

Research Article

The Peculiar Longevity of Things not so Bad

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ABSTRACT—Intense hedonic states trigger psychological processes that are designed to attenuate them, and thus intense states may abate more quickly than mild states. Because people are unaware of these psychological processes, they may mistakenly expect intense states to last longer than mild ones. In Study 1, participants predicted that the more they initially disliked a transgressor, the longer their dislike would last. In Study 2, participants predicted that their dislike for a transgressor who hurt them a lot would last longer than their dislike for a transgressor who hurt them a little, but precisely the opposite was the case. In Study 3, participants predicted that their dislike for a transgressor who hurt them a lot would last longer than their dislike for a transgressor who hurt someone else a lot, but precisely the opposite was the case. These errors of prediction are discussed as instances of a more general phenomenon known as the region- β paradox.

“She will be more hurt by it, for Robert always was her favourite. She will be more hurt by it, and on the same principle, will forgive him much sooner.”

—Jane Austen, *Sense and Sensibility* (1811/1996, p. 35)

In just under 3 million years, the human brain nearly tripled in size, in large part because of the dramatic growth of the frontal lobe and its prefrontal cortex. This structure endowed human beings with unprecedented cognitive capacities, none of which was more important than the ability to travel mentally forward in time and preview the future (Banyas, 1999; Melges, 1982; Wheeler, Stuss, & Tulving, 1997). The ability to peer deeply into their own tomorrows meant that people could discover the consequences of an event without actually having to experience it. Modern human beings can envision different futures, envision their hedonic impacts, and then act to bring about those futures they deem most desirable and avoid those they deem dangerous, unprofitable, or upsetting. Whereas other animals learn by making mistakes or by watching others make them, human beings use their

powers of affective forecasting to avoid mistakes that no one has ever made before.

Of course, even the most powerful adaptations have their limits, and research suggests that people often err when attempting to forecast their hedonic reactions to future events ranging from romantic breakups to serious illnesses (for reviews, see Frederick & Loewenstein, 1999; Gilbert, Driver-Linn, & Wilson, 2002; Loewenstein & Schkade, 1999; Wilson & Gilbert, in press). Moreover, people make these errors even when they accurately anticipate the time, place, and manner in which an event will unfold. How can they be right about what will happen but wrong about how much they will like it when it does? One explanation is that intense hedonic states trigger a variety of processes that are designed to attenuate them (Taylor, 1991; Wilson, Gilbert, & Centerbar, 2002), ranging from the homeostatic processes that diminish a state's physiological impact (Sandvik, Diener, & Larsen, 1985; Solomon, 1980) to the defensive processes that diminish a state's psychological impact (Freud, 1937; Gross, 1999; Lazarus & Alfert, 1964; Taylor, 1991; Taylor & Brown, 1988). People tend to underestimate the power of these attenuating processes (Kahneman & Snell, 1992; Lieberman, Ochsner, Gilbert, & Schacter, 2001; Snell, Gibbs, & Vary, 1995), and thus they tend to overestimate the duration of their hedonic states (Gilbert, Pinel, Wilson, Blumberg, & Wheatley, 1998). This oversight can have a variety of paradoxical consequences, one of which we explore in this article.

THE REGION- β PARADOX

When a spoon falls off a table, any first-year physics student can calculate how long it will take to hit the floor. Because no invisible processes inside the spoon are actively working to speed it up or slow it down, the duration of its descent depends entirely on its initial position. The higher the table from which the spoon falls, the longer it takes to hit the floor—and it can never take longer for a spoon to fall from a low table than from a high one. In other words, for objects that do not actively respond to their circumstances, the relation between time and distance is strictly monotonic. In contrast, for objects that do actively respond to their circumstances, the relation between time and distance can become briefly nonmonotonic. For instance, people tend to use faster modes of transportation to cover longer distances: An urban commuter may adopt the habit of walking to destinations within a mile of her origin and bicycling to more distant destinations. The paradoxical result of actively changing one's mode of travel when the journey exceeds a critical distance is that one will occasionally arrive at a distant destination more

