

# The Wisdom in Feeling

*Psychological Processes in Emotional Intelligence*

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# The Trouble with Vronsky

## *Impact Bias in the Forecasting of Future Affective States*

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Vronsky, meanwhile, although what he had so long desired had come to pass, was not altogether happy. He soon felt that the fulfillment of his desires gave him only one grain of the mountain of happiness he had expected. This fulfillment showed him the eternal error men make in imagining that their happiness depends on the realization of their desires.

—TOLSTOY (1877/1961, p. 468)

Of all the claims that psychologists have made about human universals, one actually stands a chance of being true: People want to be happy. Different things bring happiness to different people, of course, and cultures vary dramatically in their prescriptions for the good life, but none offers a set of roles and rules that, if followed religiously, guarantees a life of fear and sorrow. Even when people forgo opportunities for happiness—by dieting when they could be eating, or working when they could be sleeping—they are generally doing so in order to enjoy greater happiness in the future. Just about everyone, it seems, prefers pleasure to pain, joy to sadness, satisfaction to frustration, and no psychologist, anthropologist, paleontologist, or historian has ever discovered any culture in any historical epoch whose members generally pre-

ferred feeling bad to feeling good. To "prefer" means "to choose or want one thing rather than another because it would be more pleasant" (*Cambridge International Dictionary*, 1995), which is to say that the pursuit of happiness is built into the very definition of preference. In this sense, a preference for pain and sorrow is not so much a diagnosable psychiatric condition as it is an oxymoron.

But if the desire for happiness is universal, the ability to achieve it is not. Most human lives are touched by sorrow, disappointment, resentment, and regret, and many are characterized by them. Why is happiness such a fast moving target? One terribly dull answer is that unhappiness is the consequence of unfulfilled desires and that each of us has plenty of those. We feel certain that we *know* what would make us happy—marriage, divorce, health, money, flattery, power, Belgian chocolate, Cuban cigars—and we naturally think of our unhappiness as the result of a failure to achieve these identifiable ends. We have strong preferences about what the future should bring, we take actions to ensure that it does, and unhappiness sometimes follows because we can't always get what we want. This terribly dull answer would at least be satisfactory were it not for one pesky fact: On those occasions when we take careful aim and get precisely what we were aiming for, we often discover that the rich, robust, and enduring happiness that our achievement was meant to induce is instead thin, fleeting, or absent entirely. Count Vronsky spent several hundred pages of very small type longing for Anna Karenina, but the fulfillment of that passion left him with nothing more than several hundred pages of emptiness.

Could it really be a mistake to expect that happiness will follow the fulfillment of one's desires? It depends, of course, on how accurately one desires. The adverb "accurately" does not normally precede the verb "desire," but if our desires are meant to point us toward those things that, once achieved, will give rise to happiness, then it makes perfectly good sense to think of desires as predictions about the affective consequences of things to come (cf. Berridge & Robinson, 1995). And such predictions, like any, can be wrong. How accurate are human desires? How well do we predict what will make us happy, how happy it will make us, and how long our happiness will last?

## IMPACT BIAS

To desire accurately, we must be able to imagine how a particular future circumstance will make us feel—a process called *affective forecasting* (Gilbert & Wilson, 2000). Specifically, we must be able to predict what kind of emotion we will experience ("Will making love with Anna be

boring or exciting?"), how intense that emotion will be ("Mildly exciting or deeply moving?"), and how long the emotion will last ("A moment of passion or a week of euphoria?"). People are relatively accurate in predicting the identities of their future emotions, which is to say that they can readily distinguish situations that will prove exhilarating or joyous from those that will evoke anger, annoyance, or ennui (Robinson & Clore, 2000). On the other hand, people are not so adept when it comes to predicting the intensity and duration of their emotions (Baron, 1992; Coughlan & Connolly, 2001; Kahneman, 1994; Kahneman & Snell, 1990, 1992; Loewenstein & Frederick, 1997; Loewenstein, O'Donoghue, & Rabin, 2000; Loewenstein, Prelec, & Shatto, 1998; Mellers, 2000; Read & Loewenstein, 1995; Read & van Leeuwen, 1998; Rottenstreich & Hsee, 2001; Schmitt & Kemper, 1996; Schwarz, Jacquin, & Telch, 1994; Simonson, 1990; Snell, Gibbs, & Varey, 1995; Totterdell, Parkinson, Brinner, & Reynolds, 1997; van Hout & Emmelkamp, 1994; Zeelenberg, van Dijk, Manstead, & van der Pligt, 1998), and these inaccuracies tend to take a special form. When people mispredict their affective reactions, they tend to do so by *overestimating* the enduring impact that future events will have on their emotional lives. This *impact bias*<sup>1</sup> has been demonstrated in a variety of populations (e.g., students, voters, professors, sports fans, medical patients), across a wide range of events (e.g., romantic breakups, personal insults, failed exams, football victories, electoral defeats, relocations, winning prizes, touching spiders, receiving gifts, being diagnosed with serious illnesses, failing to secure promotions, failing to lose weight, reading tragic stories), and by a variety of different investigators (Buehler & McFarland, 2001; Frederick & Loewenstein, 1999; Gilbert, Brown, Pinel, & Wilson, 2000; Gilbert, Pinel, Wilson, Blumberg, & Wheatley, 1998; Loewenstein & Adler, 1995; Loewenstein, Nagin, & Paternoster, 1997; Loewenstein & Schkade, 1999; Mellers & McGraw, 2000; Mellers, Schwartz, & Ritov, 1999; Mitchell, Thompson, Peterson, & Cronk, 1997; Rachman, 1994; Rachman & Arntz, 1991; Schkade & Kahneman, 1997; Wilson, Meyers, & Gilbert, 2001; Wilson, Wheatley, Meyers, Gilbert, & Axsom, 2000b).

