

Counterfactual Thinking and Regulatory Focus

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*Oh God! that it were possible
To undo things done, to call back yesterday!
That Time could turn up his swift sandy glass,
To untell the days, and to redeem these hours.
— Thomas Heywood¹*

Although it may be impossible to “undo things done” in a literal sense, humans have a remarkable proclivity for altering the past within the confines of the imagination. We allow ourselves to be carried beyond the realm of actual possibility through contemplation of the question, “What if?” and musings of “If only...” We frequently entertain notions of how our present circumstances might be transformed by even the slightest alteration to the past. Often, thoughts of what might of been are no more than an amusing mental diversion, but they can also serve as haunting reminders of things we could have done in the past to help prevent tragic events or avoid unpleasant situations. This fascinating, emotionally rich thought process has long been of interest to philosophers, novelists, and playwrights, and has emerged as an intriguing topic of empirical research in social psychology over the last quarter of a century. The process of imagining alternatives to the past is termed counterfactual thinking. Counterfactual thoughts frequently take the form of a conditional statement, in which an alteration to a past event is specified and its impact inferred (e.g., “If I had not accepted a job offer overseas, my love might not have left me”).

As illuminated by the example above, counterfactual thoughts are intimately related to emotional and motivational processes. When we spoil a precious relationship, char an evening’s main course, or otherwise fail in the pursuit of

¹ Quotation from *A Woman Killed with Kindness* (1607), Act II, Scene iii.

some desired personal goal, counterfactual thinking is one tool with which individuals cope with their failures and make sense of their life circumstances. As a number of studies have shown, counterfactual thoughts most often occur in response to negative experiences (e.g., Roese & Hur, 1997; Roese & Olson, 1997; Sanna & Turley, 1996; Sanna, Turley-Ames, & Meier, 1999). Furthermore, the increased production of counterfactuals following negative events may be driven by a basic motivational desire to avoid aversive stimuli (Roese, 1997; Roese & Olson, 1995a). Consistent with the feelings-as-information perspective (Schwarz, 1990), this proposal is based on the premise that negative affect signals the potential for personal harm and motivates a search for means by which to circumvent that harm. Even when it is difficult or impossible to forestall the actual occurrence of negative outcomes, counterfactual thinking enables individuals to engage in “virtual avoidance” (Roese & Olson, 1997, p. 8), that is, a mental rather than actual reversal of threatening events.

However, the link between counterfactual thinking and motivational processes extends far beyond this simple relation. In addition to demonstrating that thwarted goals activate counterfactual thoughts, recent research suggests that counterfactuals feed back to influence individuals’ current motivational state and behavioral inclinations. Counterfactual thoughts heighten individuals’ feelings of control and foster the formation of concrete intentions to engage in success-facilitating actions in the future (e.g., McMullen, Markman, & Gavanski, 1995; Nasco & Marsh, 1999). Generation of certain kinds of counterfactuals produces tangible improvement in performance on a subsequent task (Roese, 1994). According to the functional perspective on counterfactual thinking, these motivational and performance benefits of counterfactual reasoning stem from causal inference processes. By illuminating possible pathways to more favorable outcomes, counterfactual thoughts encourage individuals to draw causal conclusions regarding the effectiveness of certain events in bringing about desired outcomes. For example, the thought, “If I had worked longer hours last year, I would have been chosen for that promotion” implies that working long hours causes career advancement. The causal conclusions suggested by counterfactual thoughts can help to guide behavior in service of future goals. Recent research by Pham and Taylor (1999), for example, indicates that mental simulations of the processes required to bring about goals helps to enhance planning and emotional regulation, and leads to a greater probability of goal achievement. By focusing individuals on the actions required to attain important goals, counterfactual thinking can have a direct and beneficial effect on human motivation.

The goal of this chapter is to explore the link between motivational processes and counterfactual thinking in greater depth by considering how particular types of motivational states relate to counterfactual generation. The research presented in this chapter focuses on the distinct self-regulatory strategies individuals adopt in pursuit of desired goals and seeks to address two primary questions. First, does one’s choice of regulatory strategy influence the types of counterfactual

thoughts formed in response to unfulfilled goals? Second, might the generation of certain types of counterfactuals have unique consequences for individuals' motivational states? The first section of this chapter provides an overview of the theoretical framework linking regulatory focus and counterfactual thoughts and is followed by a discussion of the empirical evidence bearing on these two research questions.

THE MOTIVATIONAL PRINCIPLE OF REGULATORY FOCUS

Promotion and Prevention Focus

In an expansion of his (1987) self-discrepancy theory, Higgins (1997, 1998) proposed that individuals seek to attain goals using one of two motivationally distinct self-regulatory strategies. Self-regulation with a promotion focus involves concern with the attainment of positive outcomes, such as the desire for advancement, growth, and accomplishment. In contrast, self-regulation with a prevention focus involves a concern with guarding oneself against negative outcomes. Concerns with protection, safety, responsibility, and maintenance of the status quo are characteristic of a prevention focus (Higgins, 1998). From the perspective of regulatory focus theory, both promotion-focused and prevention-focused self-regulatory strategies involve movement toward a desired end point, although the precise nature of that end-state varies. The desired state of affairs under a promotion-focus is the presence of positive outcomes, whereas the desired end-state under a prevention focus is the absence of unwanted outcomes.

