

# On the Psychology of Loss Aversion: Possession, Valence, and Reversals of the Endowment Effect

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Loss aversion states that “losses loom larger than gains.” We consider two types of loss aversion defined by two interpretations of loss. A loss can be defined (1) in terms of valence or (2) in terms of possession. Correspondingly, valence loss aversion (VLA) entails greater sensitivity to negative (vs. positive) changes, and possession loss aversion (PLA) entails greater sensitivity to items leaving (vs. entering) one’s possession. Both types of loss aversion imply an endowment effect for attractive items, but PLA implies a reversal of the endowment effect for unattractive items. Experimental results show endowment effect reversals consistent with PLA.

Loss aversion is perhaps the most successful and widely used explanatory construct in behavioral decision research. Initially formalized as a component of prospect theory, an analysis of decision making under risk (Kahneman and Tversky 1979; Tversky and Kahneman 1992), loss aversion is popularly summarized by the phrase “losses loom larger than gains.” In its initial incarnation in prospect theory, loss aversion was invoked to explain the common reluctance to accept gambles offering equal chances to receive or lose a given amount of money; the more extreme negative subjective value of the potential loss was seen to outweigh the positive subjective value of the potential gain.

Loss aversion has also been used to explain how and why riskless choices may depend on a consumer’s initial position. In one demonstration, Knetsch (1989) gave either a mug or a chocolate bar to experimental participants and allowed them to either keep the item they possessed or trade it for

the other item. A null hypothesis positing no effect of initial positions on choice (and implying a focus on consumption end states only) predicts that half the participants would choose to trade their item. However, only 10% of participants chose to trade, indicating a sizable tendency to stay with the currently possessed item.

This tendency to place a larger value on an item when it is in one’s possession was called the “endowment effect” by Thaler (1980) and Kahneman, Knetsch, and Thaler (1990). In a related analysis, Samuelson and Zeckhauser (1988) introduced the term “status quo bias” after documenting a tendency toward the retention of the status quo in decision making.

The reluctance to trade seen in the endowment effect and status quo bias can be explained in terms of the differential sensitivity to losses and gains predicted by loss aversion. Applied to riskless choice, loss aversion predicts that people are more sensitive to losses than to corresponding gains relative to their current reference point (Novemsky and Kahneman 2005a; Tversky and Kahneman 1991). Returning to the Knetsch (1989) mug-chocolate example, from the reference point of mug holders, a trade consists of two simultaneous changes: the loss of the mug and the gain of the chocolate. From the reference point of chocolate holders, a trade consists of the loss of the chocolate and the gain of a mug. If, in the evaluation of the two changes involved in these transactions, losses are accentuated relative to corresponding gains, then the result of a simultaneous gain and loss will be (on average) a net negative; the loss of the possessed item will tend to outweigh the gain of the alternative item.

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As a result, people will be reluctant to trade; they will tend to prefer their current holding to the alternative item.

## TWO TYPES OF LOSS AVERSION

In this article, we explore the psychological underpinnings of loss aversion and the corresponding implications for the endowment effect by considering two distinct interpretations of the terms “loss” and “gain.” First, and arguably most commonly, losses and gains can be defined on the basis of their desirability or “valence.” An undesirable change can be termed a “valence loss,” and a desirable change a “valence gain.” According to this interpretation, a valence loss is defined as any negative development: paying a fine for speeding, having one’s house consumed by fire, and catching a bad cold—all can be seen as negative developments and referred to as valence losses.

Second, losses and gains can also be defined on the basis of changes in possession. According to this interpretation, giving up a possession—regardless of its attractiveness—constitutes a “possession loss,” and the receipt of an item constitutes a “possession gain.” One can, of course, lose a desired possession (such as money or a house), but according to this definition, one can also lose or part with something undesirable (such as a debt, an illness, or a painful memory). When an item, regardless of its attractiveness, leaves one’s possession, this is defined as a possession loss, and when an item enters one’s possession, this is defined as a possession gain. Table 1 illustrates how a given change can be coded both in terms of valence gains or losses and in terms of possession gains or losses and gives examples of all four combinations.