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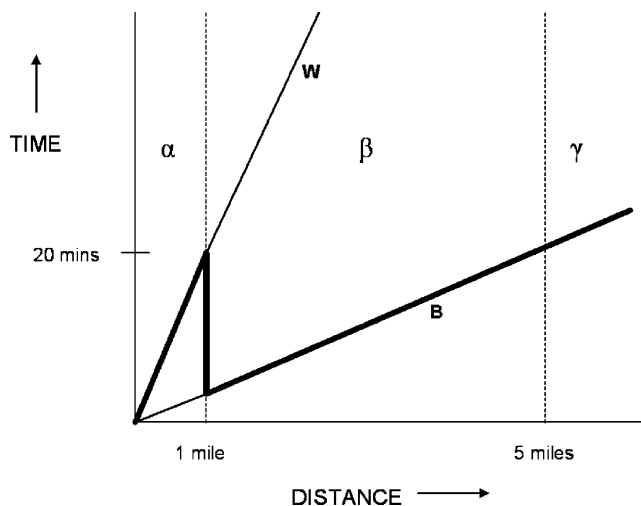


Fig. 1. The region- β paradox. This example shows the relation between time and distance for a person who walks at 3 miles per hour (line W), a person who bicycles at 15 miles per hour (line B), and a person who walks at 3 miles per hour to destinations that are less than a mile away and bicycles at 15 miles per hour to destinations that are more than a mile away (bold line). For the latter person, it takes less time to reach any point in region β than to reach the shorter distances in region α .

quickly than a near destination, briefly reversing the normal relation between time and distance.

Figure 1 illustrates this paradox. Notice that although time and distance are monotonically related within each of the three regions labeled α , β , and γ , they are nonmonotonically related across regions. That is, it always takes the commuter more time to go to a distant point than to a close point within a single region, but it takes less time to reach any point in region β than it does to reach the furthest point in region α . Anyone who has flown from New York to London more quickly than he or she could have driven from New York to Boston has experienced this *region- β paradox*.

This paradox applies not only to time and distance, but also to the intensity and duration of various states. For instance, one might expect the intensity of a physical injury to determine the duration of one's recovery. But just as travelers take active steps to speed their journeys when their destinations are especially distant, injured people take active steps to speed their recoveries when their injuries are especially severe. Injured people swallow medicines, consult physicians, solicit therapies, and undergo surgeries, but because each of these remedies has its costs, people are much more likely to seek them when they have a heart attack than when they have a hangnail. When people actively adapt their strategies for recovery to the severity of their injuries, they may paradoxically recover more quickly from severe injuries than from mild ones. A trick knee hurts longer than a shattered patella because the latter injury exceeds the critical threshold for pain and thereby triggers the very processes that attenuate it.

The psychological processes that attenuate distress can also have costs (Lazarus, 1985; Pennebaker, 1989; Richards & Gross, 2000; Wegner, Erber, & Zanakos, 1993), and thus they tend to be triggered only when distress passes a critical threshold. People rationalize divorces, demotions, and diseases, but not slow elevators and uninspired burgundies. The paradoxical consequence is that people may 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 costly cognitive work necessary to rationalize her husband's infidelity ("I guess men need to try this sort of thing once to get it out of their systems") but not his annoying habits ("I guess men need to experiment with leaving their dirty dishes in the sink"), and thus the wife's anger about her husband's disorderliness may outlive her anger about his philandering.

THE PRESENT RESEARCH

If people do not realize that the psychological processes that attenuate distress are triggered only when the severity of that distress passes a critical threshold, then they may mistakenly expect the longevity of distress to be a monotonic function of its initial intensity. In a sense, people may think of themselves as spoons. We sought to demonstrate that people do indeed expect intense distress to last longer than mild distress (Study 1), but that because of the region- β paradox, this expectation can be precisely wrong (Studies 2 and 3).