As hypothesized by the theory and attested to by numerous empirical investigations, self-regulation focused upon these distinct types of reference values results in substantial differences in information processing, affective responses, and behavior. When a promotion focus is salient, individuals are prone to notice information framed in terms of benefits, to remember gain-related information more accurately, and to be motivated by performance incentives centered on accomplishment. In contrast, prevention focus heightens attention to and memory for loss-relevant information and increases the effectiveness of performance incentives focused on safety (Förster, Higgins, & Idson, 1998; Higgins et al., 1994; Higgins & Tykocinski, 1992; Shah, Higgins, & Friedman, 1998). Self-regulatory orientations have also been shown to relate to distinct emotion clusters. More specifically, failure to meet promotion-focused goals tends to result in feelings of dejection and despondency, whereas failure to meet prevention-oriented goals leads to feelings of threat, worry, and agitation (e.g., Higgins et al., 1997; Roney, Higgins, & Shah, 1995).

From the results of previous research, it is clear that promotion and prevention orientations affect the processing of goal-relevant information and individuals' emotional responses to goal failure. We propose that regulatory focus likewise influences counterfactual responses to goal failure. As previously described, counterfactual thoughts typically arise in response to failed goals and are accompanied by negative affect. We expect that the differing types of negative affect engendered by failed promotion versus failed prevention-oriented goals are likely mirrored by differences in counterfactual thoughts. As discussed in the next section, research on regulatory focus provides a theoretical basis for predicting the manner in which promotion-focused counterfactuals may differ from prevention-focused counterfactuals.

Regulatory Focus, Strategic Inclinations, and Counterfactual Thought

One of the fundamental psychological phenomena proposed to differ as a function of regulatory focus is the type of strategy adopted in pursuit of goals. Promotion focus, with its emphasis on the attainment of favorable outcomes, has been associated with a strategic inclination to *approach matches* to desired end-states. Prevention focus, in contrast, has been associated with a strategic inclination to *avoid mismatches* to desired end-states (Higgins, 1997, 1998). Studies examining promotion and prevention orientation as both an experimentally manipulated variable and as an individual difference variable have demonstrated this pattern of strategic preferences. Higgins et al. (1994, Study 3), for example, found that individuals' strategies for friendship differed according to regulatory focus. Whereas promotion-focused individuals endorsed tactics aimed at achieving rewarding friendships (e.g., "be supportive to your friends"), prevention-focused individuals preferred tactics aimed at safeguarding friendships from damage or obliteration (e.g., "don't lose contact with friends"). Similarly, Higgins et al. (1994, Study 2) found that the priming of regulatory orientations influenced individuals' recall of the approach and avoidance strategies adopted by others. After reading a description of events in the life of another student, participants primed with promotion were better able to remember events that involved approaching a desired end-state (e.g., attempting to arrive on time for a class). In contrast, participants primed with prevention were better able to recall events involving the avoidance of mismatches to desired end-states (e.g., efforts to avoid scheduling conflicts).

In signal detection terms, promotion focus involves a tendency to seek hits and ensure against misses. In other words, promotion-focused individuals strive to do everything possible to ensure success, leaving "no stone unturned." Prevention focus, in contrast, involves a concern with ensuring correct rejections and avoiding false alarms. Prevention-focused individuals are careful to avoid taking inappropriate actions and are hesitant to commit any mistakes that might threaten the status quo. For example, Crowe and Higgins (1997) found that in a recognition memory task, promotion-focused participants committed a high

number of false alarms (i.e., responding when a response was not in fact warranted) whereas prevention-focused participants were more likely to err on the side of caution, exhibiting a high number of omissions (i.e., failing to respond when a response was actually warranted). Liberman and colleagues (1999) argued that these inclinations reflect a tendency for promotion and prevention orientations to be associated with different types of biases. Promotion focus is associated with a risky bias (a tendency to say yes or undertake actions) and prevention focus with a conservative bias (a tendency to say no or not undertake actions). For example, Liberman et al. (1999) found that individuals for whom a promotion focus was either chronically accessible or situationally induced were less likely than prevention-focused individuals to exhibit the endowment effect (the reluctance to give up a currently possessed object) and more likely to take risks associated with change, such as substituting a new task for an old one.

These fundamental differences in promotion-focused versus prevention-focused strategies for goal pursuit suggest that the type of explanations individuals generate for failed goals will depend heavily on their regulatory focus. Namely, individuals with a promotion focus, who are concerned with ensuring to take appropriate action, should be likely to respond to failure by thinking of specific actions they should have taken in the past to bring about a more positive outcome. Conversely, prevention-focused individuals, who take care never to commit inappropriate actions, should be likely to “undo” negative events by focusing on mistaken actions taken in the past. These assumptions are consistent with a correspondence principle, whereby the cause of an event is presumed to correspond with its effect along basic dimensions (e.g., Bouts et al., 1992; Einhorn & Hogarth, 1986). In this case, for promotion failures, the absence of a positive outcome is assumed to arise from the absence of an (appropriate) action. For prevention failures, the presence of a negative outcome is assumed to result from the presence of a (foolish) action. This principle serves as the foundation of our predictions linking regulatory focus with counterfactual thought. We propose that a promotion focus is most typically associated with counterfactual thoughts specifying the addition of a previously omitted action and that a prevention focus is more likely to be associated with counterfactual thoughts specifying the subtraction of an action taken in the past.

