

The Loss of Loss Aversion: Paying Attention to Reference Points

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We agree with Gal and Rucker (2018, in press) that loss aversion is not as firmly established as typically assumed. We affirm, however, the more general principle put forward within Prospect Theory (D. Kahneman & A. Tversky, 1979), which is that reference points increase people's sensitivity to objective changes in value. We show how the literatures on counterfactual thought, social comparison, and goal pursuit are consistent with the notion that reference points increase sensitivity to change in value, while not being consistent with loss aversion. We then examine, within the framework of Regulatory Focus theory (E. T. Higgins, 1997, 1998), how different reference points combine with characteristics of the actor and the situation to give rise to loss aversion (more sensitivity to negative outcomes than to positive outcomes) as well as to the reverse pattern (more sensitivity to positive outcomes than to negative outcomes). Our review suggests that the status quo, even when used as a reference point, is not necessarily neutral. It also suggests that anchor points other than the status quo may serve as reference points and that people may use more than one reference point simultaneously. More generally, we call for a critical examination of the "bad is stronger than good" principle.

Keywords Judgment; Decision making; Value; Reference points; Promotion and prevention

Prospect Theory (PT, Kahneman & Tversky, 1979; Tversky & Kahneman, 1992) brought to the foreground of psychology, decision theory and behavioral economics a fundamental question: what is the shape of the value function, the function that maps objective outcomes to subjective experiences? It offered an important insight—reference points make the value function steeper (i.e., increase subjective sensitivity to changes in objective value) in the vicinity of the reference point. It also offered a more specific claim about the effect of reference points, suggesting that the value function is always steeper below the reference point than above it. The latter claim is known as *loss aversion*.

In their target article, Gal and Rucker (2018, in press) provide a significant and extensive review of the evidence for loss aversion, where loss aversion "suggests that losses are experienced with greater psychological force than gains of similar magnitude." They conclude, based on the evidence, that loss aversion is not as firmly established as typically assumed. We agree. We do not believe that loss aversion is a universal principle. Indeed, we believe that major psychological theories would not

predict it to be, as we discuss later. Instead, we would like to affirm the more general principle put forward within PT, which is that reference points increase people's sensitivity to objective changes in value. We give examples of how different types of reference points do that without introducing loss aversion, and then examine, within the framework of Regulatory Focus (RF) theory (Higgins, 1997, 1998), how different reference points combine with characteristics of the actor and the situation to give rise to loss aversion (more sensitivity to negative outcomes than to positive outcomes) as well as to the reverse pattern (more sensitivity to positive outcomes than to negative outcomes). Before we do that, however, we need to address two critical questions: What is a reference point? And how does it change value?

Reference Points and Loss Aversion

What is a Reference Point?

A major contribution of PT was that anchors on the value function (i.e., reference points), rather than only the absolute amount of value, affect subjective valuation. Originally, Kahneman and

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Tversky (1979) suggested that the reference point of the value function is one's current state and that outcomes are defined as losses versus gains, that is, negative versus positive *changes*, with respect to that state (i.e., the status quo) (Kahneman & Tversky, 1979, p. 277):

An essential feature of the present theory is that the carriers of value are changes in wealth or welfare, rather than final states. This assumption is compatible with basic principles of perception and judgment. Our perceptual apparatus is attuned to the evaluation of changes or differences rather than to the evaluation of absolute magnitudes. When we respond to attributes such as brightness, loudness, or temperature, the past and present context of experience defines an adaptation level, or reference point, and stimuli are perceived in relation to this reference point.

Notably, when the reference point is the status quo, then any negative outcome (i.e., a change for the worse) is a loss and any positive outcome (i.e., a change for the better) is a gain. But some of the literature on loss aversion complicated the picture by introducing the possibility of other reference points (Kahneman, Knetsch, & Thaler, 1986, 1990, 1991; Kahneman & Tversky, 1984; Thaler, 1980; Tversky & Kahneman, 1986). The complication is, of course, that when the reference point is above the current state, above the status quo, one can move toward it from below and in this way experience a positive outcome (e.g., relief) the magnitude of which is measured against the steep loss part of the curve and therefore is experienced as intensely as a loss of a similar magnitude. In a similar way, if a reference point is below the current state, one can move toward it from above, and therefore experience a negative outcome (e.g., disappointment) that is measured against the positive, shallow part of curve and therefore is experienced as moderately as a gain of a similar magnitude. In this way, valence of outcomes becomes independent of whether they are experienced more or less intensely as a function of whether the change is occurring in the domain of losses versus the domain of gains.