These two distinct definitions of losses and gains (in terms of valence or possession) suggest two distinct types of loss aversion, in which the loss is evaluated more extremely than the corresponding gain. According to valence loss aversion (VLA), valence losses are accentuated relative to corresponding valence gains: negative changes loom larger than positive changes. We suspect that this is the typical interpretation of traditional loss aversion for most researchers. In describing the prospect theory value function, Tversky and Kahneman (1991, 1039) note that “the function is steeper in the negative than in the positive domain,” referring to valence but not possession changes. More generally, the reference point for the value function need not involve possession.

According to possession loss aversion (PLA), in contrast, possession losses are accentuated relative to corresponding possession gains; PLA states that transitions of items out of one’s possession are exaggerated relative to transitions into one’s possession: departures loom larger than arrivals. Crucially, PLA implies that possession losses are exaggerated regardless of their valence. If a possession loss is a positive change (as when a negative possession is disposed of), then PLA predicts an accentuation of that positive change. In sum, whereas VLA proposes a greater weight on negative developments, PLA proposes a greater weight on items leaving one’s possession.

TABLE 1

EXAMPLES OF VALENCE GAINS/LOSSES  
AND POSSESSION GAINS/LOSSES

	Possession gain (receiving an item)	Possession loss (giving up an item)
Valence gain (positive change)	Receiving an attractive item (e.g., winning \$100)	Giving up an unattractive item (e.g., giving up a speeding ticket)
Valence loss (negative change)	Receiving an unattractive item (e.g., receiving a speeding ticket)	Giving up an attractive item (e.g., losing \$100)

We will elaborate in detail on the differential predictions of VLA and PLA below, but we briefly note here how the two processes suggest different reactions to parting with a negative possession. Because such a change is positive (i.e., a valence gain), VLA implies no accentuation in the evaluation of this change. In contrast, because it involves parting with a possession (i.e., a possession loss), PLA does imply exaggeration in the evaluation of this change and suggests that it will be evaluated as especially positive. Thus, PLA predicts an exaggerated pleasure when parting with a negative possession, whereas VLA does not. This idea forms the foundation for the later prediction that PLA implies a tendency to switch between unattractive items; the pleasure of the unattractive item you give up will tend to outweigh the pain of the unattractive item you receive. In contrast, VLA implies a tendency to avoid such switches and stay with the current possession (i.e., an endowment effect), because the pain of the negative development (receiving the new unattractive item) will tend to outweigh the pleasure of the positive development (giving up the current unattractive item).

Before going further, we should note some potential confusion based on the term “aversion.” For our intended interpretation of PLA, aversion may be misleading, and the terms “possession loss sensitivity” or “possession loss exaggeration” may convey the nature of the proposed asymmetry more clearly. The idea of PLA is not that people are more averse to possession losses; rather, they exaggerate possession losses, regardless of their valence. Under PLA, a positive-valence-possession loss is exaggerated when giving up a bad; this encourages switching from the status quo. Intuitively, greater sensitivity to possession losses implies an exaggerated “relief” in getting rid of bads that one possesses (relative to the discomfort of receiving a new bad). For parallelism with previous uses of the term “loss aversion,” we will continue to use the terms “valence loss aversion” (VLA) and “possession loss aversion” (PLA). However, some readers may find it preferable or helpful to interpret “aversion” as “sensitivity” or “exaggeration” throughout.

## PAST WORK CONSISTENT WITH VLA AND PLA

We present VLA and PLA as “psychophysical” properties, describing potential asymmetries in evaluations across opposite valences and opposite possession changes. There are, however, plausible intuitions for both properties, as well as past work consistent with each. We briefly discuss past work consistent with valence-based or possession-based interpretations of loss aversion and also distinguish these concepts from related ideas. The general discussion provides additional analysis of the relation between the two proposed types of loss aversion and other findings in the behavioral decision literature.

Consistent with a valence-based interpretation of loss aversion (VLA), numerous findings suggest asymmetries between the use of negative and positive information, with negatives receiving greater weight or attention in various judgments and evaluations (e.g., Ahluwalia 2002; Fiske 1980; Peeters and Czapinski 1990; Taylor 1991). Indeed, greater weight placed on the negative aspects of a transaction could provide one natural basis for a greater sensitivity to negative changes than to positive changes, as expressed by VLA.