Let us be clear from the start: Many events—such as rape, divorce, or the death of a child—have emotional consequences that may last for months, years, or even a lifetime, and it would be perverse for anyone to suggest that such events do not matter. They most certainly do. But

<sup>1</sup>We have previously referred to this tendency as the *durability bias*, but this term is clearly a misnomer inasmuch as people may overestimate the intensity of their emotional reactions at the time an event occurs as well as at later periods. The word "impact" is meant to suggest that people can overestimate the influence of future events on emotional states, and yet it is agnostic about the points in time at which such overestimations may occur.

there is considerable evidence to suggest that hedonic reactions to events—even truly tragic events—are shorter-lived than one might expect, and that people typically return to their emotional baselines sooner rather than later. Suh, Diener, and Fujita (1996) measured the correlation between college students' subjective well-being and the number of life events they had experienced in the previous 4 years. Subjective well-being was uncorrelated with the number of negative or positive events a student had experienced 6 months earlier, and the correlations between subjective well-being and events that had occurred within the last 3 months were surprisingly modest. Suh et al. (1996, p. 1091) concluded that "only recent events matter," but even recent events may not matter quite as much as people think they do. A study found that 30% of parents who lost babies as a result of sudden infant death syndrome never experienced significant depression, another study found that 82% of bereaved spouses were doing well just 2 years after the spouse's death (Lund, Caserta, & Diamond, 1989; Wortman, Silver, & Kessler, 1993), and contrary to the expectations of every red-blooded American who has ever lined up at a Seven-Eleven with high hopes and a fistful of dollars, winning large sums of money in the lottery does not seem to make people happy for very long (Brickman, Coates, & Janoff-Bulman, 1978; Kaplan, 1978).

The list goes on, and although we know of dozens of studies that surprise us with the fleeting nature of emotional reactions, we know of none showing that people experience more profound or enduring reactions than one may normally expect. Why do people believe that future events will have greater emotional impact than they actually do?

### MISIMAGINED EVENTS

One of the most powerful sources of impact bias is the simplest. *Misconstrual* is the tendency to misimagine important aspects of the event about which one is making predictions. For instance, many of us expect winning a lottery to lead to an enduring increase in happiness because we imagine it providing us with a stress-free existence filled with tropical vacations, fancy cars, gourmet meals, and late nights spent gleefully counting the digits in our bank statement. What we fail to imagine are the tax burdens, the harassment from demanding strangers, the estrangement from our social network, and the deterioration of family relationships, all of which are common among lottery winners (Kaplan, 1978). Many important events, such as marriage, the birth of a child, and terminal illness, are experienced just once or rarely, and we predictably mispredict how such novel events will unfold.

It is not very surprising that we make errors when predicting our reactions to events about which we know little, but it is surprising that we fail to appreciate how little we know. Griffin, Dunning, and Ross (1990) asked participants to predict what they would do in a variety of future situations—how much time they would be willing to spend answering questions in a telephone survey, how much money they would be willing to spend to celebrate the end of the term at a restaurant in San Francisco, and so on. Participants also reported how confident they were that each of these predictions was correct. Some participants made the predictions, and others were first asked to describe all the details of the future event they were imagining and then to assume that each of these details was accurate. In other words, some participants were asked to predict their reactions to a generic event whose details were unspecified (dinner at a restaurant), whereas others were asked to predict their reactions to a well-specified event (wine-braised short ribs with roasted root vegetable and parsley coulis at Jardiniere next Tuesday at six). The results showed that the two groups of participants were equally confident in their predictions. Having license to assume the accuracy of all the imagined details of the restaurant experience failed to increase participants' confidence in their predictions, because participants for whom the details were unspecified were *already* as confident as those for whom the details were specified (see also Dunning, Griffin, Milojkovic, & Ross, 1990; Griffin & Ross, 1991). It seems that when we imagine the future, we often do so in the blind spot of the mind's eye, and this tendency can cause us to overestimate our affective responses to the future events we are imagining.

### MISREMEMBERED EVENTS

If misconstrual were the sole source of impact bias, then the bias would instantly evaporate when we make forecasts about events that are the same as or similar to those we have experienced before. Alas, learning from experience requires many things, not the least of which is a relatively reliable memory of the experience itself, and research suggests that such memories can be woefully inaccurate. Kahneman, Fredrickson, Schreiber, and Redelmeier (1993) asked participants to submerge their hands in ice water while using an electronic rating scale to rate their moment-to-moment discomfort. Every participant performed both a short trial and a long trial. On the short trial, the participant submerged one hand for 60 seconds in a water bath that was kept at a chilly 14°C. On the long trial, the participant submerged the other hand for 90 seconds in a water bath that was kept at a chilly 14°C for

the first 60 seconds, and then surreptitiously warmed to a not-quite-as-chilly 15°C degrees over the course of the remaining 30 seconds. Clearly, the long trial should have been more painful than the short trial if by *more painful* we mean (as people normally do) *more total pain*. And indeed, the participants' moment-to-moment reports revealed that they experienced equal discomfort for the first 60 seconds on both trials, but much more discomfort in the next 30 seconds if they kept their hands in the water (as they did on the long trial) than if they removed them (as they did on the short trial). Yet, when later asked to remember their experience and say which trial was more uncomfortable, participants tended to say that the short trial was *more* uncomfortable than the long one. In fact, when asked which of the two trials they would rather repeat, 69% of the participants chose the long one (see also Ariely, 1998; Fredrickson, 2000; Fredrickson & Kahneman, 1993). Why would anyone prefer more pain to less? No one does, of course. The long trial had more total pain and thus seems an odd choice to those of us who are standing around with stopwatches. But emotional memory has no stopwatch and thus keeps poor time (Varey & Kahneman, 1992). The long trial was more painful than the short trial, but it had a better finish, and because memories of emotional experiences tend to be based largely on their closing moments, participants remembered the short trial as "the chilly one" and the long trial as "the not-quite-as-chilly one." It is little wonder that women often remember childbirth as a beautiful rather than an agonizing experience (Christensen-Szalanski, 1984) or that unhappy couples remember the early years of their marriages as more unpleasant than they actually were (Holmberg & Holmes, 1994).

After reviewing the literature on emotional memory, Christianson and Safer (1996, p. 235) reached a sobering conclusion: "There are apparently no published studies in which a group of subjects has accurately recalled the intensity and/or frequency of their previously recorded emotions" (see also Feldman-Barrett, 1997). The notoriously labile nature of remembered emotional experience means that we may not always recognize how wrong our forecasts were. Mitchell et al. (1997) asked people who were about to embark on a group bicycling trip through California to predict how they would feel during the trip, to report how they actually felt during the trip, and when the trip was over, to remember how they had felt while it was happening. Although cyclists expected to feel happy during the trip and remembered feeling so, both their predictions and memories were at odds with their experiential reports. Meyers, Wilson, and Gilbert (1999) found a similar result in their study of the 1996 U.S. presidential election. Democrats predicted and remembered experiencing great joy after Bill Clinton's victory,

but both their predictions and recollections overestimated the amount of joy they actually reported experiencing at the time. Meyers et al. (1999) found that students did not feel as happy as they expected to feel after performing well on a test, but remembered feeling happier than they actually did. As a result, these students mistakenly predicted that they would feel just as happy if they did well on a similar exam in the future. The bottom line is that memory for emotional experience is imperfect, and in some instances memory and anticipation are more like each other than either is like the experiences they are meant to represent. As such, prior experience with an event does not necessarily provide protection against the impact bias.