Originally, non-status-quo reference points were introduced to explain why not getting a discount (a non-gain) does not feel as bad as paying a penalty (a loss) (Kahneman et al., 1986, 1990, 1991; Kahneman & Tversky, 1984; Thaler, 1980; Tversky & Kahneman, 1986). Liberman, Idson, and Higgins (2005), however, challenged the explanation of this finding in terms of loss aversion (see also Idson,

Liberman, & Higgins, 2000, 2004). They contended that by the same logic, the loss aversion principle should have predicted that getting a discount (a gain) should not feel as good as avoiding a penalty (a non-loss). However, a reverse pattern emerged in their studies. Idson et al. (2000, 2004) explained this pattern of results (whereby losses are more intense than non-gains, and gains are more intense than non-losses) in terms of RF theory (Higgins, 1997, 1998), which offers a comprehensive framework to understand outcome valuation (for a recent discussion, see Higgins & Cornwell, 2016). We discuss this theory in more detail later. For now, we would like to say simply that we agree that reference points do not necessarily reflect just the current state (although the current state is, in many situations, a salient reference point). We also embrace the necessary corollary of non-status-quo reference points, which is that the valence of an outcome (i.e., the question of whether it improves or worsens one's situation) can be independent of whether one ends up below the reference point or above it.

Thus, in contrast to PT, we do not think that it is necessary or helpful to define reference points as zero, nor do we think that they necessarily correspond to the current state. Indeed, as we discuss later, it is not at all clear that a status quo zero is actually zero in the sense of being neutral. Regulatory focus theory argues that this is not the case, as we discuss later. But beyond this point, reference points can come from different sources, and can be placed at different points on the value function. Moreover, a person can, and often does, consider *multiple* reference points in the same decision situation, even simultaneously. When looking for a job, for example, a person can have as reference points: (a) her current jobless state; (b) her state if she gets her dream job; (c) her state if she accepts the worst-case job; (d) her state if she gets the average job on the market; (e) her state if she gets a job similar to her best friend. All these are meaningful reference points in that they affect people's "subjective utility," namely, their satisfaction with the outcome, the intensity of the emotions they experience, their motivation to work toward achieving an outcome, and/or the resources they are willing to put to that end (for early discussions of different kinds standards or reference points that can be used in evaluation, see Higgins, Strauman, & Klein, 1986 and Kahneman & Miller, 1986). It should be noted in this regard, that negotiators are taught to consider *both* their ideal aspirational reference point and their reservation (or "walk away") reference point when assigning

value to offers (e.g., Thompson, 2001). The status quo is not the only reference point. In what follows, we discuss reference points from different sources in general, and then consider the perspective of RF theory on reference points in particular.

Current State (Status Quo) as a Reference Point

As noted earlier, Kahneman and Tversky (1979) justified the choice of status quo as the reference point by the psychophysical principle of adaptation level, according to which perception sensitizes around the current level of stimuli. Notably, however, psychophysics does *not* predict systematic differences in sensitivity for downward compared to upward changes in perceptual values. We agree with the original reasoning that reference points, just like perceptual levels of adaptation, increase sensitivity around them (above and below). We think, however, that all reference points do that, not only those around current states. Instead of adaptation level in perception, we would like to use as a metaphor the finding that sensitivity increases to stimuli that receive versus do not receive attention. For example, people better differentiate degrees of grayness when gray stimuli appear in an attended location than in an unattended location (Carrasco, 2011). Reference points are, by that metaphor, locations on the value axis that receive attention. Importantly, increased sensitivity does not imply loss aversion. We now briefly discuss additional reference points and suggest that they likewise increase sensitivity, and do not necessarily increase sensitivity more on the side below the reference point (loss) than the side above the reference point (gain).

Counterfactuals as Reference Points

Counterfactuals, that is, representations of what might have happened otherwise, matter (Byrne, 2007; Roesch, 1997). Studies suggest that when counterfactuals serve as reference points they intensify both positive and negative experiences (Kahneman & Miller, 1986). For example, a person who won a lottery would feel happier if s/he thinks that s/he almost lost (Medvec & Savitsky, 1997), and an Olympic medalist would feel happier if s/he can vividly imagine not winning a medal (a downward counterfactual, Gilovich & Medvec, 1995). Likewise, a person who has just missed a train would feel more miserable if s/he almost made it (an upward counterfactual, Kahneman & Miller, 1986). We are not aware of any literature showing that upward counterfactuals (negative thinking that “it could

have been better”) exert more influence than downward counterfactuals (positive thinking “it could have been worse”). Thus, counterfactuals introduce reference points and thereby increase sensitivity to value, but do not appear to induce loss aversion.