Possession loss aversion, in contrast, implies an exaggerated hedonic reaction to losing one’s possessions, both good ones and bad ones. One possible motivation for PLA is suggested by Carmon and Ariely’s (2000) notion of a focus on the forgone. Carmon and Ariely proposed an attentional asymmetry in which consumers tend to focus on what is to be forgone in an exchange, and they studied the differential implications of this process for the setting of buying and selling prices. Given their different perspectives, buyers and sellers will focus on different aspects of the potential transaction. Buyers will focus on what they forgo in the exchange (money) and will therefore be sensitive to money-related aspects of the transaction (such as a reference price for the item). Sellers will focus on what they will forgo in the exchange (the item for sale) and will be sensitive to features relevant to the enjoyment or consumption of that item. Carmon and Ariely found supporting evidence for focusing on the forgone in the sensitivity of buying and selling prices to these different transaction factors. In the specific context of their studies (setting buying and selling prices for National Collegiate Athletic Association basketball tickets), selling prices were closely correlated with evaluations of the basketball game (e.g., the importance of the game, the subject’s level of fandom), while buying prices were closely correlated with evaluations of the expenditure (e.g., the ticket’s list price, the subject’s attitudes toward money).

Given that what may be forgone is typically (although not always) something currently in one’s possession, a focus on the forgone coheres well with a possession-based interpretation of loss aversion (PLA). However, we should stress that PLA and a focus on the forgone as introduced by Carmon and Ariely (2000) are not identical concepts. While the concepts overlap, a focus on the forgone is neither necessary nor sufficient for the exaggeration of possession losses de-

scribed by PLA; (a) greater focus does not necessarily imply hedonic exaggeration of possession losses, and (b) hedonic exaggeration of possession losses does not necessarily imply greater focus on those losses.

First, note that focus does not necessarily imply exaggeration. While it seems plausible that greater focus on an item may often intensify or exaggerate one’s hedonic evaluation of that item, this is by no means necessary. Greater focus on an item could quite possibly lead to a weakened hedonic evaluation, as when greater scrutiny of a potential purchase reveals subtle flaws. Carmon and Ariely’s (2000) empirical work investigated focus in terms of the covariation between buying and selling prices and aspects of what is forgone—money in the case of buyers and a basketball ticket in the case of sellers. Their work did not address whether focus implies an overall hedonic exaggeration of the focused-on item. For example, when setting buying prices, focusing on the money to be forgone implies sensitivity to expenditure-related factors; it does not necessarily imply an across-the-board stronger or more intense hedonic reaction to money. Similarly, when setting selling prices, focusing on the ticket to be forgone implies sensitivity to ticket-related factors; it does not necessarily imply an across-the-board stronger hedonic reaction to the ticket. In this light, PLA is somewhat more specific than a focus on the forgone; PLA proposes a consistent asymmetry between the strength of hedonic evaluations of possession losses and possession gains, whereas a focus on the forgone requires no such asymmetry.

Second, hedonic exaggeration of what is given up (as described by PLA) does not necessarily imply a greater attentional focus on that item; hedonic exaggeration of possession losses can occur without an asymmetry of focus or attention. For instance, possession losses may simply be more “deeply felt” than possession gains, despite equal attention to both the gain and the loss. Indeed, the typical graphic display of loss aversion in terms of the prospect theory value function depicts a fundamentally psychophysical property (which may be contributed to by potential attentional, cognitive, and motivational sources). In the case of evaluating a gamble with equal chances to win or lose \$X, the typical interpretation of loss aversion stresses the hedonic reactions to the possible outcomes; there is equal attention paid to both the gain and the loss, but the potential loss appears to “hurt more,” and hence the overall gamble is seen as unattractive. This observation is simply meant to illustrate that asymmetries between the evaluations of gains and losses can exist despite equal attention or focus. In this light, PLA describes a more general property than Carmon and Ariely’s (2000) focus on the forgone; PLA can potentially be driven by hedonic, emotional, and motivational factors, as well as attentional ones. We offer PLA as a general psychophysical asymmetry, just as loss aversion was initially introduced.