ADDITIVE VERSUS SUBTRACTIVE COUNTERFACTUAL THOUGHTS

The conceptual distinction between counterfactual thoughts that add versus subtract antecedent factors is well established in the counterfactual literature (e.g., Gilovich & Medvec, 1995; Gleicher et al., 1990, Kahneman & Tversky, 1982; Kahneman & Miller, 1986; Landman, 1987, Roese & Olson, 1993; Zeelenberg, van der Pligt, & Manstead, 1998). Although the specific terminology used by researchers varies, we use the term *additive counterfactual*

to refer to counterfactual thoughts that specify the addition of an action or event to the past, and *subtractive counterfactuals*, to involve the removal of an action or event that did in fact occur (Roese & Olson, 1993). For example, following a failed job interview, an applicant might think to herself, "I should have mentioned my programming skills" (an additive counterfactual thought) or alternatively, "I wish I had not mispronounced the interviewer's name!" (a subtractive thought). Our proposal that regulatory focus influences the generation of these two types of counterfactual thoughts has the potential to clarify incongruent findings in the counterfactual literature. The results of some previous research suggests that counterfactual thoughts of a subtractive nature (i.e., those involving removal of an action rather than mutation of inaction) are more common and more consequential than additive counterfactual thoughts (e.g., Baron & Ritov, 1994; Catellani & Milesi, 2001; Gleicher et al., 1990; Kahneman & Tversky, 1982; Landman, 1987; Miller & Taylor, 1995; Turley, Sanna, & Reiter, 1995, Experiment 4; Zeelenberg et al., 1998). For example, several researchers have shown that losses which result from decisions to act tend to be viewed as more upsetting than losses which occur following decisions not to act (e.g., Kahneman & Tversky, 1982; Fleicher et al., 1990). This effect has been interpreted as evidence for the greater ease with which individuals are able to construct subtractive counterfactual thoughts. Several other investigations have not supported this contention, with several showing the opposite effect (e.g., Davis, Lehman, Wortman, Silver, & Thompson, 1995; Feldman, Miyamoto, & Loftus, 1999; Grieve, Houston, Dupuis, & Eddy, 1999; N'gbala & Branscombe, 1997, Experiment 2; Roese & Olson, 1993a, 1993b; Sanna & Turley, 1996, Experiments 1 and 3). Roese & Olson (1993a), for example, found that additive counterfactuals were generated far more frequently than subtractive counterfactuals following a negative outcome.

These contradictory findings may stem in part from variations in regulatory focus. Many of the previous studies that found stronger evidence for subtractive counterfactuals dealt with prevention-oriented situations, such as physical and sexual assault (Catellani & Milesi, 2001), impending employment termination (Landman, 1987) or financial risk-taking (e.g., Spranca et al., 1991). In contrast, much of the evidence for the predominance of additive counterfactuals has come from studies involving situations typically regarded as promotion-oriented, such as academic achievement (e.g., Roese & Olson, 1993) or athletic competition (Grieve et al., 1999). Thus, regulatory focus may be an important moderator that can help account for conflicting findings in previous research.

THE EVIDENCE

The following section describes empirical evidence bearing on the hypothesized relation between regulatory focus and counterfactual thought. First, we discuss evidence from several investigations in which regulatory focus was manipulated experimentally (by framing goal-relevant scenarios) prior to

the solicitation of counterfactual thoughts. We also consider how affective experiences associated with promotion and prevention concerns influence the content of counterfactuals. Next, we examine the relation between counterfactuals and individual differences in promotion and prevention focus. Finally, we present evidence from several studies that suggest the relation between regulatory focus and counterfactual thought is of a reciprocal nature. In addition to demonstrating the influence of regulatory focus on the generation of additive and subtractive counterfactuals, our research indicates that specific types of counterfactual thoughts influence the momentary emphasis individuals place on promotion and prevention-related motivational concerns.

Situational Variation in Regulatory Focus

Roese, Hur, and Pennington (1999, Experiment 1) examined the influence of regulatory focus on counterfactual generation by manipulating promotion and prevention focus on a situational, within-subject basis. Participants were asked to read six brief scenarios describing negative situations such as gambling losses and allergic reactions (hypothetical situations commonly used in previous counterfactual research). Half of the scenarios depicted promotion failures (i.e., failures to achieve desired, positive outcomes), and the other half described prevention failures (i.e., failures to prevent unwanted occurrences).² Following each scenario, counterfactual thoughts were solicited by asking participants to complete a sentence beginning with the phrase, "If only..." (adapted from Kahneman & Tversky, 1982). Participants' counterfactual completions were later coded according to whether they specified the addition of an antecedent event or the subtraction of an event. As predicted, additive counterfactual thoughts were more frequently generated for promotion situations than for prevention situations, whereas subtractive counterfactual thoughts were more commonly produced in response to prevention scenarios than promotion scenarios (see Fig. 13.1).

In a related study, Roese, Hur, and Pennington (1998) manipulated regulatory focus and outcome valence on a between-subject basis. The scenario used in this study was adapted from Brendl et al. (1995, Experiment 2) and portrayed the experiences of a college student preparing for a student research conference. Four outcomes corresponded to the 2 x 2 manipulation of regulatory focus and outcome valence: receiving a \$50 bonus (presence of positive), failing to receive a \$50 bonus (absence of positive), avoiding a \$50 penalty (absence of negative), and paying a \$50 penalty (presence of negative). Unlike Experiment 1, counterfactual thoughts were not directly solicited in this experiment. Rather, participants were asked to record up to three thoughts in response to the described event, which were later coded for spontaneously occurring additive

² Promotion and prevention scenarios did not differ according to perceived valence or the extent to which they suggested an internal attribution.