Social Comparisons as Reference Points

Social comparisons, that is, what other people have/obtain, matter (Festinger, 1954; Tesser, 2000). There is abundant evidence in the social-psychological literature that when social comparisons serve as reference points, they can intensify both positive and negative experience. Specifically, upward social comparisons (“someone else did better than me”) typically make one feel worse (Collins, 1996), whereas downward social comparisons (“someone else did worse than me”) typically make one feel better (Suls, Martin, & Wheeler, 2002). As with counterfactuals, social comparisons add subjective value, and thereby increase sensitivity of the value function in their vicinity. Yet, once again, there is no evidence that upward social comparisons (loss relative to others) influence value more than downward social comparison (gain relative to others; Wheeler, Martin, & Suls, 1997).

Social comparisons and counterfactuals have a similar effect, in that both add subjective value to any outcome above the reference point and detract value from any outcome below it, thereby introducing a point of discontinuity on the value function.

Arbitrary Anchors as Reference Points

People sometimes show enhanced sensitivity to value around salient yet functionally meaningless points (Allen, Dechow, Pope, & Wu, 2016; Dai, Milkman, & Riis, 2014, 2015; Pope & Simonsohn, 2011). For example, people increase donations closer to a mark of a round number (Pope & Simonsohn, 2011), and workers speed up before a break. Although these are not goals in the sense that action is not expected to terminate upon their achievement, they might function as sub-goals. We thus shift to discuss goals as reference points, and more generally to the question of the reference points that are used in goal pursuit.

Goals (End-States) as Reference Points

Some theorizing within the loss aversion tradition suggested considering goals as reference points (Heath, Larrick, & Wu, 1999; see also Larrick, Heath, & Wu, 2009). According to this view, the

region below a goal is measured against the steeper, loss region of the curve, whereas the region above it is measured against the shallower gain part of the value curve. For example, if one's goal is to do only 50 pushups, then the 50th pushup carries more subjective value than the 51st pushup (Heath et al., 1999).

As with other reference points, we contend that although goals necessarily add value, they do not necessarily give rise to a steeper value below them compared to above them. It is easy to think of counterexamples to Heath et al.'s (1999) suggestion. Consider for example an athlete trying to qualify for the Olympic games. Any result below a designated threshold means missing the prestigious competition, and it does not matter by how much one misses it. Any result above the threshold, on the other hand, not only gives the athlete a ticket to the Olympic games, but also determines her position in the delegation. Clearly, in this situation there is more sensitivity above the reference point than below it.

As this example demonstrates, loss aversion is not a necessary outcome of using goals as a reference point. In fact, it is possible to imagine many more ways by which end-states change the value function. Here are a few more examples. Note that only Examples 4 and 5 are consistent with loss aversion.

1. All-or-none goals. For example, imagine that you locked your valuables in a safe and forgot the code. It would not matter how close you are to the right code. As long as it is not right, your valuables will remain locked away. It also does not matter how many additional details you manage to remember beyond the code. Once you have the information needed to open the safe, additional information carries no value.
2. Discontinuity on the value function with increased sensitivity above the goal compared to below the goal. For example, reaching a threshold in sales gives a salesperson a bonus that is proportional to his sales such that the higher the sales the bigger the bonus; not reaching the threshold means no bonus no matter how far or close the sales were to the missed threshold.
3. Increased sensitivity above the goal compared to below the goal (with no discontinuity). As a book author, for example, the more you rise above each stated threshold for the number of books sold, the higher is the percentage that you receive of the book sales.
4. Discontinuity on the value function with decreased sensitivity above the goal compared to below the goal. For example, after meeting the admission criterion to college, any increase in SAT carries no additional benefits.
5. Decreased sensitivity above the goal compared to below the goal (with no discontinuity). For example, after reaching the goal of working out three times a week, adding more workout sessions carries little health benefits.