Finally, in addition to addressing overlapping yet distinct concepts (hedonic exaggeration of possession losses vs. an attentional focus on the forgone), our empirical focus differs substantially from Carmon and Ariely’s (2000). While they examined the implications of focusing on the forgone for

buying and selling prices, we focus on the divergent implications of PLA and VLA on choices to either stay with or switch from a possessed item. Furthermore, we consider a broader class of possessions; we test the different implications of possession-based versus valence-based hedonic asymmetries for both positive and negative possessions. In Carmon and Ariely's studies involving attractive items, a focus on the forgone is confounded with a focus on the negative aspect of the transaction (i.e., possession losses are valence losses). Crucially, it is the case of negative possessions in which possession losses and valence losses (and therefore PLA and VLA) can be empirically distinguished.

### EMPIRICAL PREDICTIONS OF VLA AND PLA

We now consider in detail the different empirical predictions of VLA and PLA for choice. As will be seen, VLA implies a consistent tendency to stay with an endowed item for both positive and negative items. This is a generalized notion of the endowment effect, in which the endowment has traditionally been something attractive. In contrast, PLA predicts a sharp reversal between choices involving positive and negative items, a tendency to stay with the endowed item when choosing between goods, and a tendency to switch from the endowed item when choosing between bads. Consequently, PLA can accommodate broader patterns of behavior than VLA: both the tendency to stay with a desirable possession (despite passing up an alternative desirable option) and a tendency to flee a negative possession (despite switching into an alternative negative option).

First consider the case of desirable possessions ("goods"). Acquiring a good is both a possession gain (because the item comes into one's possession) and also a valence gain (because the change is desirable). Parting with a good is both a possession loss (because the item leaves one's possession) and a valence loss (because the change is undesirable). Because changes involving goods positively confound possession gains and losses with valence gains and losses, endowment effects for goods may reflect either VLA or PLA or a combination of the two.

When we consider changes involving bads (such as an unpleasant medical symptom, a debt, or pollution), VLA and PLA make opposite predictions and, consequently, can be empirically disentangled. Consider the choice either to keep a currently possessed bad or to switch to an alternative bad. According to VLA, the negative impact of receiving the new bad is exaggerated relative to the positive impact of giving up the possessed bad. Essentially, when choosing between two bads, VLA suggests that people tend to stay with the possessed item to avoid the (exaggerated) unpleasant prospect of the new unattractive item they could receive.

In contrast, PLA predicts that the positive impact of giving up a bad is accentuated relative to the negative impact of receiving a bad. According to PLA, the possession loss (giving up the possessed bad, a positive change) is exaggerated relative to the possession gain (receiving the new bad, a

negative change). Consequently, the exaggerated "relief" of giving up the possessed bad will tend to outweigh the negative change of receiving the new bad. Therefore, PLA predicts a reversal of the endowment effect, or a tendency to switch away from a possessed bad to a new bad.

In summary, we distinguish between valence-based and possession-based interpretations of gains and losses and propose two distinct versions of loss aversion—"negative changes loom larger than positive changes" (VLA) and "departures loom larger than arrivals" (PLA)—based on this distinction. These versions of loss aversion, VLA and PLA, both imply endowment effects for choices between goods. For choices between bads, VLA pushes for staying with the possessed option, whereas PLA pushes for switching away from the possessed option. Given that both processes may operate, the existence of PLA is indicated by a reduction of the endowment effect (i.e., a greater tendency to switch) in the case of bads, compared with the case of goods.

If PLA is stronger than VLA, then an overall aggregate tendency to switch is expected for bads. In this case PLA encourages switching more strongly than VLA encourages staying. In this way, the concept of PLA is consistent with the familiar endowment effect for attractive items and also provides a prediction for the commonly shared intuition that people may express an eagerness to switch from their current state, as when pining for the greener (or at least less brown) grass of the neighbor's lawn.

### STUDY 1: JOB CHOICES

In this study, we contrast the overall tendency to stay or trade in choices among goods versus choices among bads. If only VLA operates, a similar tendency to stay with the endowed item should be observed for both goods and bads. The existence of PLA predicts that the tendency to stay with an endowed item should shrink, or even reverse, when choosing between bads rather than goods. If only PLA operates, the tendency to stay with possessed goods should be mirrored by a comparably sized tendency to switch away from possessed bads.