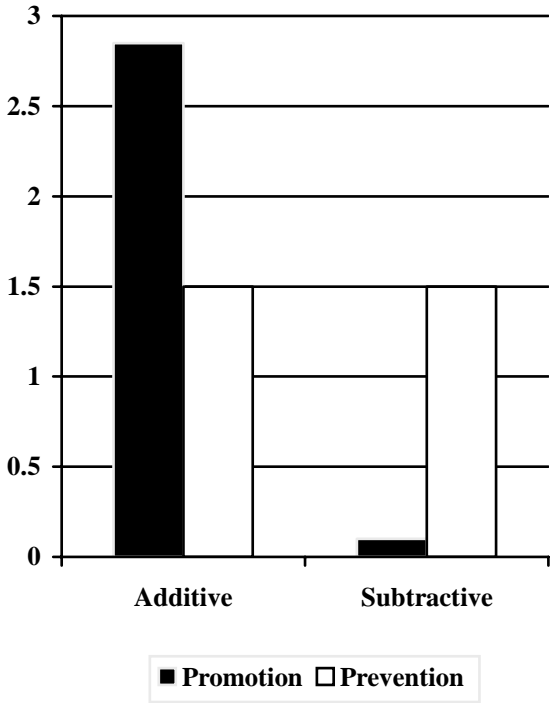


Fig. 13.1. Effect of regulatory focus (situational framing) on number of additive versus subtractive counterfactual thoughts generated. Roese et al., 1999, Experiment 1.

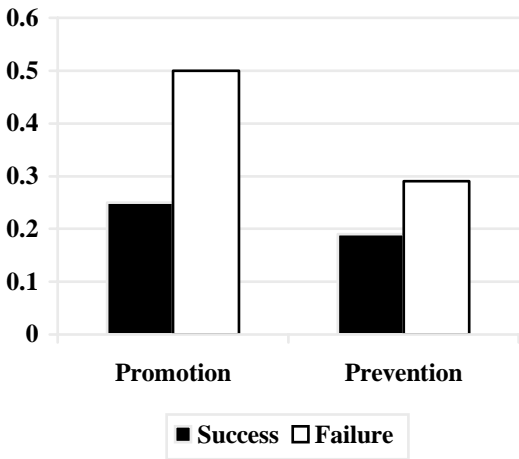


Fig. 13.2. Counterfactual thinking as a function of regulatory focus and outcome valence. Roese et al., 1998.

and subtractive counterfactual thoughts. Looking at only the overall number of counterfactuals recorded as a function of regulatory focus and valence, we found that the valence effect found in previous studies (Roese & Hur, 1997; Sanna & Turley, 1996) was replicated within both promotion and prevention circumstances. That is, the absence of a positive (promotion failure) evoked more frequent counterfactual thinking than did the presence of a positive (promotion success), and the presence of a negative (prevention failure) evoked more frequent counterfactual thinking than did the absence of a negative (prevention success; See Fig. 13.2). This result argues against the interpretation that counterfactuals are chiefly oriented toward prevention and avoidance (e.g., Mandel & Lehman, 1996; N'gbala & Branscombe, 1995). Rather, counterfactual thinking is a ubiquitous assessment and correction process that can be flexibly used for either promotion and prevention strategies.

Results for additive counterfactuals confirmed the predicted pattern (see Table 13.1). Participants were more likely to generate additive counterfactual thoughts following a promotion failure (an unclaimed bonus) than following a prevention failure (the imposition of a fee). The low frequency of spontaneous subtractive counterfactuals makes it difficult to detect any variation in their construction as a function of regulatory focus. Nevertheless, these findings do indicate that additive as opposed to subtractive counterfactuals are more likely to emerge from promotion rather than prevention failure. This finding is representative of a pattern that we repeatedly encountered across several experiments: Effects involving counterfactual additions and promotion were nearly always of greater magnitude than those involving subtractions and prevention.

Using a between-subject manipulation of regulatory focus similar to the previously discussed study but coupled with direct solicitation of counterfactual thoughts, Pennington, Roese, and Gardner (2000) replicated the predicted interaction between regulatory focus and counterfactual type. In this study, participants read a scenario about a game show contestant who was either striving to win a prize (promotion focus) or attempting to avoid losing a prize (prevention focus). After reading about the contestant's failure, participants were directly asked to generate "if only" thoughts that may have occurred to the

Table 13.1
Situational Variation in Regulatory Focus

	<i>Promotion</i>	<i>Prevention</i>
Student Conference Study (Roese et al., 1998)		
Additive	.85 _a	.45 _b
Subtractive	.15 _b	.12 _b
Game Show Study (Pennington et al., 2000)		
Additive	2.63 _a	2.09 _b
Subtractive	0.29 _c	0.74 _d

Note. Values are the average number of counterfactual thoughts generated per person. Within each study, means not sharing a common subscript differ at $p < .05$.

contestant following the contest. Participants were requested to record up to three different counterfactual thoughts, which were later coded as additive or subtractive. Additive thoughts were more prevalent following the promotion scenario than the prevention scenario and subtractive thoughts were more frequent following the prevention than promotion scenario (see Table 13.1).

Together, these three studies support, using a variety of regulatory focus manipulations and counterfactual thought measures, the hypothesized link between regulatory focus and counterfactual thought. Framing situations as promotion-focused versus prevention-focused moderated the types of counterfactuals individuals produced in response to failed goals. Additive thoughts were more frequently associated with failures to attain promotion goals, whereas subtractive thoughts were more frequently associated with prevention failures.