### UNIMAGINED EVENTS

Errors of imagination and memory are common and powerful, but they are not the only sources of impact bias. Indeed, we tend to overestimate the emotional impact of familiar future events even when we can correctly anticipate every aspect of the time, place, and manner in which the events will unfold. For instance, when Gilbert et al. (1998) asked participants to predict how they would feel a few minutes after receiving negative feedback about their personalities, the participants overestimated the impact of the feedback even though they had thoroughly scrutinized it before making their predictions. When Gilbert et al. (1998) asked participants to predict how they would feel a few minutes after being told that they were not chosen for an attractive job, participants overestimated the impact of receiving that news even though there was nothing particularly mysterious about how the word "No" would sound. When Wilson et al. (2000b) asked die-hard sports fans to predict how they would feel a few days after their favorite football team lost, the fans overestimated the impact of the loss even though they had experienced such losses regularly and often. Why do we overestimate the emotional impact of familiar events whose parameters we can perfectly foresee?

One answer may lie in the way affective forecasts are made. When we attempt to estimate the initial impact of a future event, we often do so by imagining how we would feel if the event were happening now ("It's dreadful to think of the Blue Whales losing the season opener and walking off the field in disgrace") and then correcting our imagined reaction for differences between the temporal locations of the prediction situation and the event (see Elster & Loewenstein, 1992; Loewenstein, Weber, Hsee, & Welch, 2001). This correction allows us



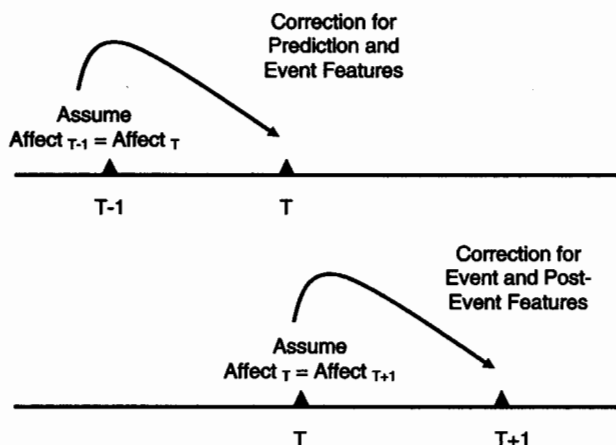
to take into account two important parameters. First, it allows us to "add in" the effects of *unique event features*, which are those factors that are likely to influence our feelings at the time of the event but that do not influence our feelings when we imagine the event happening now ("The fact that the opener is being played on my birthday should make me feel a bit better"). Second, it allows us to "subtract out" the effect of *unique prediction features*, which are those factors that are likely to influence our feelings when we imagine the event happening now but that are unlikely to influence our feelings at the time of the event ("I'm in a crummy mood right now because I just paid my taxes, but that will surely pass by September"). In short, correction allows us to consider the differences between now and later and then to adjust our forecasts accordingly.

But there is a problem with adding unique event features and subtracting unique prediction features only after we have first imagined the event happening in the present. When people solve problems by generating an initial solution and then correcting it to take into account additional parameters, their correction is typically insufficient and their final judgment too closely resembles their initial judgment (Gilbert, in press; Gilovich & Savitsky, 1999; Tversky & Kahneman, 1974). This is apparently what happened in a study by Gilbert, Gill, and Wilson (2002), in which participants were asked to predict how much they would enjoy eating a bite of spaghetti and meat sauce the next morning or the next evening. The results suggested that people made these predictions by first imagining how much they would enjoy eating the spaghetti in the present ("Yum!"), using this imagined reaction as an initial prediction of their future reaction, and then adjusting that initial prediction for unique event features ("But spaghetti in the morning would probably be kind of gross") and unique prediction features ("And I'm really hungry now, so just about everything sounds good"). Because participants considered these features only after making a preliminary forecast based on how much they thought they would enjoy eating a bite of spaghetti in the present, their final forecasts were overinfluenced by their current hunger (a unique prediction feature that should have been subtracted out) and underinfluenced by the time of day at which the spaghetti was actually to be eaten (a unique event feature that should have been added in). This was particularly true when participants made their forecasts under cognitive load, which is known to impair correction processes. In a related study, Ebert (2001) asked participants to value prizes ranging from television sets to concert tickets, and they naturally valued the prizes less when they expected to receive them in a month than when they expected to

receive them the next day (Laibson, Repetto, & Tobacman, 1998). But when participants made these valuations under cognitive load, they valued the prizes equally highly regardless of when they were to receive them. This result suggests that participants generated values for the prizes by first imagining how they would feel if they received the prizes in the present and then corrected these valuations for the event's actual location in time.

If we predict the intensity of our initial affective reactions to a future event by first introspecting on our affective experience as we think about the event happening now ("Sounds delicious") and then considering factors that distinguish the time of prediction from the time of the event ("But for breakfast? Yuck"), it seems reasonable to suspect that we may predict the duration of our emotional reactions in roughly the same manner. For instance, we may estimate how we will feel a day, or a week, or a month after an event by first imagining our initial reaction to the event, and only then considering *unique event features* (those factors that are likely to influence our feelings when the event happens but that are unlikely to influence our feelings some time later), and *unique postevent features* (those factors that are likely to influence our feelings some time after the event but that are unlikely to influence our feelings when the event happens). So, for example, if we wished to predict how we would feel a week after failing a driver's license test, we might first imagine how we would feel at the time we learned of the failure ("I'd be bummed!") and only then consider those features of the event that are unlikely to be influencing us later ("I won't be hanging around the driver's license bureau like the world's biggest loser, waiting for my mom to come give me a ride home") as well as those aspects of the postevent period that are unlikely to be influencing us at the time of the event ("I'll be surfing on Kaua'i instead"). Figure 5.1 illustrates how affective forecasts of initial intensity and duration may be made by correction.