STUDY 1: PREDICTING DURATION FROM INTENSITY

Method

Fifty-seven male and 41 female students completed a questionnaire that asked them to imagine (a) that they asked someone for a date and were politely turned down, (b) that a person whom they had recently met failed to recognize them later, (c) that their roommate borrowed their boots without permission, (d) that their classmate failed to show up for a scheduled study session, (e) that an old friend of theirs joined a neo-Nazi group, (f) that they were denied use of a restaurant's restroom because they were not a customer, (g) that they caught someone trying to break into their gym locker, (h) that their best friend had a romantic encounter with their former girlfriend or boyfriend, and (i) that a careless driver dented their car in a parking lot and then sped away. Participants estimated the intensity of their initial reactions to the transgression by indicating how they thought they would feel about the transgressor "at the moment this happened," using a scale whose endpoints were labeled *dislike very much* (-4) and *like very much* (4). Participants estimated the duration of each reaction by indicating on the same scale how they thought they would feel about the transgressor "1 week later."¹

Results

Table 1 shows the mean intensity and duration estimates for each transgression. The correlation between intensity and duration estimates across participants was significant, $r = .88$, $p < .01$, and there was no evidence of a curvilinear relationship between these variables (i.e., adding the square of intensity to a regression equation resulted in a trivial and nonsignificant increase in the amount of variance explained). We also correlated each participant's intensity estimates with that participant's duration estimates, thereby producing a correlation for each participant. (One participant who made the same numerical

¹There are many ways to measure the predicted duration of any event (such as an affective reaction). One way is simply to ask people how long they expect the event to endure, but research suggests that people have considerable difficulty making estimates in temporal units (Zakay & Block, 1997). Another way is to ask people to predict whether the event will or will not still be occurring at some point in the future, which is what we did. This method is conservative inasmuch as it risks Type II errors (e.g., two events may have different predicted durations and yet may both have abated by the particular time about which the experimenter has inquired).

TABLE 1
Intensity and forecasted duration of disliking of transgressor in study 1

Transgression	Immediate disliking (intensity)	Disliking 1 week later (duration)
Rejected	1.07 (1.37)	0.14 (1.28)
Not recognized	1.10 (1.37)	0.35 (1.21)
Borrowed boots	1.78 (1.64)	0.62 (1.93)
Stood up	1.94 (1.26)	0.07 (1.29)
Neo-Nazi	2.05 (1.68)	1.88 (1.75)
Restroom	2.46 (1.51)	1.13 (1.72)
Gym locker	2.97 (1.42)	2.13 (1.69)
Romantic betrayal	3.22 (1.47)	2.24 (2.25)
Dented car	3.47 (1.10)	2.51 (1.81)

Note. Standard deviations are in parentheses. The original scale values were recoded so that larger values indicate greater disliking of the transgressor.

estimate for all nine duration questions was excluded because a correlation could not be computed.) The distribution of within-participants correlations had a strikingly negative skew (-1.34), with a mean of $.65$ ($SD = .30$) and a median of $.75$. In short, participants clearly expected their feelings at the time of the transgression to be a powerful predictor of their feelings a week later.

STUDY 2: PARTNERS AND NONPARTNERS

People expect that the more intense their hedonic reactions are, the longer those reactions will last. But if the psychological mechanisms that attenuate such reactions are triggered only at critical levels of intensity, then the region- β paradox suggests that there should be instances in which more intense reactions abate more quickly than mild reactions. In Study 2, participants were insulted by a person with whom they expected to interact (a prospective partner) or with whom they expected not to interact (a prospective nonpartner). Because people trust their interaction partners to make special efforts to be polite (Brown & Levinson, 1987; Fraser, 1990), they should feel worse when insulted by a partner than by a nonpartner and thus should expect to dislike an insulting partner more than an insulting nonpartner over time. Yet, just as a severe injury triggers the actions that will attenuate it, the intense distress caused by a partner's insult should trigger the psychological processes that attenuate it (Darley & Berscheid, 1967; Finkel, Rusbult, Kumashiro, & Hannon, 2002). Therefore, we predicted that (a) people would initially feel more distressed when insulted by a partner than by a nonpartner, (b) they would therefore expect that a few minutes after receiving the insult they would dislike a partner more than a nonpartner, but (c) because intense distress triggers the processes that attenuate it, people would actually dislike an insulting nonpartner more than an insulting partner a few minutes after receiving the insult. We tested the first of these predictions in Study 2a and the second and third predictions in Study 2b.