Affective Concomitants of Regulatory Focus

A key finding of self-regulatory research is that promotion and prevention are differentially associated with affective states. More specifically, failed promotion goals typically result in dejection-related feelings, whereas failed prevention goals most often result in feelings of agitation or threat (Higgins et al., 1997; Shah & Higgins, 2001; Zinbarg & Mohlman, 1998). Extending this facet of the theory to the present domain, we reasoned that sad or disappointing experiences (via association with a promotion-focus) should be associated with additive counterfactual thinking. Similarly, threatening or agitating experiences (by way of association with a prevention-focus) should be likely to result in subtractive counterfactual thoughts. Roese et al. (1999, Experiment 3) tested this prediction by asking participants to think of a recent experience that caused them to feel either dejected or agitated. After briefly describing the experience, individuals were asked to provide up to four examples of “if only” thoughts that ran through their heads after experiencing the negative event. As predicted, additive counterfactuals were constructed more frequently for dejection-arousing experiences than for agitation-arousing experiences. In contrast, subtractive counterfactuals were more frequently produced in response to agitating experiences than dejecting experiences (see Fig. 13.3).

Affective experience has been a focal component of research on both regulatory focus (e.g., Higgins, 1997, 1998; Higgins et al., 1997; Roney et al., 1995) and counterfactual thought (e.g., Kahneman & Miller, 1986; Macrae, 1992; Markman et al., 1993; Roese & Hur, 1997). The findings of Roese et al. (1999, Experiment 3) brought these distinct areas of research together in a new and intriguing manner. These results suggest that different types of negative affect (dejection versus agitation) signal failures of distinctive motivational origins, thereby recruiting the associated patterns of counterfactual thought.

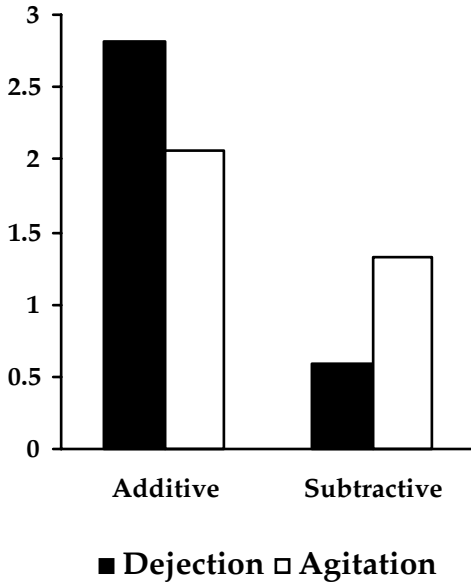


Fig. 13.3. Effect of emotion type (dejection versus agitation) on number of additive versus subtractive counterfactual thoughts generated. Roese et al., 1999, Experiment 3.

Individual Differences in Regulatory Focus

The studies described to this point involved experimental manipulations of regulatory focus. An additional approach to studying the link between regulatory focus and counterfactual thinking is to examine dispositional motivational tendencies. The theory of self-regulatory focus derives from research examining chronic tendencies to attend to promotion-focused endstates (“ideals”) versus prevention-focused endstates (“oughts”; e.g., Higgins, 1987). The method traditionally used to measure these dispositional differences involves an idiographic questionnaire (the Selves Questionnaire, Higgins et al., 1986) that allows participants to freely generate lists of self-descriptive attributes which are later coded by researchers. In our own research, we typically measure promotion and prevention orientations using simplified response scale instruments that offer greater ease of administration and scoring. This approach was taken in a second study conducted by Roese et al. (1998). In this study, motivational orientation was measured using Carver and White’s (1994) BIS/BAS scale. The BIS/BAS (“behavioral inhibition system/behavioral activation system”) scale provides a general measure of approach and avoidance motivation. Participants indicated the extent to which they agreed with 14 items drawn from the BIS/BAS scale. Half of these items centered on promotion (e.g., “I go out of my way to get things I want”) and the other half of the items

centered on prevention (e.g., "I worry about making mistakes."). Participants were also asked to write down the most vivid example of an "if only" thought that occurred to them over the previous week. After recording both the antecedent ("if" portion) and consequent ("then" portion) of the counterfactual, participants were instructed to go back and code their own thought as additive ("something that you think should have happened") or subtractive ("something that should not have happened").

To examine the relation between motivational orientation and counterfactual generation, we created a univariate index of regulatory focus by subtracting standardized prevention scores from standardized promotion scores. Thus, greater values indicated relatively greater focus on promotion. Results indicated that participants who recorded an additive counterfactual thought were relatively promotion-oriented (mean of .26, with values above zero indicating a greater emphasis on promotion versus prevention), whereas individuals who recorded a subtractive counterfactual were more prevention-oriented (mean of -.33). The motivational orientations of individuals recording additive and subtractive counterfactuals were found to be significantly different ($p < .05$).

A study by Pennington et al. (2000) examined motivational orientation using a different measure of promotion/prevention focus. In this study, emphasis on promotion-focused goals and prevention-focused goals was measured by asking participants to rate the personal importance of a series of everyday concerns. Half of these statements pertained to promotion-oriented goals (e.g., "doing well on tests," "being fun and outgoing"), and half were prevention-oriented (e.g., "avoiding getting fat," "trying not to fall behind in class work"). After the administration of several filler tasks, participants were asked to record a "life regret" in the conditional counterfactual form (i.e., "if...then"), and these thoughts were later coded for additive or subtractive content. As in the previous study, an index of regulatory focus was created by subtracting standardized importance ratings for prevention-related goals from standardized scores for promotion-related goals. The regulatory focus scores of individuals who generated additive versus subtractive counterfactual thoughts were then compared. Results indicated that the relative emphasis placed on common promotion and prevention-related concerns varied as a function of individuals' spontaneous preferences for additive versus subtractive counterfactual thinking. Consistent with the previous findings, participants who recorded additive counterfactuals emphasized promotion-oriented goals (mean of .21), whereas participants who recorded subtractive counterfactuals emphasized prevention-oriented goals (mean of -.48, $p < .05$).³