People use temporal correction to predict the duration of their emotional reactions and hence are particularly unlikely to give unique event and postevent features the weight they are due—a tendency called *focalism* (Schkade & Kahneman, 1997; Wilson et al., 2000b). How we expect to feel 6 hours after our candidate wins the election or our parakeet dies of natural causes should depend on what we think will happen in those 6 hours. If we expect to be watching election returns with like-minded friends or poring over old photos of Tweetie on his favorite perch, our feelings at the postevent period will be quite different than if we expect to be waiting for an airplane or organizing our sock drawer. We may not be able to name each and every one of the things



**FIGURE 5.1.** Forecasts of intensity and duration made by temporal correction.

that will happen between the event and the postevent period for which we are predicting, but the fact that *something* will happen—and that the occurrence of that something will surely influence our emotional state—should at least cause us to moderate our predictions about the enduring impact of the event.

But it doesn't. Wilson et al. (2000b) asked college sports fans to predict how they would feel several days after their school lost a football game and found that fans overestimated the impact of the game. The results showed that they did this in part because they failed to consider the other events that would take place during the days following the game and thus tended to believe that the game would dominate their thoughts and control their emotions far more than it actually did. Interestingly, the impact bias was reduced when fans were made to focus on the postevent factors that they tended naturally to ignore. For example, fans who, just prior to making predictions, were asked to list the activities in which they expected to engage on the days following the game showed a greatly attenuated impact bias. The moral of this story is that emotions are not aroused by football games and then left to decay in a vacuum; rather, they are aroused by football games and then pushed, pulled, dampened, exacerbated, and otherwise altered by postgame pizza, late night parties, and next day hangovers. If we consider the impact of these occurrences only after considering how we will feel at the time of the event, then we are likely to overestimate the duration of our initial reactions.

## TRANSFORMED EVENTS

Psychologists from Freud to Festinger, have made much of the fact that people discount, augment, transform, suppress, and rearrange unpleasant information in an attempt to control its emotional consequences. "Rationalization," "dissonance reduction," "motivated reasoning," "positive illusions," "self-deception," "self-enhancement," "self-affirmation," "motivated construal," "ego defense," "self-justification," "self-esteem maintenance," "emotion-based coping," and "terror management" are just a few of the terms that psychologists have used to describe aspects of this tendency (Dunning, 1999; Festinger, 1957; Folkman, 1984; Freud, 1937; Greenwald, 1980; Kunda, 1990; Lyubomirsky, 2001; Pyszczynski, Greenberg, & Solomon, 1997; Steele, 1988; Taylor, 1989; Tesser, 2000; Vaillant, 1993). Although these theoretical constructs differ in important ways, all converge on the notion that people perform psychological work to prevent and abbreviate their experience of negative emotion. This work can take the form of diminishing the importance of negative events ("It's just a football game, after all"), finding meaning in them ("This defeat has taught me the value of loyalty to the home team"), or preventing oneself from thinking about them altogether ("So what's next?"). Most of us, it seems, have what may be thought of as a *psychological immune system*—a system of cognitive mechanisms that transforms our mental representation of negative events so that they give rise to more positive emotions. This system may be curative or prophylactic, truncating our experience of unhappiness or allowing us to avoid it entirely.

One of the most curious things about the psychological immune system is that we seem generally unaware of its influence on our hedonic states (Loewenstein & Adler, 1995; Snell et al., 1995; van Boven, Dunning, & Loewenstein, 2000). When we look forward to events that are sure to bring frustration, sadness, anger, and jealousy, we do not seem to realize that these emotions will not merely subside with the passage of time or be neutralized by subsequent experiences, but that they will be actively antagonized by a host of psychological processes specifically dedicated to their prevention and termination. Our failure to consider these processes can be a problem. For instance, Gilbert et al. (1998) asked participants to predict how they would feel a few minutes after receiving negative personality feedback from a team of seasoned clinicians or from an experimental computer program, and people expected to feel bad—and equally bad—in both cases. Participants who were actually given the negative feedback did not feel as bad as predicted, but more important, those who received the feedback from a clinician felt worse than those who received it from a computer. In another

study, Gilbert et al. (1998) asked participants to predict how they would feel a few minutes after reading a tragic story about a toddler who was killed when a playpen collapsed. In one story, the tragedy could easily be blamed on a babysitter who failed to check the safety latch and left the child alone, whereas in another story the babysitter had been appropriately careful and attentive. Participants expected to feel bad—and equally bad—after reading each of the two stories. The results showed that participants did not feel as bad as they predicted, but more importantly, that they felt worse after reading the story that featured a blameless babysitter.

What do these results mean? When people receive negative feedback from an unreliable source or learn about tragedies caused by errant caretakers, they find it relatively easy to explain the negative event in ways that make them feel better (e.g., "Computers can't provide accurate personality assessments, so why should I be upset?" or "The babysitter was careless and I'm not, so an accident like that could never happen to *my* child"). In both of the aforementioned studies, one version of the negative event was more easily defanged than another, and participants made good use of these defanging opportunities when they were available. But the important point is this: Participants who made use of these opportunities did not seem to recognize in prospect that they would do so. In a follow-up study (Gilbert & Ochsner, 2000), participants who received negative personality feedback and participants who were asked to imagine that they had received such feedback were left alone in a room and asked to speak into a tape recorder for 5 minutes. Coding of these tapes revealed that participants who were imagining reacting to negative feedback were more accepting and less defensive than their counterparts, which suggests that they were unable to simulate the operation of their psychological immune systems. In another study (Gilbert & Staliner, 2001), participants were asked to predict how accepting they would be (by rating their agreement with items such as "I don't think personality tests are valid"), or how accepting others would be, after receiving positive or negative personality feedback. Participants predicted that they would be about equally accepting in either case, but that others would be much more accepting of positive than negative feedback. Apparently, then, people recognize the existence of the psychological immune system as long as it is not their own (Epley & Dunning, 2000).