The process of goal pursuit often involves two salient points: its beginning and its (desired) end-state. Thus, an important question is whether and when people would use the starting point rather than, or in addition to, the end point as a reference. It has been suggested that in the initial stages of goal pursuit people tend to anchor at the starting point, but as they get close to the end point they start using it as a reference. Moreover, people seem to be more motivated using the starting point as a reference in the initial states of goal pursuit, and using the end-state in the final stages of goal pursuit (Touré-Tillery & Fishbach, 2012). This pattern gives rise to the "stuck in the middle" effect, whereby people feel more energized and motivated in the beginning of goal pursuit and toward the end of it compared to the middle (Bonezzi, Brendl, & De Angelis, 2011).

This brief review suggests once again that reference points sensitize actors to changes in value in their vicinity. In the target article, Gal and Rucker (2018, in press) suggest that loss aversion was often confounded in the literature with action versus inaction, and that results that have been interpreted as showing loss aversion in fact demonstrate that people tend to experience action as producing more change in subjective value than inaction with objectively similar outcomes. It is perhaps interesting to note in this respect that a possible reason for this is that action, more than inaction, tends to be represented with salient anchors of beginning and end.

Is it the case that, as would be predicted by the loss aversion principle, using the end-state as the reference point (where the current state is below the end-state) is on average more motivating than using the starting point as the reference point (where the current state is above the starting point)? We are not aware of any such findings in the literature. Theoretically, this should be the case only to the extent that the end point (and the focus on what remains to be done) is relatively more salient than the starting point (and the focus on what has been done so far). It is interesting in this regard

that some models of goal pursuit propose that a critical factor in evaluating the success of the goal pursuit (e.g., How am I doing?) is the extent to which *progress* has been made (Carver & Scheier, 1990), with progress relating the current state to the starting point as the reference point. As we have already noted, this emphasis on progress, on advancement, would entail an emphasis on gains rather than losses.

Notably, such an emphasis on progress, on advancement, is also not universal. To understand why this is, we need to consider now how goal pursuit, and value, vary as a function of the RF orientation of the goal pursuit—a promotion versus a prevention orientation. In so doing, we will also question whether a current status quo “0” is properly understood as being neutral, with positivity occurring above it and negativity occurring below it. As will be seen, RF theory argues that the status quo “0” is not neutral, and its value depends on another reference point with which it is contrasted.

Promotion and Prevention Differences in Reference Points and Value

Individuals who have strong promotion concerns with growth and advancement versus individuals who have strong prevention concerns with safety and security represent positive and negative states in very different ways. This is true whether those concerns are a chronic individual predisposition or are momentarily induced by a situation. Those with a strong promotion focus represent the status quo “0” as a negative state (a non-gain), and they want to advance beyond the status quo to a better “+1” state (a gain). In contrast, those with a strong prevention focus represent maintaining the status quo “0” as a positive state (a non-loss), and they want to stop falling below this state to a worse “-1” state (a loss). Individuals with promotion concerns and individuals with prevention concerns both have the status quo “0” as a reference point, but they contrast it with a different second reference point. For promotion-focused individuals, the status quo “0” reference point is contrasted with a better “+1” reference point. For prevention-focused individuals, the status quo “0” reference point is contrasted with a worse “-1” reference point. This difference in reference point contrasts is reflected in the different value for the status quo “0.” For promotion-focused individuals, the status quo “0” is a negative non-gain state as contrasted with the “+1” gain reference point. For prevention-focused individuals, the status quo “0” is

a positive non-loss state as contrasted with the “-1” loss reference point.

There are significant consequences of this promotion versus prevention distinction. First, successes and failures are experienced differently emotionally (Higgins, 2001). Success in promotion is experienced within the gain (advancement)-related cheerfulness cluster of emotions (e.g., happy, joy), whereas success in prevention is experienced within the non-loss (safety)-related quiescence cluster (e.g., calm, relaxed). Failure in promotion is experienced within the non-gain (of advancement)-related dejection cluster of emotions (e.g., sad, discouraged), whereas failure in prevention is experienced within the loss (of safety)-related agitation cluster (e.g., tense, worried). Second, the different concerns of promotion and prevention result in different preferred strategies of goal pursuit (Higgins, 1997, 1998). When goals involve promotion focus concerns with advancement and aspirations, the preferred means for goal pursuit are *eager* strategies. In contrast, when goals involve prevention focus concerns with safety and obligations, the preferred means for goal pursuit are *vigilant* strategies.

