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Making a Difference: The Influence of Expected Separation in Consumer Choice Processes

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The present research demonstrates how expectations regarding choice sets influence consumer choice processes. We posit that the magnitude of expected separation between choice options influences consumers’ separation thresholds – the estimated difference in overall value they require to make a choice and end the choice process. Specifically, greater expected separation yields higher thresholds, requiring greater cumulative estimated separation between the choice options before termination of the choice process. In line with this view, we find that greater expected separation produces deeper information search. When search is not possible, higher separation leads to greater distortion of the information available to favor the leading option. As a consequence of these influences on the choice process, the magnitude of estimated separation between choice options is also related to expected separation. Accordingly participants who had higher expected separation in our studies were more confident in their choice when the choice process was over. The findings from these studies have implication for such choice outcomes as brand loyalty, purchase satisfaction, and willingness to pay.

Key Words: expected separation, observed separation, biased predecisional processing
Many decisions are made when the consumer concludes that the most appealing option is sufficiently better than the other options in the choice set. Indeed, for consumers who control the duration of the choice process, the real decision may often be *when to stop*, not *which option to choose*. That is, the choice process ends when the estimated difference in overall value between the most appealing option and the other alternatives is sufficiently large. Stated differently, choice occurs when the estimated separation between the most appealing and next most appealing option breaches a *threshold of separation* (e.g., Bochenholt et al. 1991; Russo and Saad 1996; Svenson 1996).

In this article, we propose that consumers’ separation thresholds are influenced by expectations regarding the difference in overall value among the options in the choice set. We refer the expectation of level of difference as *expected separation*, and propose that as it increases so does the separation threshold. From this proposition, we derive three research hypotheses. First, when information acquisition is under consumers’ control, depth of search will increase as expected separation increases. Second, when search is not possible, the degree to which consumers bias information to favor their currently preferred option will increase as expected separation increases. Finally, as an ultimate consequence of these influences on the choice process, the amount of separation estimated among options at the conclusion of the choice process should be positively related to the magnitude of expected separation at the beginning of the choice process. The rationale is that if expected separation leads to higher decision thresholds, consumers need to breach the higher thresholds by reaching a higher level of estimated separation. This is done by either accumulating more information or by distorting information, both of which serve to “build” higher separation. Figure 1 provides a visual depiction of the key elements of this perspective.
The main purpose of this article is to test the research hypotheses above. We do so by examining the influence of expected separation on depth of information search and on information processing when search is not possible. Our data come from six studies that are partitioned into two sets. The first set of studies (1-3) examines how different levels of expected separation (measured and manipulated) influence depth of actual and predicted search. The second set of studies (4-6) examines how expected separation regulates the magnitude of estimated separation when search is not possible. In the rest of this article, we review the literature that is central to our predictions, present the studies and their findings, and then conclude with a discussion of implications.

The Accumulation of Separation in Consumer Choice Processes

For choice to occur a consumer must commit to one option over the others. This commitment requires that consumers come to an understanding of their preferences for the available options. Many formal models of choice capture this understanding in utility functions that represent consumers’ tradeoffs. Lacking a mechanism for the process of choice, such models typically assume that preferences are read from utility functions. In other words, preferences are known and stable. This allows such models to make strong predictions about consumer decisions without actually observing consumer behavior (Simon 1959). Under such views, consumers know the merits of the options, the consequences each option has for them, and the difference (in value terms) between the options.

An alternative to these formal models is that consumers manage their preference construction to accumulate separation between the choice options. This view of separation
accumulation stems from two streams of research, that on accumulation models and that of constructed choice processes. Accumulation models posit that decision makers search their memory and the environment for information until sufficient evidence has been accumulated in favor of one alternative to support a choice (Bockenholt et al. 1991; Busemeyer and Rapport 1988; Link and Heath 1975; Rapport and Tversky 1970). The key idea behind accumulation models is that choice is preceded by a process of accumulated discovery, not an immediate and costless comparison of utility scores.

The second relevant stream of research is that of constructed preferences. Specifically, there is now an emerging consensus that consumers typically construct their preferences in light of the currently prevailing context (Payne 1982; Payne, Bettman, and Johnson 1993; Slovic 1999; Ariely and Hoeffler 1999). The idea here is not so much that preferences arise from a process that occurs over time, but rather that preferences are not read from memory, but instead are constructed from salient elements in the choice environment.