The tendency for forecasters to ignore the influence of their psychological immune systems—a tendency called *immune neglect*—may help explain why memory for negative experiences appears to be more accurate than memory for positive experiences. As mentioned earlier, Meyers et al. (1999) found that Democrats misremembered their emo-

tional reactions to Bill Clinton's victory in 1996. But Republicans did not. Similarly, Meyers et al. (1999) found that participants who did well on a test misremembered how they felt upon getting their scores. But participants who did badly did not. Why should this asymmetry have emerged? As it turns out, participants who received negative feedback on the test made themselves feel better by denigrating the validity of the test, and thus, when asked to predict their future reactions to failure on a similar test, they naturally concluded that doing poorly on an invalid test would not make them feel very bad at all. These studies suggest that experience with negative events can cause people to devalue those events, and that a by-product of this fact is that people's subsequent forecasts about the same events are technically more accurate. However, the extent to which people actually learn anything from these affective forecasting errors appears to be limited.

### Immune System Dynamics

When a ball rolls off a countertop, it falls. And because there are no forces actively working to hasten or slow its fall, the duration of its descent is a monotonic function of its initial distance from the floor. The higher the countertop from which the ball falls, the longer it takes to hit the floor—and it can *never* take longer for a ball to fall from a low countertop than from a high one. Similarly, if there were no psychological forces actively working to ameliorate negative affect, then its longevity would be a monotonic function of its initial intensity. The more intense the state, the longer it would take to decay, and the decay of a moderate state would never take longer than the decay of an intense one.

The only problem with this rule is that there *are* psychological forces working to ameliorate negative affect and these forces can cause the normally monotonic relation between the intensity and duration of our emotional reactions to become briefly nonmonotonic. The case of physical injury provides a useful analogy. We normally expect the severity of our injuries to determine how long it will take us to recover from them, but because injured people are more likely to take active steps to speed their recoveries when their injuries are particularly severe, there are instances in which they recover more quickly from severe injuries than from mild ones. Anyone who has suffered for years with a trick knee knows that minor dysfunctions often hurt longer than their more severe counterparts, because unlike a trick knee, a shattered patella or a torn ligament exceeds the critical threshold for medical attention and thereby hastens its own mending. The psychological processes that speed recovery from disappointments, insults, failures, and other hedo-

nic afflictions are not unlike the splints and elixirs that speed recovery from physical injury inasmuch as both occur only at critical levels of injury, and the paradoxical result is that we sometimes recover more quickly from truly distressing experiences than from slightly distressing ones (Aronson & Mills, 1958; Gerard & Mathewson, 1966; Zimbardo, 1966). A wife may do the cognitive work necessary to rationalize her husband's infidelity ("Men have to try this sort of thing once to get it out of their systems") but not his annoying habits ("Men often need to experiment with leaving their dirty dishes in the sink"), and the result is that the wife's anger about the husband's disorderliness may actually outlive her anger about his philandering.

Gilbert, Lieberman, and Wilson (2001) demonstrated this effect by arranging for participants to receive personality feedback from another person. Some participants believed they would later meet and interact with the other person, and other participants believed they would not. Forecasters, who were asked to predict how much they would like the other person a few minutes after receiving a negative personality assessment from him or her, predicted that they would dislike the person more if they were expecting to interact than if they were not. These forecasts made good sense. Most of us would probably expect to feel relatively unscathed by the harsh evaluation of an anonymous stranger who knows that he or she will never have to face us, which is approximately equivalent to hearing a few choice words from an angry fellow motorist. On the other hand, when someone who expects to meet us, chat with us, and work with us is willing to tell us beforehand that we are sorely lacking in the attractiveness, intelligence, and friendliness departments, we may reasonably expect to feel wounded. These forecasts are indeed reasonable, but they are also wrong. In fact, experiencers liked the disparaging person more—and not less—when they expected to interact with him or her. Why? Because the distress associated with being insulted by a potential interaction partner is severe enough to trigger the psychological immune system ("I bet he was just kidding with me and is going to make a joke about it when we meet"), whereas the distress associated with being insulted by an insignificant stranger is not. The psychological immune system is a complex system whose dynamics are sometimes difficult to predict. But the failure to predict them may lead forecasters to err.

### Choosing Unhappiness

Predictions are usually made with words. But affective forecasts are not just cheap talk, as people are more than willing to put their money where their mouths are. For example, Wilson, Wheatley, and Gilbert

(2000a) asked participants to play a simulated dating game in which they were led to believe that they were competing with another same-sex participant for the affections of an opposite-sex participant. As usual, forecasters predicted that if they lost the dating game, they would be unhappier than experiencers who lost actually were. But in another version of the study forecasters were asked, in addition to making verbal predictions, to decide ahead of time how much of a mood-enhancing drug they would like to take if it turned out that they lost the dating game. Experiencers were told that they had lost the game and, in addition to giving their verbal reports, were asked to select a drug dosage. The results showed that forecasters selected a significantly higher dosage of the drug than did experiencers. Apparently, forecasters really do expect to feel bad when they say they expect to feel bad, and experiencers really do feel fine when they say they feel fine.

Affective forecasts, then, can drive behavior, and when these forecasts are biased by immune neglect, they can lead us to make choices that do not maximize our happiness. For example, Gilbert and Ebert (2002) asked participants to evaluate nine fine art reproductions and then offered to give them one as a gift. Participants were offered a choice between the reproductions they had ranked third and fourth. Some participants (the changeable group) were told that they should, of course, choose the reproduction that they most wanted to keep, but that if they changed their minds any time in the next month, the experimenter would gladly swap the chosen for the unchosen reproduction. Other participants (the unchangeable group) were told that they should choose the reproduction they most wanted to keep and that this choice was final and irreversible. Some of the participants in each group (forecasters) made predictions about how much they would like the chosen reproduction 15 minutes later, whereas other participants (experiencers) waited for 15 minutes and then reported how much they liked the chosen reproduction. Finally, new participants (choosers) were given an introduction to the study and were then asked whether they would prefer to be in the changeable or unchangeable condition.

Consider first the reports of experiencers. Fifteen minutes after making their choices, experiencers in the unchangeable condition reported liking the chosen reproduction more than experiencers in the changeable condition did. Why should this have happened? As we previously saw, the psychological immune system is triggered on some occasions (e.g., when one is insulted by a potential interaction partner) and not on others (e.g., when one is insulted by a stranger). Research suggests that commitment or *unchangeability* is a powerful trigger for the psychological immune system (Frey, 1981; Frey, Kumpf, Irle, & Gniech,



1984; Girard, 1968; Jecker, 1964; cf. Lowe & Steiner, 1968). Our bodies defend against pathogens by attempting first to expel them by coughing, sneezing, tearing, or vomiting, and only when the invasion of the pathogen is irreversible is the physical immune system triggered. Similarly, the mind's first line of defense is to initiate actions that enable us to escape the negative outcomes that threaten our well-being, and it is only when such outcomes are irreversible that the psychological immune system is called on to transform our subjective experience. In short, we attempt to change what we prefer not to accept and then find ways to accept what we cannot change.