Study 2a

Method

Twenty-one female and 5 male students completed a baseline measure of their hedonic state ("How are you feeling right now?") by drawing a

slash at the appropriate locations on continuous 125-mm lines that corresponded to different emotions. Seven lines corresponded to specific emotions: excited, good, happy, hostile, insulted, proud, and upset. The endpoints of these lines were labeled with the phrases *not at all* and *extremely*. In addition, the endpoints of an eighth line were labeled with the phrases *extremely negative* and *extremely positive*.

Participants were then told that another participant (the rater) was already seated in an adjacent room, that they and the rater would each write an autobiographical story that the other would read, that on the basis of those stories they would assess each other's personalities, and that each would then learn how he or she had been assessed. Participants in the *partner* condition were told that they would ultimately meet the rater and discuss their experiences in the experiment, whereas participants in the *nonpartner* condition were told that they would never meet the rater. In fact, there was no rater.

After participants wrote their autobiographical stories, the experimenter gave them a handwritten story that had ostensibly been written by the rater and a written description of three personality types (adapted from Gilbert et al., 1998) that differed in their positivity. Participants indicated which of the personality types best described the rater and reported their confidence in that assessment on a 125-mm continuous line whose endpoints were labeled with the phrases *not at all* and *extremely*. Next, participants estimated the extent to which their assessment had been influenced by several factors (e.g., their current mood, the rater's handwriting) and estimated which of the personality profiles best described them.

Next, participants were given a handwritten sheet indicating that the rater had assessed them with relatively high confidence as the worst of the three personality types. After placing the sheet on the desk, the experimenter asked participants to complete the same scales they had completed at baseline.

Results²

We expected participants to feel more distressed when insulted by a partner than by a nonpartner. We averaged separately the eight measures taken at baseline ($\alpha = .82$) and the eight measures taken after participants received the insult ($\alpha = .81$) and then subtracted one average from the other to examine changes in the participants' hedonic states. As predicted, participants experienced a greater change in their hedonic state when insulted by a partner ($M = -28.8$) than by a nonpartner ($M = -13.5$), $t(24) = 2.075$, $p < .05$. In Study 2b, we examined how participants thought they would feel about the rater and actually felt about the rater 5 min after being insulted.

Study 2b

Method

Twelve male and 17 female students were randomly assigned to play the role of an *experiencer* or a *forecaster* who was insulted by a partner or a nonpartner.

The procedure for experiencers was identical to the procedure used in Study 2a with two exceptions. First, participants made no ratings of their hedonic states. Second, after receiving the insult, experiencers were left alone in their cubicles while the experimenter ostensibly went to make a

² Participants' assessments of themselves and the rater were entirely unremarkable and showed no interactions in this and the subsequent studies; thus, for the sake of brevity, we do not discuss these data.

TABLE 2
Liking of rater in Study 2b

Participant's role and statistic	Rater's role		Difference ^a
	Partner	Nonpartner	
Forecaster			
Mean liking	2.83	4.57	-1.74*
SD	1.17	1.51	
<i>n</i>	7	7	
Contrast weight	-1	1	
Experiencer			
Mean liking	4.57	3.33	1.24*
SD	0.78	1.30	
<i>n</i>	7	8	
Contrast weight	1	-1	

Note. Higher values indicate greater liking.

^aAn asterisk (*) indicates that the difference between cells is different from zero, $p < .05$.

photocopy. The experimenter returned 5 min later and asked experiencers to report how they felt about the rater on a scale whose endpoints were labeled with the words *negatively* (1) and *positively* (7).