The converging results of these two investigations demonstrate that individual differences in regulatory focus are associated in the predicted manner with the structure of counterfactual thoughts. In combination with findings from

³ It should be noted that the promotion and prevention scales used in Pennington et al. (2000) did not demonstrate high reliability. The emergence of the predicted effects despite the use of a unreliable measure, however, might be viewed as further evidence for the robust nature of this effect.

experiments using situational manipulations of regulatory focus, this research provides compelling evidence for the impact of regulatory focus on counterfactual thinking. The results of these studies do not indicate, however, whether the reverse relation may prove viable. Namely, might the type of counterfactual thoughts individuals generate influence their current motivational state?

The Impact of Counterfactual Generation on Regulatory Focus

The consistent pattern of results found in the previously described research invites consideration as to whether counterfactual thoughts, in and of themselves, might influence regulatory focus. Previous research has shown that counterfactuals can influence motivation (e.g., Landman et al., 1995; Nasco & Marsh, 1999; Roese, 1994) and can prime mindsets that guide subsequent, unrelated behaviors (Galinsky & Moskowitz, 2000), but little attention has been given to the extent to which counterfactual thinking impacts specific types of motivational states. Consider for example, a situation in which a student receives a disastrous score on her midterm exam. If distinct types of counterfactual thought have divergent motivational effects, one would expect the student to react quite differently depending on whether her post-exam thoughts are additive (e.g., “If only I had taken better notes in class”) versus subtractive (e.g., “If only I hadn’t spent the weekend with friends”). Consistent with previous findings and our theoretical perspective, we believe that additive thoughts would be likely to increase, momentarily, the promotion focus of the student, causing her to focus broadly on possible future gains and achievements. In contrast, the generation of subtractive counterfactual thoughts would be expected to lead to the adoption of a prevention orientation and a broad focus on the need to deflect future potential failures or mistakes.

To examine this issue, Roese et al. (1999, Experiment 2) asked participants to record a counterfactual thought that they had had sometime in the last year. An additional instruction served as a manipulation of counterfactual type. Participants in the additive condition were to provide an example of a thought that was additive in nature (“Try to focus only on specific things that you didn’t do, but wish you had done.”). In the subtractive condition, the instructions read, “Try to focus only on specific things you did do, but wish you had not done.” To test the hypothesis that counterfactuals of an additive or subtractive nature evoke distinct motivational states, Roese et al. measured the strength of participant’s current self-regulatory focus by asking them to rate the importance of 14 common, everyday concerns. Half of the items were oriented toward promotion (e.g., “making new friends,” “doing well on tests”) and half were oriented toward prevention (e.g., “avoiding unsafe sexual practices, not looking unfashionable”). These responses were summed separately to create promotion and prevention subscales. Consistent with predictions, results indicated that after thinking of an additive counterfactual thought, participants rated promotion-related goals as

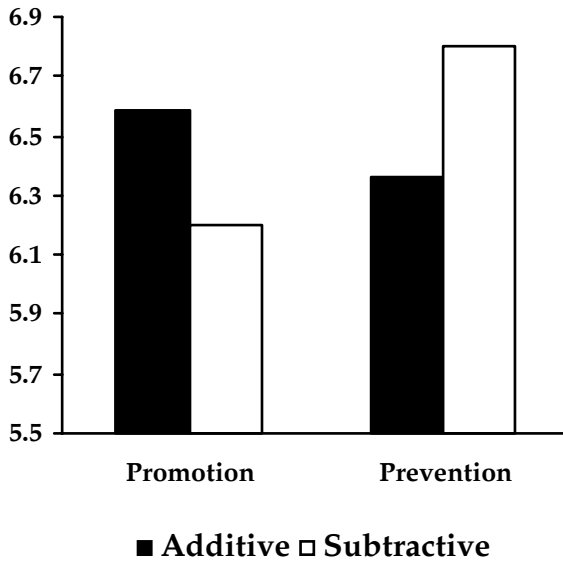


Fig. 13.4. Ratings of the importance of promotion and prevention-focused goals as a function of counterfactual generation. Roese et al., 1999, Experiment 2.

more important than prevention-related goals. Subtractive counterfactual thinking, in contrast, led individuals to place more importance on prevention goals than promotion goals (see Fig. 13.4).

Using a slightly different methodological approach, Pennington (2000) tested the influence of counterfactual generation on regulatory focus by having participants read an additive or subtractive counterfactual thought produced by another student. This scenario methodology allowed for the situational context to be held constant across counterfactual conditions. Participants read about another student's negative experience with a retail purchase. In the additive condition, the student's counterfactual thought involved the wish that she had chosen a high-quality product (an action was added to the past). In the subtractive condition, the counterfactual involved undoing the student's past choice of product (an action was subtracted from the past). Participants were then asked to rate the personal importance of various consumer-related concerns, framed in either promotion or prevention terms (e.g., "enhancing appearance," "not looking unfashionable"). As depicted in Fig. 13.5, a significant interaction between counterfactual condition and regulatory focus ($p < .02$) replicated the previously obtained pattern. Individuals who were exposed to an additive counterfactual thought subsequently rated promotion goals as more important than prevention-focused goals, whereas participants exposed to a subtractive counterfactual rated promotion and prevention focused goals as equal in importance. Remarkably, this study illustrates that even the vicarious