In sum, RF theory posits two distinct motivational systems of goal pursuit that have very different representations and evaluations of the status quo “0,” as well as very different strategic preferences and emotional reactions to success and failure. Moreover, in contrast to those models that assume that value is determined by the status quo “0” as the reference point, RF theory proposes that both promotion and prevention foci involve a second reference point in addition to the status quo “0,” and it is the second reference point that determines the value of the current state, including the status quo “0.” For prevention there is the status quo “0” in relation to the reference point “-1,” and for promotion there is the status quo “0” in relation to the reference point “+1.” In addition, given the theoretical assumptions underlying RF theory, there is no reason to assume that how much different options are valued would operate identically under different psychological conditions (including what exactly the different options are). In fact, they do not, as we will see. Let us now consider how this plays out in the two classic domains related to loss aversion: what happens in a state of loss and what happens in a state of gain.

Motivation in the Domain of Losses

Early work testing RF theory found that promotion-focused individuals tend to be more willing to

take risks than prevention-focused individuals (e.g., Crowe & Higgins, 1997). However, there is no theoretical reason for this always to be the case. Rather, this tends to happen because risky tactics are often valued by promotion-focused individuals because they operate *in the service of* moving beyond the status quo to a better state, whereas conservative tactics are often valued by prevention-focused individuals because they operate *in the service of* maintaining a satisfactory status quo against a worse state. But what happens when individuals find themselves *below* the status quo rather than *at* the status quo when they are making their decision? The status quo is still a reference point but the current condition is below that reference point.

This was the question that Scholer, Zou, Fujita, Stroessner, and Higgins (2010) investigated. They hypothesized that the conservative tactics typically preferred by prevention-focused individuals were in the service of maintaining a satisfactory status quo ("0") rather than being inherent to the prevention focus per se. Therefore, if prevention-focused individuals found themselves in a condition *below* the status quo and *only* the riskier option gave them the possibility of *restoring* that status quo, then these prevention-focused individuals would now value or prefer the *riskier* option. What matters to prevention-focused individuals is to maintain the status quo ("0"), a non-loss, against a worse state ("-1"). Status quo "0" and "-1" are the reference points—non-loss and loss, respectively. Thus, when they are in a state of satisfactory "0," they will adopt *conservative* tactics to maintain it, but when they are in a state of "-1," they will adopt *risky* tactics if that is necessary to restore "0." If prevention-focused individuals need to choose the more risky option to return to the status quo "0," then they are willing to pay that price; it is worth the price because it is the only way to restore the status quo "0."

In contrast, what matters to promotion-focused individuals is to advance from "0" to "+1." Status quo "0" and "+1" are the reference points—non-gain and gain, respectively. If all that an option can do is move from "-1" to "0," they are not interested because, motivationally, both the status quo ("0") and states below the status quo ("-1") represent failures to exceed the status quo and attain ("+1"). That is, both "-1" and "0" are negative non-gains for promotion-focused individuals in contrast with the "+1" gain. Note that the promotion focus pattern of sensitivities (i.e., being more motivated by the prospect of moving from 0 to +1 than by moving from -1 to 0) is opposite to what would

be predicted by the principle of loss aversion. It is only the prevention pattern that is consistent with the loss aversion principle.

To test these hypotheses, Scholer et al. (2010) began by giving participants \$5 for doing an initial task (which actually measured their promotion focus strength and their prevention focus strength), and told them that they had the option to participate in a second part of the study. In this second part, they could invest their earned \$5 to play the odds of potential gains or losses. Specifically, they were told they could potentially increase their original \$5, or lose it completely, or potentially end up owing money if they lost more than \$5. Those who elected to participate in the second portion of the study were given a choice of stocks in which to invest their \$5. Following the investment, participants watched the progress of their selected stock. Participants were then told that their initial stock pick was down a total of \$9, placing them squarely beneath the status quo.

Now that they were in a loss condition, the participants were given the option to invest in a second stock, choosing between a conservative option (75% chance of winning \$7; 25% chance of losing \$10) or a risky option (25% chance of winning \$20; 75% chance of losing \$4). Importantly, the risky choice had the potential to return the participants to their original status quo, whereas the conservative option did not. As expected, those with a stronger prevention focus were significantly more likely to choose the risky than the conservative option in this condition of loss. Also as expected, promotion-focused individuals showed no distinct preference for either the conservative or risky choices. In sum, it was more important for participants in a prevention focus than for participants in a promotion focus to move back to the beginning status quo reference point when placed below it. They were willing to pay the price of choosing the risky option to move back to this reference point. This difference between promotion and prevention focus was due to a difference in the value of moving back to the status quo reference point. It was not due to a difference in risk perception because there was no difference between promotion and prevention focus in perceived risk.