The procedure for forecasters was identical to the procedure for experiencers with one exception. Instead of actually receiving an insult, forecasters were asked to estimate how they would feel about the rater 5 min after learning that the rater had assessed them with relatively high confidence as the worst of the three personality types. These ratings were made on a scale whose endpoints were labeled with the words *negatively* (1) and *positively* (7).³

Results

We expected that forecasters would predict that they would like a partner less than a nonpartner 5 min after being insulted, but that experiencers would report feeling precisely the opposite. A weighted contrast analysis (as recommended by Rosenthal & Rosnow, 1985) confirmed this prediction, $t(27) = 3.17, p < .005$. As Table 2 shows, the rater's role had opposite effects on forecasters' predictions and experiencers' reports. Although participants expected to dislike a partner more than a nonpartner 5 min after being insulted, they actually disliked the partner less than the nonpartner.

STUDY 3: VICTIMS AND BYSTANDERS

Participants experienced more intense distress when insulted by a partner than when insulted by a nonpartner (Study 2a), and yet, contrary to their own predictions, they ended up liking an insulting partner more than an insulting nonpartner (Study 2b). Presumably this happened because intense distress triggered the psychological processes that attenuated it. This reasoning makes a counterintuitive prediction. If victims of insults experience more intense distress than do bystanders, then the psychological processes that attenuate distress may be more likely to be triggered for victims than for bystanders. Therefore, after a few minutes, victims may actually like a person who insults them more

³To avoid creating suspicion, we then asked forecasters to predict how they would feel about the rater if the rater assessed them as the other two personality types.

than bystanders do! If victims are unaware of the psychological processes that will attenuate their distress, then they should expect precisely the opposite. Study 3 tested this prediction.

Method

Sixteen male and 42 female students were randomly assigned to play the roles of victim or bystander and of experiencer or forecaster.

Victims

Victims were randomly assigned to play the role of experiencer or forecaster. The procedure for victims was identical to the procedure used for experiencers and forecasters in the partner condition of Study 2b.

Bystanders

Bystanders were told (a) that the rater and the victim were reading each other's stories and would soon be assessing each other's personalities, (b) that the victim and the rater would later interact and that both of them knew this, and (c) that the bystanders themselves would later interact with the victim but not with the rater. Bystanders read the three personality profiles used in Study 2 and were then given the handwritten story written by the victim. Bystanders were also given a handwritten story that had ostensibly been written by the rater but that had actually been written by a participant in the partner condition of Study 2b. (A different story was randomly selected for each bystander.) Next, bystanders were shown the victim's assessment of the rater as well as the victim's self-assessment. Thus, bystanders had precisely the same information that victims had.

Each bystander in the *experiencer condition* was given a handwritten sheet indicating that the rater had assessed the victim with relatively high confidence as the worst of the three personality types. After placing the sheet on the desk, the experimenter explained that he needed to print a copy of the next questionnaire and left the bystander alone in the cubicle. The experimenter returned 5 min later and asked the bystander to report how he or she felt about the rater by marking a scale whose endpoints were labeled with the words *negatively* (1) and *positively* (7).

Bystanders in the *forecaster condition* were told that before they learned how the rater had assessed the victim, they should estimate how they would feel about the rater 5 min after learning that the rater had assessed the victim with relatively high confidence as the worst of the three personality types. Forecasters made this rating on a scale whose endpoints were labeled with the words *negatively* (1) and *positively* (7).

Results

We expected that forecasters would predict that they would dislike an insulting partner more when they were the victim of the insult than when they were a bystander to it, but that experiencers would report feeling precisely the opposite. A weighted contrast analysis confirmed this prediction, $t(56) = 3.24, p < .01$. As Table 3 shows, the participant's status had precisely opposite effects on forecasters' predictions and experiencers' reports. Although participants expected to dislike an insulting partner more when they were victims than when they were bystanders, they actually disliked the partner less when they were victims than when they were bystanders.