#### Method

Participants were 121 undergraduates at the University of Chicago completing a survey in exchange for \$1. The decision problem involved choosing between hypothetical jobs; one group ( $n = 61$ ) chose between two jobs differing on positive dimensions, and a second group ( $n = 60$ ) chose between two jobs differing on negative dimensions. The default option was also manipulated within each type of problem. One version of the job choice involving positive dimensions read as follows:

Problem 1P [Vacation default]: Imagine that you have recently graduated and you have a job that pays \$600 per week and offers you 20 paid vacation days per year.

You can switch to another job in a different office of the

same company, and the new job is the same as your current job, except for one distinct advantage and one distinct drawback:

- The advantage is that the new job pays **\$630 per week (\$30 more per week)**.
- The drawback is that the new job offers you **only 10 vacation days per year**.

The salary default version was similar, except that the default option was the higher paying job with fewer vacation days, and the alternative job offered more vacation days but paid less per week. In both conditions, participants chose either to stay in their current job or to switch to the other job; regardless of the default option, both choices involved the same possible end states and, thus, the exact same trade-off between salary and vacation days.

The job choice involving negative dimensions required choosing between either a longer commute or working on weekends; the condition where working weekends was the negative possession read as follows:

Problem 1N [Work Weekend default]: Imagine that you have recently graduated and that your job requires working on weekends twice a month.

You can switch to another job in a different office of the same company, and the new job is the same as your current job (same pay and duties), except for one distinct advantage and one distinct drawback:

- The advantage is that the new job **does not involve working on weekends**.
- The drawback is that the new job requires a **longer commute** from your home.

Note that in both the positive and negative cases, the choice of whether to stay or switch explicitly introduces both a positive change (valence gain) and a negative change (valence loss) for switching. The prediction based on PLA is that the transition out of one's possession is exaggerated. In the case of the positively framed jobs, the negative aspects of giving up vacation days (or salary) will be exaggerated and, hence, encourage a tendency to stay with the original job. In the case of the negatively framed jobs, the positive aspects of giving up weekend work (or the long commute) will be exaggerated and, hence, encourage a tendency to switch.

## Results and Discussion

For each pair of choice problems, we assess the overall tendency to stay or switch in terms of the sum of the "stay" choice shares (STAYSUM) across the two possible defaults:  $STAYSUM > 100\%$  indicates an aggregate tendency to stay with the current possession (an endowment effect);  $STAYSUM < 100\%$  indicates an aggregate tendency to switch away from the current possession. The degree to which STAYSUM differs from 100% reflects the magnitude of the tendency to stay or switch.

For the positive problems, there was a tendency to stay with the default option, as predicted by both VLA and PLA.

Among participants endowed with the better-paying job, 66.7% stayed; among participants endowed with the more-vacation job, 71.0% stayed. Together, these choice shares yield  $STAYSUM = 137.6\%$ , which is significantly greater than 100% ( $z = 3.17, p < .01$ ), indicating an aggregate preference to stay with the possessed option.

In contrast to the positive problems, for the negative problems there was a tendency to switch away from the possessed option. Among participants possessing the long-commute job, only 30.0% stayed, and among participants possessing the work-weekends job, 30.0% also stayed. The overall result for these unattractive options ( $STAYSUM = 60.0\%$ ) is an aggregate tendency to switch ( $z = 3.38, p < .01$ ). The directional shift from a substantial endowment effect to a substantial tendency to switch ( $z = 4.64, p < .001$ ) implicates the presence of PLA. Whatever is given up—whether it is positive or negative—appears to loom larger to the decision maker. Given the similar sizes of the two effects (37.6% tendency to stay for the positive problems, 40% tendency to switch for the negative problems), PLA alone appears to be sufficient to explain the pattern of choices, with no need to invoke VLA.

This qualitative pattern of results for these choice problems was replicated in a separate sample of  $n = 184$  undergraduates at the University of Florida. In this sample, an overall tendency to stay with attractive options ( $STAYSUM = 115.6\%$ ) shifts to a comparably sized tendency to switch ( $STAYSUM = 87.0\%$ ) for the unattractive options ( $z = 2.09, p < .05$ ). These results can again be explained in terms of PLA only, with essentially no VLA.