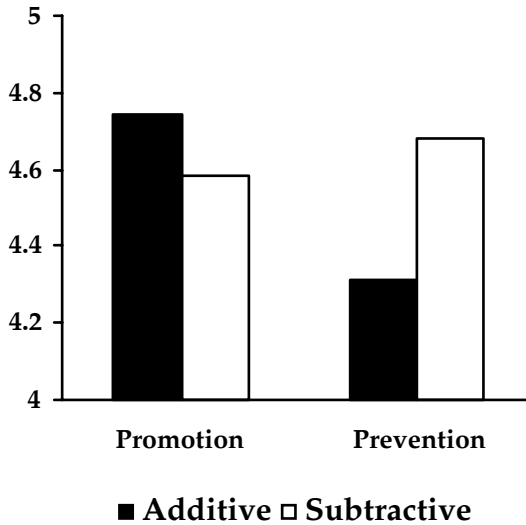


Fig. 13.5. Importance of promotion and prevention-related concerns as a function of type of counterfactual primed. Pennington et al. (2000).

experience of reading about additive and subtractive counterfactual thoughts is capable of momentarily shifting one's focus on promotion and prevention-related concerns.

CONCLUSION

In this chapter, we presented converging evidence from a number of methodologically distinct studies demonstrating the dynamic interplay between regulatory focus and counterfactual thinking. This research identifies regulatory focus as an important moderating factor in determining what types of past events will be mutated through counterfactual thinking (actions vs. inactions). Promotion focus, and the type of affect typically associated with failed promotion goals, resulted in counterfactual thoughts specifying additions to the past. In contrast, prevention focus and associated feelings of agitation increased the predominance of subtractive counterfactual thoughts. The particular causal pathway suggested by these findings is depicted in Fig. 13.6. One's regulatory focus influences the manner in which failed goals are interpreted. Promotion-focused individuals perceive failures as the absence of a desired outcome, and hence feel dejection and disappointment. Prevention-focused individuals view failures as the presence of unwanted outcomes, and respond with feelings of agitation and threat. These distinct emotional reactions are hypothesized to serve as informational signals (Schwarz, 1990; Schwarz & Clore, 1996) that recruit

cognitive, motivational, and behavioral responses best suited to confront the problem at hand. With a promotion failure, additive counterfactual thoughts focus individuals on goal-appropriate action, strengthening promotion focus and motivating future action. Following preven-

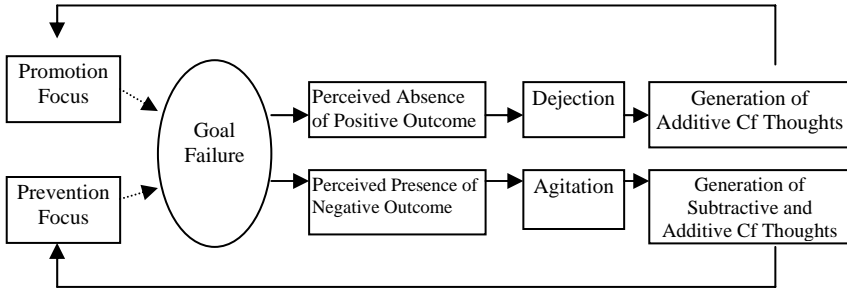


Fig. 13.6. Causal model relating regulatory focus and counterfactual thought.

tion failure, subtractive thoughts help individuals to identify mistaken actions, strengthening prevention focus and encouraging the avoidance of similar actions that might pose further threats to one's safety and security.

The proposed pathway between counterfactual generation and regulatory focus is indicative of the preparative, motivational function served by counterfactual thoughts. Additive and subtractive mental simulations of past events are hypothesized to influence individuals' current motivational orientation toward the future. This aspect of the model is supported by the findings of Roese et al. (1999, Experiment 2), in which the direct manipulation of counterfactuals influenced the degree of importance individuals placed on promotion and prevention-focused goals, but did not influence current affect. The failure of counterfactual manipulations to influence dejection and agitation has been replicated in studies conducted in our lab and lends support to the specific causal sequence depicted in Fig. 13.6. Whereas the negative affect associated with distinct types of regulatory failures influences counterfactual generation, there does not appear to be a direct effect of counterfactual thinking on distinctive negative emotion types.

From a functional perspective of counterfactual thinking (Roese, 1994, 1995b, 1997, 2001; Roese & Olson, 1997), it is interesting to consider how this process might serve the unique needs of promotion and prevention-focused individuals, helping them to adjust behavior in a manner ultimately in service of chronically salient goals. It is important for individuals with a prevention-focused goal, such as the avoidance of rejection, to be able to readily recognize specific behaviors that tend to bring about the dreaded outcome. Subtractive counterfactuals, by identifying specific acts that lead to the threat, thus can be highly functional in enabling individuals to ensure continued safety and security from threatening events. In contrast, for individuals with a promotion-focused

goal such as earning a raise, it is important to be able to identify any action that might potentially bring about the desired benefits. Thus, additive counterfactuals serve the important function of highlighting potential unrealized pathways to success. As this analysis implies, and as the findings of the current research indicate, counterfactual thought processes indeed appear to be quite sensitive to variation in the nature of one's goals. Promotion-focused and prevention-focused goals tend to result in distinctive types of counterfactuals that ultimately aid individuals in achieving their self-regulatory priorities. In terms of Sanna's (2000) proposed framework linking counterfactual thinking and self-motives, additive counterfactual thoughts appear to satisfy the motive for self-enhancement, whereas subtractive counterfactual thoughts are best viewed as serving self-protective motives.

