1348/000712605X47431
- Tye, L. (1992, November 27). Hands of destiny: Football upset spared BC players from tragedy 50 years ago. *Boston Globe*, p. 63.
- Wells, G. L., & Gavanski, I. (1989). Mental simulation of causality. *Journal of Personality and Social Psychology*, 56, 161–169. doi:10.1037/0022-3514.56.2.161
- White, K., & Lehman, D. R. (2005). Looking on the bright side: Downward counterfactual thinking in response to negative life events. *Personality and Social Psychology Bulletin*, 31, 1413–1424. doi:10.1177/0146167205276064

1ST PAGES