## STUDY 2: NEUTRAL AND ENDOWED CHOICES

The choices in study 1 involved a default or endowed option, and by comparing the two different endowed states we calculated an aggregate measure of the degree of staying or switching. This approach essentially aggregates the degree of loss aversion (composed of some combination of PLA and VLA) across two different possessed states. Greater sensitivity to losses (of either the PLA or VLA variety) can be seen most directly by comparing a neutral case—where there is no possession—to the case in which there is a default or possessed item. Indeed, this approach is what allows direct comparison of a possession gain and a possession loss of the same item, while holding constant the possession status of the alternative item. In a neutral choice (where nothing is currently possessed), the consumer weighs the relative values of a possession gain of X against a possession gain of Y. When endowed with X, however, the consumer weighs the relative values of a possession loss of X against a possession gain of Y. Consistent with the earlier results, if PLA is stronger than VLA, then the choice share of a negative option should be lower when it is possessed than in the neutral case in which there is no currently possessed option.

Furthermore, comparing the neutral choice case to the

two conditions where there is a possessed item allows for two distinct tests of the degree of PLA, one for each item. In other words, one can compare the possession loss of X to the possession gain of X and also compare the possession loss of Y to the possession gain of Y. Qualitatively speaking, the tendency to select X should be highest when Y is the default, intermediate in the neutral choice case, and lowest when X is the default. Such a pattern would indicate consistent directions of PLA (encouraging switching) for each of the two alternatives. Hence, this design allows for a stronger test for the consistency of the magnitude of PLA across a set of choice alternatives.

## Method

Participants were 635 undergraduates at the University of Florida who chose between two unattractive penalties for speeding: either a \$100 fine or traffic school. As in study 1, the two conditions involved being assigned an initial penalty (either fine or traffic school). A third condition was neutral, in that the choice was made with no initially possessed penalty:

Imagine that while driving home one day, you are caught going 45 miles per hour in a 30 miles per hour zone and given a speeding ticket. You are given a choice of two possible penalties:

- **Traffic School:** you will attend three 4-hour sessions of traffic school.
- **\$100 Fine:** you will pay a fine of \$100.

The order of the two penalties was counterbalanced.

Possession loss aversion suggests that in addition to an overall tendency to switch when endowed with a penalty initially, choice shares in the neutral condition (in which there is no default) should fall in between the choice shares from the other two conditions. Since the neutral condition involves no possession losses, whereas the other conditions do, the tendency to switch engendered by PLA should be observed in individual comparisons to the neutral condition.

## Results

The results are consistent with the predictions of PLA—or, more precisely, that PLA is stronger than VLA. In the neutral condition, 40.2% chose the fine. In the fine-default condition, only 30.1% chose (i.e., stayed with) the fine ( $z = 2.0$ ,  $p < .05$ ), indicating that giving up the fine was more attractive than receiving the fine was unpleasant. This comparison indicates that PLA is stronger than VLA when evaluated solely in terms of receiving or losing the fine. Similarly, traffic school was more popular in the neutral condition (59.8%) than in the traffic-school-default condition (46.8%,  $z = 2.9$ ,  $p < .05$ ). This comparison indicates that PLA is stronger than VLA when evaluated solely in terms of receiving or losing the traffic school penalty.

Aggregating across the two conditions with a default option, there is an overall tendency to switch (STAYSUM = 76.9%), similar to the results in study 1. In summary, the data

again suggest consistent PLA; furthermore, with the inclusion of the neutral case, PLA can be diagnosed at the level of the individual item.

## GENERAL DISCUSSION

We have proposed a distinction between two types of loss aversion (or loss exaggeration): one focusing on valence asymmetries (VLA), and one focusing on possession asymmetries (PLA). Earlier treatments of loss aversion have conflated these two interpretations and typically have been based on the intuition of an asymmetry between positive and negative valences. Indeed, there are numerous findings showing thematically similar asymmetries of valence (e.g., Ahluwalia 2002; Fiske 1980; Peeters and Czapinski 1990; Taylor 1991). Possession loss aversion thus offers a novel interpretation of existing phenomena frequently interpreted (implicitly) as VLA, as well as providing new predictions for choices involving unattractive possessions, which have been supported by our data.