Subsequent studies showed that the preference for the risky option among prevention-focused individuals was only true in the domain of losses. They had no preference for the risky option when their initial investment led to a gain rather than a loss. Other studies also showed that this preference for risk was due entirely to its being the only option to

move back to the status quo reference point because, when a conservative option was offered that could also restore the status quo, prevention-focused individuals preferred that conservative option. That is, when the conservative option could move prevention-focused individuals back to the status quo reference point, the price of choosing the more risky option was no longer worth it, causing a switch in preference.

Another study by Scholer et al. (2010, Study 4) examined the evaluative experience of prevention-focused individuals when they choose the risky option and it is the only option that will move them back to the status quo reference point. This study found that the choice of the risky option for prevention-focused individuals was not due to their disliking the conservative option more. Nor was it due to their liking the risky option more. It was due to their *disliking* the risky option *less*. This is consistent with prevention-focused individuals perceiving that choosing the risky option has a price, which they dislike, but feeling that, despite this price, it is worth choosing the risky option when it is the only way to move back to the status quo reference point.

Motivation in the Domain of Gains

What happens when individuals find themselves above the status quo, in the domain of gains? Zou, Scholer, and Higgins (2014) reasoned that those who have a strong promotion focus do not simply have a preference for risky over conservative tactics, but that, analogous to the prevention focus, these tactics are in the service of advancing beyond the status quo “0” to a clearly better state “+1.” For promotion-focused individuals, the reference point is “+1” in contrast to the status quo reference point. As noted above, promotion-focused individuals are primarily motivated to move from the status quo (“0”) to a better state (“+1”), and tend to view the possibility of falling below the status quo as not really mattering given that “0” and “-1” are both non-gains. That is, promotion-focused individuals perceive that choosing the risky option has a price, but they feel that it is worth that price if it is the only way to move from the status quo “0” reference point to a clearly better “+1” reference point. But once sufficient progress has been made that they perceive having attained the “+1” reference, they no longer feel that it is worth the price of choosing the risky option. Thus, they will now switch their preference and shift to the more conservative tactic, whose price is lower.

In contrast to promotion-focused individuals, for prevention-focused people the difference between the status quo “0” and the better state “+1” does not really matter because they are *both* non-losses. They simply want to maintain the satisfactory “0”. Making progress or advancing is not relevant to them. Unlike promotion-focused individuals, whether or not the progress is enough to be perceived as a definite “+1” gain should not affect their preferences.

Zou et al. (2014) tested these predictions with a paradigm similar to that used by Scholer et al. (2010), except that this time decisions were made in the domain of gains rather than losses (and with British pounds rather than American dollars). After their initial stock investment, participants were told that they either had no change, a small gain (£4), or a large gain (£20). Following this report, participants were given the opportunity to make either a conservative (100% chance of staying in the same place) or risky (50% chance of gaining £5; 50% chance of losing £5) choice. As predicted, those with a strong promotion focus were more likely to choose the risky option rather than the conservative option in the “small gain” condition than the “large gain” condition. In contrast, as expected, whether the gain was small or large did not affect the preferences of participants with a strong prevention focus. This difference between promotion and prevention focus was due to a difference in the value of making definite progress toward the better “+1” reference point. Once again, it was not due to a difference in risk perception because there was no difference between promotion and prevention focus in perceived risk. For promotion-focused individuals, but not prevention-focused individuals, it was worth paying the price of choosing the risky option if that was still necessary to attain the “+1” reference point because the prior gain was too small, but it was not worth paying the price if the prior gain was large enough to attain the better “+1” reference point.

Subsequent studies replicated this effect of the amount of prior gain on the subsequent choice of those with a strong promotion focus in the domain of gains. These studies also showed that this effect depended on the prior gain being subjectively experienced as being quite large. It took a subjectively experienced “large” prior gain to cause a person in a promotion focus to switch from choosing the risky option to choosing the conservative option. Without such a subjectively experienced “large” prior gain, promotion-focused individuals are still willing to pay the price of choosing the risky option

to reach the better “+1” reference. But with a subjectively experienced “large” prior gain, the price of choosing the risky option is no longer worth it and promotion-focused individuals switch to choosing the conservative option.