This suggests that experiencers should have been more likely to manufacture satisfaction with their gifts when they had no opportunity to swap them than when they did, and that is precisely what happened. Interestingly, however, forecasters did not foresee this effect. Indeed, forecasters—who presumably gave little thought to the sorts of things that might trigger their psychological immune systems—believed they would be just as happy with the chosen reproduction when they could swap it as when they could not. Moreover, choosers, who were introduced to the study and then given the opportunity to be in either the changeable or unchangeable condition, actually had a preference for the changeable condition. In other words, they preferred to be assigned to the condition of the study in which experiencers were the least satisfied. Clearly, the failure to appreciate the dynamics of the psychological immune system may not only impair one's affective forecasts, but may also impair the choices that one bases on them.

### **Misattributing Happiness**

Immune neglect can lead us to predict and choose badly. But it can also influence our deepest beliefs about the causes of the things that happen to us. Because people typically do not realize that they will generate satisfaction with undesirable outcomes, they are occasionally surprised by how well things turn out, and in such instances they may mistakenly credit their self-made fortunes to the intervention of an external agent. In a rather complicated study, Gilbert et al. (2000) asked female participants to perform a visual detection task on a computer and then asked each one to randomly pick one of four other women to be her partner in an upcoming "self-disclosure" game. The participants read four autobiographies, and then some were asked to state how much they would like each of the four partners (the committed group) while others made no such statement (the uncommitted group). The autobiographies were then placed in separate folders, and each participant randomly chose one. The experimenter used sleight of hand to ensure that

each participant chose a folder containing the autobiography of an unfavorable partner. The experimenter then falsely confessed that during the visual detection task, the participant had been subliminally primed in an attempt to cause him or her to pick the best partner (cf. Yzerbyt, Schadron, Leyens, & Rocher, 1994). Participants then reported how much they liked the partner they had chosen and how much they thought the subliminal prime had influenced that choice. As expected, uncommitted participants liked their partners more than did committed participants, presumably because it was easier to generate satisfaction with a partner whom they had not publicly denounced. More interestingly, uncommitted participants were also more likely to believe that their choices had been influenced by the subliminal prime. In other words, uncommitted participants were able to generate satisfaction with an unfavorable partner, but because they did not realize they had generated their own satisfaction, they credited the "lucky choice" to an external influence.

People who generate satisfaction with an unfavorable outcome are not only prone to believe that an external agent has influenced their outcomes, but they are also prone to believe that the agent had special insight into their wants and needs. For instance, participants in another study (Gilbert et al., 2000) were introduced to two SmartRadios—computer programs that ostensibly comb the airwaves and use personality information to choose music that their owners will enjoy hearing. Participants listened to a pleasant and an unpleasant musical selection, and some rated the two selections (committed group) whereas others did not (uncommitted groups). Participants then learned that one of the SmartRadios had deliberated long and hard and had concluded that they would like the unpleasant music, which they would therefore be forced to hear several times in a row. Next, participants were told that the entire procedure would be repeated and that this time they could decide which of the two SmartRadios would make their next musical selection for them. As expected, participants in the uncommitted group were more than twice as likely as participants in the committed group to stay with the SmartRadio that had previously subjected them to a cacophony of noise. Why? As described earlier, uncommitted participants found it easier than did committed participants to generate satisfaction with the unpleasant music that the first SmartRadio had chosen. But because they did not know they had generated this satisfaction, they mistakenly concluded that the first SmartRadio had keen insight into their musical tastes and thus "reelected" it to choose for them again. It is perhaps no coincidence that omnipotence (the ability to influence a person's outcomes) and omniscience (the ability to know what a person wants) are two of the attributes traditionally associated with deity. These

results demonstrate just one of the potentially important consequences of the failure to appreciate key aspects of our own psychology (Wilson, 1985).

## Explaining Happiness

Most organisms achieve pleasure by following a few simple rules (e.g., "If the last behavior increased pleasure, repeat it, and if not, don't"). People are unique among organisms in that they cognize the world and develop deep, rich, theoretical understandings of the causes of their pleasures and pain, presumably because doing so enables them to repeat their pleasurable *experiences* rather than merely repeating the *behaviors* that led to them and hoping for the best. Whether an event is positive ("I just got promoted!") or negative ("I just got demoted!"), pinpointing its antecedent conditions and developing a causal narrative that ties those antecedents to their consequents ("The boss must have seen my annual sales report and taken this action to send me a message") enables the person to predict and control the event's reoccurrence ("I better do more—or less—of the same next quarter").

One of the side effects of all this explanatory activity is that events that initially strike us as extraordinary and unusual are quickly transformed into events that seem more ordinary, explicable, normal, and perhaps even a little dull. An investor may be uncertain whether technology stocks will rise or fall in the coming quarter, and she may be delighted when the NASDAQ closes at a record high. But once this happens, she is likely to generate explanations for the outcome ("The hard winter caused people to stay indoors, thus pushing Internet sales up and traditional retail down"), and the plausibility of these explanations may lead her to believe that, to some extent, the outcome was inevitable (Fischhoff, 1975). Similarly, when people are given surprising feedback about their abilities, they spontaneously generate explanations for the feedback, thus rendering it so inevitable that they cannot stop believing it even when they are later told it was false (Ross, Lepper, & Hubbard, 1975). When experimental manipulations prevent people from generating explanations for such feedback, this tendency is eradicated or diminished (Anderson, Lepper, & Ross, 1980; Fleming & Arrowood, 1979). These and other phenomena suggest that when puzzling events occur, we quickly work to unpuzzle them, and that one consequence of this is that the events seem in retrospect more ordinary than they did in prospect.