The findings of both endowment effects for goods and a tendency to switch for bads also rule out a general alternative explanation for endowment effects. One possible explanation for a tendency to remain with a possessed option is a generalized inertia, or a decision threshold that simply favors the status quo. Earlier findings of the endowment effect or status quo bias could in some cases be interpreted in this way. Note that this explanation does not invoke any hedonic or attentional asymmetry between complementary valence or possession changes. The pattern of results seen in the reported studies—endowment effects for goods and reversals for bads—rules out inertia as a general explanation while supporting PLA.

The present work distinguishing between PLA and VLA adds to a growing picture of the nature and limits of loss aversion. Loss aversion is by no means a universal pattern, and some earlier work has attempted to specify boundary conditions and identify moderators of loss aversion. Most papers finding variations in the degree of loss aversion phenomena (e.g., Chapman 1998; Dhar and Wertenbroch 2000; Mandel 2002; van Dijk and van Knippenberg 1998) deal with attractive items only and allow for no clear assessment, either empirically or conceptually, of the relative roles of PLA and VLA. However, several recent findings and explanations fit somewhat more parsimoniously with evaluation asymmetries based on possession than with those based on valence.

Strahilevitz and Loewenstein (1998) found that loss aversion was affected by the consumer's history of ownership of an attractive item and, in particular, increased with the length of ownership. This finding, while not inconsistent with VLA, is more naturally linked to gain/loss asymmetries that are based on possession rather than valence. Based on PLA, an analogous prediction for bads would be that the tendency to switch from a possessed bad would increase with the time that one had possessed the bad.

Novemsky and Kahneman (2005a) argue that a key moderator of loss aversion is the intended use of the item po-

tentially given up. Specifically, they argue that loss aversion does not apply to items (such as currency) used for intended or expected exchanges. Hence, money given up as intended for purchasing an item is not subject to asymmetric evaluations (see also Camerer 2005; Novemsky and Kahneman 2005b).

Novemsky and Kahneman's analysis (2005a) concerns the degree of loss aversion manifested by the loss of attractive items (consumer goods and/or money), so asymmetries regarding possession cannot be directly separated from asymmetries regarding valence. Hence there is no direct empirical consistency (or inconsistency) between PLA and Novemsky and Kahneman's discussion of the limits of loss aversion. There is, however, a notable thematic similarity between the notion of possession as central to loss aversion and Novemsky and Kahneman's arguments concerning the moderating role of intentions.

Possession loss aversion provides a conceptual rationale for the fact that loss aversion is not found for items intended for exchange. Asymmetries due to possession are predicated on the idea that an object is subjectively possessed. The fact that items intended for exchanges do not induce loss aversion can be interpreted in part with the idea that they are not viewed as possessed in the same way as items not planned for exchange. Money budgeted for an upcoming purchase may be viewed as "already spent" and thus not subjectively possessed in the same sense as other funds marked as "savings" or other owned items not intended for sale (Thaler 1985).

In this light, the notion of PLA coheres with the variations in loss aversion for goods perhaps better than VLA would; VLA implies a consistent psychophysical asymmetry between negative and positive changes, and there is no a priori rationale for why that asymmetry would change for different types of items or currencies. In the context of PLA, however, money planned for exchange may be placed in a category separate from "items possessed" and, hence, not be subject to evaluation asymmetries based on possession. Put another way, subjective possession implies a systematic basis for defining reference points around which gain/loss asymmetries may appear.

Lerner, Small, and Loewenstein (2004) found that a person's affective state, induced by an earlier experience unrelated to the target transaction, moderated the discrepancy between assessments of possessed and unpossessed items. In their study, participants assessed the value of an item that they possessed (selling prices) or chose between the item and various amounts of money (defining choice prices). A traditional endowment effect pattern (selling > choice) was found for people in a neutral mood. However, the discrepancy disappeared (driven by reduced selling prices) for people who were experiencing residual disgust. The discrepancy reversed (choice > selling) for people who were experiencing residual sadness, driven by increased choice prices. Lerner et al. (2004) argued that the specific nature of the emotional state affects judgments in a particular way. Disgust evokes a goal of expelling the offending object—hence, the

reduction in selling prices. Sadness evokes a goal of changing one's current state, which encourages getting the item when it is not owned (high choice prices) and selling the item when it is owned (low selling prices)—the prediction of the effects of sadness match the observed reversal in choice and selling prices.