This motivational mechanism was confirmed in subsequent studies by Zou et al. (2014) who found that the tactic of switching from risky to conservative among promotion-focused individuals was mediated by their perception of progress. When perceived progress was high, the motivation to continue adopting a risky tactic dropped significantly. In contrast, as expected, perceived progress did not affect the preferences of prevention-focused individuals.

In sum, in the domain of losses and in the domain of gains, RF impacts the value of different options in a manner that is not captured by the principle of loss aversion. In the domain of losses, those with a strong prevention focus prefer the risky option if that is what is needed to move back to the status quo reference point (Scholer et al., 2010), but they will switch and prefer the conservative option if that also allows moving back to the status quo reference point without paying the price of choosing the risky option. For individuals with a prevention focus, value is about maintaining or restoring a satisfactory, safe, status quo “0” reference point against a “-1” reference point. In the domain of gains, those with a strong promotion focus prefer the risky option if that is necessary to make real progress in reaching the better “+1” reference point, but they will switch and prefer the conservative option instead when they perceive that real progress in reaching the better “+1” reference point has already been made (Zou et al., 2014). For individuals with a promotion focus, value is about advancing from the status quo “0” reference point to a better “+1” reference point.

This pattern of value preferences and distinct pairs of reference points are not captured by the notion of some universal loss aversion. Indeed, regarding the preferences of either prevention-focused individuals or promotion-focused individuals, loss aversion per se does not generally apply (i.e., is silent). Whether prevention-focused individuals or promotion-focused individuals prefer the more risky option or the more conservative option depends on their current condition (above or below the status quo “0”) combined with how the two options satisfy their motivational concerns (to restore the status quo or make progress). And, quite clearly, for promotion-focused individuals, the extent to which gains are perceived as making real

progress is “experienced with greater psychological force” than the extent to which losses entail a failure to maintain the status quo “0.” For a promotion focus, it is about gains versus non-gains rather than non-losses and losses.

Concluding Comments

We agree with PT (e.g., Kahneman & Tversky, 1979) that reference points are important in that they enhance people’s sensitivity to objective change in value. We also agree with Gal and Rucker (2018, in press) that sensitivity should not necessarily be higher below a reference point than above it, as implied by the principle of loss aversion. Social-psychological literature on counterfactual reasoning, social comparison, and goal pursuit suggests that at different times people may use many kinds of reference points, sometimes even simultaneously. We think that it is psychologically impossible that people would regulate themselves with respect to a single, increasing, decelerating, smooth (i.e., differentiable) value function that stretches from absolute zero to infinity. Rather, chronically accessible and situationally-induced reference points cause this function to rupture, bend, flex and stretch at different points in different times.

Research conducted within the framework of RF theory (e.g., Higgins, 1997) shows that a prevention focus on losses and non-losses sensitizes people to values below the status quo (where the status quo is a positive non-loss), and they are willing to pay the price of choosing a risky option to move back to the status quo. In contrast, they are not willing to pay extra to advance above the status quo if they are at it. It is quite different for a promotion focus on gains and non-gains. A promotion focus sensitizes people to values above the status quo (where the status quo is a negative non-gain), and they are willing to pay the price of choosing a risky option to make clear progress beyond the status quo to a better state. In contrast, they are not willing to pay extra to simply move back to the status quo when they are below it. Thus, loss aversion characterizes better (but, even then, not fully) people in a prevention focus who are trying to restore the status quo when they are below it, but it does not characterize people in a promotion focus.

Notably, the principle of loss aversion is one of a family of theories that suggest stronger impact for negative than for positive outcomes as a universal principle. The target article by Gal and Rucker (2018,

in press) calls, perhaps, for a critical evaluation of such theories. We think that such a critical evaluation would call into question other assertions that negatives loom larger than positives, including the generality of the “bad is stronger than good” assertion (Baumeister, Bratslavsky, Finkenauer, & Vohs, 2001). What we have emphasized in this paper is that reference points make a critical contribution to psychological impact, both above and below, and multiple reference points can function simultaneously. Rather than asserting a universal difference between negative versus positive outcomes in their psychological impact, we need to know more about how self-regulation in relation to reference points works. There is much left to learn. It our hope that Gal and Rucker’s article will inspire such learning.

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