One of the fundamental laws of emotion is that extraordinary events are more likely than ordinary events to evoke emotional responses (Berns, McClure, Pagnoni, & Montague, 2001; Frijda, 1988; Zajonc,

1998). The paradox is that although we are driven to explain the things that happen to us so that we can repeat our best experiences and avoid repeating our worst, the process of explaining experiences robs them of some of their hedonic power. This attenuation of hedonic power is welcome when the event is unpleasant. Tragedies, failures, and other mishaps becomes less painful when we make sense of them, which is why therapists generally believe that clients must understand the things that have happened to them if they are to overcome their distress (Wortman & Silver, 1989). But if the imperative to make sense of unusual events helps us recover from adversity, it may also cause us to recover from prosperity. What seems like an extraordinary success or an unexpected bit of luck quickly becomes inevitable and mundane as its antecedents are discovered and it is woven into a causal narrative, and that which initially filled us with joy quickly loses its capacity to do so.

Unfortunately, this fact is often lost on forecasters, who seem to know as little about the power of explanation to ameliorate good feelings as bad. Wilson, Centerbar, and Gilbert (2001) invited participants to chat over the internet with three other students of the opposite sex who were ostensibly at other universities (but who were actually bits of computer code). Each participant typed out answers to questions about his or her background and values and watched as the "other students" presumably did the same. Participants were then asked to select one of the other students as the person whom they would most like to have as a best friend and to write a paragraph explaining why they had made that choice. These paragraphs were presumably shared, and each participant was told that all three of the other students had selected him or her as a best friend. They were shown three flattering and distinctive paragraphs explaining these choices. In the revealed condition, participants were told which student wrote each explanation ("Paul was the one who said you were cute, Ringo was the one who said you were witty . . ."), whereas in the anonymous condition, participants received the same information but were not told which student wrote each explanation. Participants reported their emotional states just after reading the explanations and then again 15 minutes later. Finally, a new group of participants (forecasters) was asked to predict how they would feel in each condition, and another group of participants (choosers) was asked to decide whether they would like to be in the revealed or anonymous condition.

The results showed that participants in both the revealed and anonymous conditions were very happy immediately after receiving the feedback, but that participants in the anonymous condition stayed happy longer. Presumably, participants in the revealed condition were able to generate causal stories that explained why they had received

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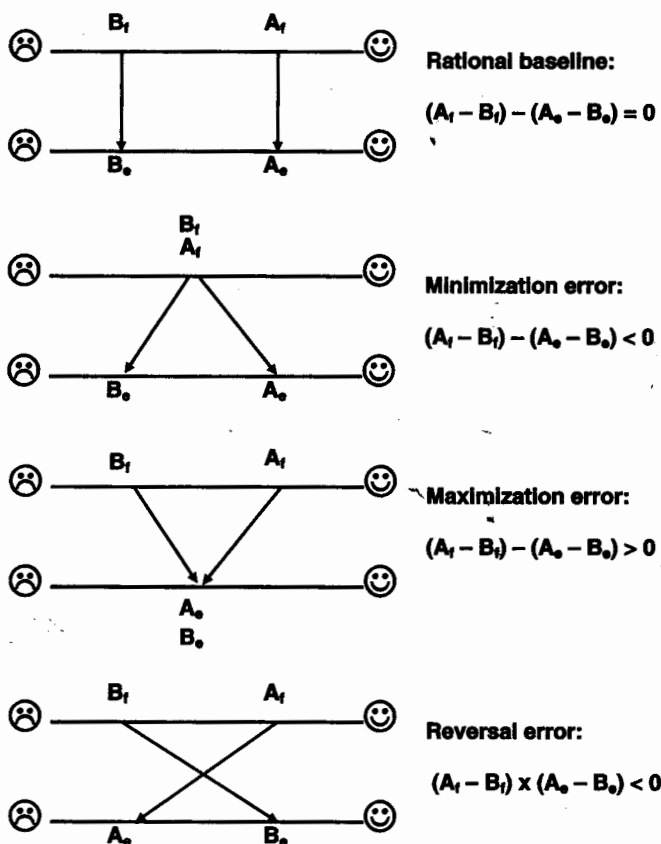
The results showed that participants in both the revealed and anonymous conditions were very happy immediately after receiving the feedback, but that participants in the anonymous condition stayed happy longer. Presumably, participants in the revealed condition were able to generate causal stories that explained why they had received

each piece of positive feedback ("Ringo was the guy from Liverpool who wanted to be a drummer, so it makes sense that he valued my artistic sensitivity"), and these stories made the other students' choices more explicable and inevitable, and thus less surprising and exciting. Participants in the anonymous condition presumably found it more difficult to generate such stories ("Was it George or Paul who thought I was cute?") and thus the titillating tingle of social success endured. Interestingly, forecasters predicted precisely the opposite pattern of results and expected to be happier in the revealed than the anonymous condition. Choosers naturally fell into line with forecasters: One hundred percent asked to be assigned to the revealed condition! Clearly, the causal explanations we generate for surprising events may have the unusual side effect of neutering those events, and for the most part, we do not realize this will happen. Our ignorance of this fundamental truth can cause us to mispredict our emotional reactions and to choose circumstances that do not maximize our happiness.

### Errors of Transformation

The research described thus far suggests that our failure to anticipate the extent to which psychological processes will transform our experience of events can lead us to make a variety of errors that may take many different forms. Figure 5.2 offers a taxonomic scheme that helps explain why such errors manifest as they do. Each panel shows two valenced dimensions on which a pair of outcomes, A and B, may or may not differ. The upper dimension represents a person's forecast of how much he or she will enjoy each of these outcomes at some particular time in the future ( $A_f$  and  $B_f$ ), and the lower dimension represents his or her experienced enjoyment of the two outcomes at that time ( $A_e$  and  $B_e$ ). The first panel illustrates the rational baseline case in which a forecaster's predictions about his or her liking of a relatively positive and relatively negative outcome are perfectly realized.

This rational baseline may be contrasted with the second panel, which illustrates a *minimization error*. This error occurs when forecasters underestimate the difference between the hedonic experiences that the two outcomes will produce. For example, participants in the study by Gilbert and Ebert (2002) decided which of two fine art reproductions they would take home and were or were not given the opportunity to change their minds later. Although participants predicted that they would be equally happy with their chosen reproduction under these two conditions ( $A_f = B_f$ ), they were actually happier when they were not given the opportunity to change their minds ( $A_e > B_e$ ). Similarly, participants in the study by Gilbert et al. (1998) underestimated the differ-



**FIGURE 5.2.** Forecasting errors produced by the failure to anticipate psychological transformations.

ence between the hedonic experiences of receiving negative feedback from a computer or a clinician, as well as the difference between the experiences of reading a tragic story in which a person could or could not be blamed for the tragedy. Each of these is an instance of minimization.