To the extent that the induced negative moods colored the nature of the possessed item, in effect turning a good into a bad, the pattern of results in the selling prices is consistent with the logic of PLA. The notion of disgust as encouraging the expulsion of an item suggests a desire to part with the item; expelling a noxious item is interpretable as a valence gain and possession loss. If the possessed item is associated (even spuriously) with negative feelings, then PLA predicts a shift in the direction of lower selling prices, consistent with the Lerner et al. (2004) results for both disgust and sadness. Valence loss aversion cannot accommodate the Lerner et al. pattern of results for selling prices without additional post hoc assumptions. The difference between choice prices for disgust and sadness cannot be easily explained in terms of either PLA or VLA, however.

We offer these comments to suggest that PLA may fit somewhat better than VLA with earlier studies addressing moderators of loss aversion. Strahilevitz and Loewenstein's (1998) results directly map onto considerations of possession rather than valence. Novemsky and Kahneman's (2005a) notion of currencies for intended exchange as immune to loss aversion can be accommodated by viewing those currencies as subjectively outside of one's possession. Finally, Lerner et al.'s (2004) pattern of changes in selling prices based on emotional states is consistent with PLA to the extent that negative moods contaminate the possessed item and allow for a positive-valence-possession loss to encourage selling.

## LIMITATIONS AND FUTURE DIRECTIONS

As noted earlier, we present VLA and PLA as essentially psychophysical regularities, describing exaggeration of valence losses and possession losses, respectively. A natural limitation of the present work is that both types of loss aversion can be multiply determined by contributing psychological processes. For instance, a greater sensitivity to possession losses can be driven by a tendency to exaggerate what is in one's possession due to greater attentional focus (as a generalization of Carmon and Ariely's [2000] focus on the forgone) and/or a tendency simply to imagine experiencing possession losses more intensely. Additional research is needed to distinguish between these, and potentially other, processes contributing to each type of loss aversion.

A second limitation is that our discussion of PLA and VLA has been entirely in terms of considerations at the time of decision rather than in terms of actual consumption experience. In other words, PLA and VLA characterize decision utility, not experienced utility. It is entirely possible that different properties apply to the prospective evaluations made when choosing and the experiences one has after making a choice.

Finally, the notion of possession is somewhat fuzzy. We

have throughout been assuming a subjective notion of possession, as it is experienced by the consumer. Indeed, most negative possessions as we have discussed them are by their very nature psychologically rather than objectively or legally possessed. Earlier work has explored extensions of the idea of “endowment” for goods (Ariely, Huber, and Wertenbrock 2005; Carmon, Wertenbroch, and Zeelenberg 2003; Sen and Johnson 1997), and the notion of possessed bads is predicated on a somewhat expanded notion of possession. However, we certainly feel that there is a strong phenomenological sense of possession to many negative states. It is no accident that statements like “I *have* a headache” or “My commute is very long” use possessive verbs and pronouns. Future research could examine how framing or contextual factors affect the extent to which negative states are seen as possessions.

## CONCLUSION

We believe that the concept of PLA, summarized simply as “departures loom larger than arrivals,” adds to our understanding of decision processes in several ways. Most directly, PLA correctly predicts opposite patterns of staying and switching between choices involving goods and bads. Consequently, PLA can simultaneously explain both the traditional endowment effect and also the fact that people may sometimes strongly desire to switch from a current negative state to an alternative negative state.

Beyond the different predictions for goods and bads, PLA also provides an alternative locus for previous demonstrations attributed implicitly to VLA. Even in cases where PLA and VLA are confounded in terms of their directional predictions for choice behavior involving goods, the two processes attribute the source differently to possession or valence asymmetries, respectively. Interpretations based on possession and valence may lead to different empirical predictions regarding moderators of loss aversion driven by different consumer contexts, perhaps to the degree that the situation highlights possession or valence considerations, and perhaps to the extent to which losses are indeed seen as “possession losses” rather than as negative developments.

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