Because counterfactual thinking tends to feed back to influence current self-regulatory concerns, if frequently engaged this process is likely to be self-perpetuating. It remains unclear what long-term consequences might result from chronic reliance on additive or subtractive forms of counterfactual thinking. Although additive counterfactuals can enhance motivation and productivity by stimulating direct goal-relevant actions, such thoughts may also hinder performance if individuals are unable to correctly identify the proper courses of action (e.g., Sherman & McConnell, 1995). Furthermore, additive counterfactuals may promote overactive responses to failure, unwarranted and unproductive persistence, and an inflated sense of personal control over outcomes (Roese, 1999). Similarly, although subtractive counterfactuals can help individuals identify past mistakes and avoid future threats to well-being, over-reliance on subtractive counterfactual thought may lead individuals to be overly cautious or hyper-vigilant in avoiding unwise actions, to the point of being incapacitated or frozen in fear of potential threats. To the extent that chronic regulatory focus increases the tendency for individuals to rely on specific forms of counterfactual thought, it would be interesting for future research to more closely examine counterfactual thought processes adopted by individuals with strong ideal and thought self-discrepancies.

Across our studies, we have consistently found a stronger pattern of results with regard to promotion focus and additive counterfactuals, as compared to the pattern for prevention focus and subtractive thoughts. Despite the increased frequency of subtractive thoughts under a prevention focus as compared with a promotion focus, both additive and subtractive thoughts are prevalent for individuals with a prevention focus. In other words, subtractive counterfactuals are not the clearly preferred type of mental simulation, even under a prevention focus. Although it is unclear exactly what is driving this pattern of results, one intriguing explanation for these findings is related to the cultural environment in which these studies were conducted.

Our research has been conducted exclusively with participants in the United States and Canada, Western nations which tend to place a strong emphasis on personal agency and active control (e.g., Bandura, 1977; Rothbaum, Weisz, & Snyder, 1982; Weisz, Rothbaum, & Blackburn, 1984). The worldview that

predominates in Western cultures attributes great causal significance to direct, personal action in bringing about change. Thus, in constructing counterfactual alternatives to the past, it is perhaps unsurprising that our participants so readily construct thoughts specifying the addition of direct action, even when under a prevention focus. A consideration of cultural differences in chronic regulatory focus further elucidates this issue. Lee, Aaker, and Gardner (2000) showed that individuals from Western cultures tend to place more emphasis on promotion-focused information, whereas individuals in Eastern cultures place a greater emphasis on prevention-focused information. Thus, the combined effect of heightened beliefs in active control and an increased sensitivity to the promotion frame in our subject population may be responsible for the strong pattern of results for promotion and additive counterfactuals. In support of this interpretation, the results of two recent studies suggest that individuals who construe the self interdependently (a mode of self-construal relatively more prevalent in Eastern cultures than in Western cultures) are increasingly sensitive to prevention-focused failures involving unwise action and are more likely than individuals with an independent self-construal to generate subtractive counterfactual thoughts (Gardner, Lee, & Pennington, 2001; Pennington, Roese, Gardner, & Lee, 2001).

In addition to questions of a cross-cultural nature, the relationship between the self-concept and counterfactual thought raises a number of additional interesting issues for further investigation. Although the role of counterfactual thought in self-definition has not been a focus of previous research, it is clear that the self-concepts of some individuals are substantially influenced by highly salient or chronically accessible counterfactual thoughts. For the sake of example, consider a former NFL football player who “almost” caught a pass that would have secured his team’s Super Bowl victory, or a frustrated former beauty queen who was “nearly” crowned Miss America. Consideration of counterfactual alternatives to disappointing past events such as these is likely to exert an influence on individual’s self-views and affective experiences. The precise nature of these effects depends on whether individuals assimilate or contrast the counterfactual alternative with reality (Sanna, 2000). For example, the former football player might feel badly about himself if he contrasts reality with the counterfactual alternative of having caught the ball and gone on to become an acclaimed sports hero. Alternatively, however, he might engage in assimilation and feel positively about himself after dwelling on this imagined glory. With regard to the primary topic of this chapter, we propose that the additive versus subtractive nature of one’s counterfactual thoughts might influence these self-relevant processes. More specifically, we propose that additive counterfactual thoughts, by way of their association with a promotion focus, are most likely to lead to positive assimilative effects. As Sanna (2000) proposed, individuals are likely initially to contrast reality with a counterfactual thought. However, in the case of additive counterfactuals, we suggest that this initial negative reaction is likely to be followed by assimilation. For example, the disappointment initially generated by the thought, “If I had caught the ball in

the endzone...” is likely to give way to positive self-reflection and hopeful or dreamlike thoughts (e.g., “Wouldn’t that have been fantastic?”). In contrast, subtractive counterfactuals, by their association with a prevention focus, are expected to lead to prolonged contrast effects and rumination. Having thought to himself, “If only I had not fumbled the ball...”, the former football player has essentially condemned his previous mistakes without leaving imaginative room for more positive alternative actions. This rumination on past mistakes and the presence of negative outcomes is likely to lead to self-blame and a negative self-view. Although these predictions are purely speculative, future research on this topic may help to elucidate the importance of distinct counterfactual thought processes to self-views.

In summary, the preponderance of evidence for the link between regulatory focus and additive and subtractive counterfactuals is strong. More comprehensive tests of the hypothesized causal pathway of these processes however, are still needed. It is our hope that through further research we can gain additional insight into these causal pathways, developing a richer, more detailed picture of how distinct forms of counterfactual thought influence motivational and behavioral processes relevant to the achieving future goals.

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