TABLE 3
Liking of rater in Study 3

Participant's role and statistic	Participant's status		Difference ^a
	Victim	Bystander	
Forecaster			
Mean liking	3.15	3.83	-0.68*
SD	0.88	1.27	
<i>n</i>	20	12	
Contrast weight	-1	1	
Experiencer			
Mean liking	4.33	3.36	0.97**
SD	1.05	0.92	
<i>n</i>	15	11	
Contrast weight	1	-1	

Note. Higher values indicate greater liking.

^aAsterisks indicates that the difference between cells is different from zero.

* $p < .10$.

** $p < .05$.

GENERAL DISCUSSION

When Ovid wrote two millennia ago that “small things affect small minds,” he was apparently unaware that when small things fail to trigger one’s defenses, they may attain a peculiar longevity that even great minds do not anticipate. Contrary to their own predictions, participants in our studies disliked least those who had hurt them most. This paradox arises because intense hedonic states are especially likely to trigger the psychological processes that attenuate them. Because people are unaware of these processes, they mistakenly expect more intense states to last longer than less intense states.

It is easy to imagine how such errors of prediction could become errors of action. An employee who is told that he must either relinquish a file cabinet or move to a smaller office may be correct in believing that the minor inconvenience of losing some furniture will be less distressing than the major inconvenience of moving to smaller quarters. What he may fail to realize, however, is that the major inconvenience may be so distressing that it will trigger the psychological processes that attenuate it (“Now that I’m downstairs, I realize how much I like being close to the coffee machine”), whereas the minor inconvenience may not be quite distressing enough to trigger such processes (“Now that I have to stack my files on the floor, I realize how much I hate my boss”). Therefore, the employee may choose the option that is initially the least distressing but that is ultimately the least satisfying. The present studies join others (e.g., Gilbert & Ebert, 2002) in suggesting that when people make decisions without regard for the psychological processes that different outcomes will trigger, they may do so at the expense of their ultimate satisfaction.

The region- β paradox provides a simple, unifying framework within which this and a host of otherwise disparate phenomena may be similarly understood. For instance, Trope and Fishbach (2002) have shown that people who are scheduled to undergo medical procedures are more concerned about “chickening out” when they expect the procedure to be extremely painful than when they expect it to be slightly painful. Therefore, they tend to use counteractive self-control strategies (e.g., making social commitments, agreeing to pay large cancellation fees)

only for extremely painful procedures. The ironic consequence is that people are ultimately more likely to chicken out of slightly painful than extremely painful procedures. This interesting phenomenon exemplifies the region- β paradox. Because self-control strategies are triggered by critical levels of anticipated pain, the normally monotonic relation between anticipated pain and the likelihood of chickening out is reversed, and a more painful procedure can actually induce greater compliance than a less painful one.

Many other phenomena take the same form and produce the same sort of paradoxical consequences. For instance, people may buy small rather than large amounts of forbidden foods because they believe that the amount they consume will be a monotonic function of the amount they keep in their kitchen cabinets. And yet, when one opens the cabinet, a full-sized Hershey[®] bar may trigger concerns about health and diet that a single Hershey’s Kiss[®] does not. The paradoxical consequence is that people may actually eat more chocolate when the kitchen cabinet contains one Kiss[®] than when it contains a full-sized bar—a violation of the normally monotonic relation between availability and consumption. Or consider the fact that drivers may avoid long trips because they believe that the odds of being involved in an accident are monotonically related to the time they spend on the road. If a trip to another state triggers the decision to wear a seat belt and a trip around the block does not, the paradoxical consequence is that people may be more likely to sustain injuries in automobile accidents when they are taking short rather than long trips. Similarly, partygoers may limit their alcohol consumption because they believe that their blood alcohol levels are monotonically related to the likelihood that they will cause an automobile accident on the way home. If becoming thoroughly inebriated triggers prophylactic interventions (“We hid your car keys and called you a cab”) and becoming slightly tipsy does not, the paradoxical consequence is that partygoers may be safer when they consume a pitcher of martinis than when they consume two glasses of Chardonnay. The ease with which examples such as these are generated highlights the ubiquity of the region- β paradox in everyday life, as well as the potential dangers of ignoring it.

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