The third panel illustrates the *maximization error*, which occurs when forecasters overestimate the difference between the hedonic experiences of two outcomes. For example, in the studies of Gilbert et al. (1998), professors overestimated the difference between the hedonic experiences of getting and not getting tenure, students overestimated the difference between the hedonic experiences of maintaining or losing a romantic relationship, and voters overestimated the difference between the hedonic experiences of voting for the winning or losing can-

didate in an election. In each of these instances, forecasters considered one outcome superior to another ( $A_f > B_f$ ), and experiencers reported that the two outcomes were, in fact, the same ( $A_e = B_e$ ).

Finally, the fourth panel illustrates a *reversal error*. Minimization and maximization errors occur when forecasters mispredict the *magnitude* of the difference between the hedonic experiences of two outcomes, but reversal errors occurs when forecasters mispredict the *direction* of that difference—that is, when the apparently worse outcome ( $A_f > B_f$ ) leads to more satisfaction than the apparently better outcome ( $A_e < B_e$ ). For example, in the studies of Gilbert et al. (2001), participants predicted that they would dislike a person who insulted them more when they expected to have an interaction with that person than when they did not. But because the psychological immune system works harder to optimize one's feelings toward a partner than toward a stranger, participants' experiences of these two outcomes were precisely the opposite.

Why does impact bias take these three forms? Every outcome may be thought of as having two attributes: prepotency and transformability. *Prepotency* refers to the intrinsic hedonic properties of the outcome—in other words, it refers to the hedonic experience that the outcome would normally produce in the absence of any psychological transformation. Sucrose is more pleasurable than quinine to most mammalian palates, and just about everyone prefers orgasms to torture, profits to losses, and praise to castigation. Outcomes have immutable attributes that are experienced by virtually everyone as positive or negative, and those attributes determine the outcome's prepotency. *Transformability*, on the other hand, refers to the likelihood that a person will be motivated and able to transform the subjective experience of the outcome's objective attributes. Some outcomes (such as a receiving negative personality feedback from a computer) are easily transformed, whereas others (such as receiving the same feedback from a team of clinicians) are less so. Some outcomes (such as a being insulted by a partner) are especially likely to activate the processes that transform subjective experience, whereas others (such as being insulted by a stranger) are not. The net hedonic effect of any outcome is a joint function of these two parameters: the feelings an outcome normally produces (prepotency) and the success of the person's efforts to preclude, enhance, or alter those feelings (transformability).

With these parameters in mind, it is possible to predict the form that impact bias will take in a particular instance. Minimization errors are observed in those studies that vary the transformability of outcomes (e.g., the source of personality feedback) while holding constant their prepotency (e.g., the valence of the personality feedback). Because



forecasters tend to ignore transformability and emphasize prepotency when predicting their hedonic experience, they tend in such situations to underestimate the difference between the hedonic experiences that the two outcomes will produce. Conversely, maximization errors are observed in those studies that vary the prepotency of the outcomes (e.g., the valence of a tenure decision) while holding constant their transformability (e.g., the source of the tenure decision). Again, because forecasters tend to ignore transformability and base their forecasts instead on prepotency, they tend in these situations to overestimate the difference between the hedonic experiences that the outcomes will produce. Finally, reversal errors are observed in those studies that vary both the transformability and the prepotency of the outcomes. For example, a person's expectations of future interaction with another person can influence both the prepotency of an insult (i.e., a partner's insult may be more hurtful than a stranger's) and the transformability of that insult (i.e., people work harder to excuse the misdeeds of partners than those of strangers). Because expectations of future interaction increase both the prepotency and the transformability of an insult, forecasts and experiences are pulled in opposite directions, and reversal errors result. What this taxonomic scheme suggests, then, is that when people ignore transformability in favor of prepotency, they can make a variety of errors. Research shows that forecasting errors do, in fact, follow the patterns predicted by this simple conceptual scheme.

## CONCLUSION

As Mark Twain ostensibly observed, "The art of prophecy is very difficult, especially with regard to the future" (McDonald, 1991). Because the future is inscrutable, most of us blithely accept the fact that tomorrow will bring fortunes and misfortunes that are now beyond our ken. But if we *could* know what was to happen, most of us believe that we would have a damned good idea of how we would feel about it. Windfalls are better than pratfalls, A's are better than C's, December 25 is better than April 15, and everything is better than a Republican administration. Our uncertainty about how the future will be is rivaled only by our certainty about how it should be. Alas, as Count Vronsky learned the hard way, forecasting future feelings is every bit as dubious as predicting the events to which those feelings are responses. The research described in this chapter suggests that our ability to imagine the future, remember the past, and foresee the transformations that events will undergo as we interrogate and explain them, is limited, and hence our ability to predict our own emotional reactions to future events is limited as well.

Understanding when and why we will feel pride, love, jealousy, and rage is a key component of emotional intelligence (Mayer & Salovey, 1997), and it is only natural that research on failures of affective forecasting should cause us to wonder how our forecasting abilities may be improved. Research suggests that a variety of manipulations may serve to ameliorate the impact bias (Buehler & McFarland, 2001; Wilson et al., 2000b). The pressing question is not whether we can improve affective forecasting abilities, but whether we should *want to*. Research demonstrates that predictions of future emotions can be wrong and that these mispredictions can have untoward consequences, but it is entirely possible that when the errors we study in isolation are embedded in the complex web of ordinary events, they may serve some larger purpose of which we are unaware. Inferential errors are like weevils on crops—dangerous pests that any right-minded person should be eager to dispatch. But after the DDT has been generously applied, we may discover that frogs eat weevils, birds eat frogs, snakes eat birds, bears eat snakes, and that as a result of our rush to annihilate that which seemed so desperately in need of it, a once vibrant ecosystem is now devoid of life. In other words, important things that are not measured in experiments—such as our willingness to marry despite the responsibilities and constraints, to go to war despite the threat of injury and death, or to raise children despite the pooping and howling—may well depend on our *inability* to predict how we will feel in the future. Before we design programs to improve emotional intelligence by eradicating errors in affective forecasting, we had best be sure that what appears to be an inferential pest is not actually a vital piece of the psychological food chain.

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