Together, these two streams of research lead to the separation view of preference construction (Carlson, Meloy, and Russo 2006; Montgomery 1983; Russo and Saad 1996; Svenson 1996). Under this view, consumers actively construct their preferences as they encounter and evaluate information. Moreover, consumers are not dispassionate information processors, but rather, active participants in the accumulation of separation.\footnote{The term “separation” has been used to convey both the processes of detecting differences between options and of pursuing the enlargement of those differences until they are sufficient to support a clear choice. In contrast, the terms difference or distinction are usually used to indicate only the first of those processes, namely perceiving or discovering the differences that are genuinely present. Thus, differentiation and separation are used to describe the process that actually occurs, while distinction is a good description of the ultimate goal of decision making.} Specifically, they use a variety of mechanisms to spread the choice options apart, thereby helping distinguish the most appealing option from the others (for a review of these tactics see Svenson 1996).
The accumulated separation view of consumer decision making does not require consumers to value each option separately. Rather, they need only keep a record of which option is most appealing and how far ahead it is of the other options. When the magnitude of estimated separation between the most appealing and the next most appealing option is sufficient, a choice is made. This begs the question: how much estimated separation is sufficient? Many theories of decision making propose that sufficiency is defined by one’s separation threshold.

Separation Thresholds

The separation threshold is the level of overall differences in value decision makers require before making a choice (Bockenholt et al. 1991; Busemeyer and Rapport 1988; Rapport & Tversky 1970; Russo and Saad 1996; Svenson, 1996). The common assumption is that individuals begin the choice process with an a priori separation threshold in mind. They then acquire and evaluate information until enough separation has been accumulated to breach the separation threshold. Accordingly, the greater the separation threshold the deeper the information search they engage in (Bockenholt et al. 1991; Busemeyer and Diederich 2002) and the greater one’s tendency to distort information to support whichever option is leading (Russo, Meloy, and Medvec 1998).

If the separation threshold is a key determinant of how consumers manage the choice process, then a comprehensive understanding of heterogeneity in consumer preferences depends on understanding what leads consumers to have different separation thresholds. Oddly, little has been written about what determines a particular consumer’s separation threshold. In fact, most research involving thresholds is silent about their origins (Bockenholt et al. 1991; Browne and

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2 The idea that choice is contingent on the separation threshold is consistent with a class of magnitude stopping rules, a research tradition which sees choice as a “when-to-stop” decision based on reaching particular values set within strictly-defined algorithms (for a review see Browne and Pitts 2004).
Pitt 2004; Russo and Saad 1996; Wald 1947), with a few exceptions. First, it is generally accepted that thresholds increase as the importance of the choice increases (Busemeyer and Diederich 2002; Payne et al. 1993). It is also accepted that time pressure reduces separation thresholds (Bockenholt and Kroeger 1993). It has also been discovered that a lack of progress in creating separation during a choice process can cause consumers to reduce their separation thresholds (Russo and Saad 1996). However, at this point it is unclear what determines differences in separation thresholds between consumers. In this article, we suggest that the magnitude of each consumer’s separation threshold depends on his or her magnitude of expected separation between the options in the choice set.

Expected Separation and Consumer Decision Processes

We propose that the magnitude of separation a consumer expects to find between the choice options (i.e., expected separation) has a direct effect on his or her separation threshold. We propose that this influence can be evidenced through observable changes in the consumer choice process. Specifically, as the threshold increases, consumers should deepen their information search in order to accumulate sufficient information to breach the threshold.

Moreover, when search is not possible, consumers will bias their evaluation of the information present in order to breach the separation threshold. In either setting, greater expected separation should (through its influence on the separation threshold and subsequently on the choice process) yield greater estimated separation between the choice options at the conclusion of the choice process.

The idea that separation thresholds depend on expected separation is consistent with a burgeoning literature on the influence of expectations on consumer behavior. For example, prior
beliefs tend to guide product perceptions (e.g., Makens 1964; Thumin 1962). Alison and Uhl (1964) provided the seminal demonstration of this phenomenon. They found that beer drinkers preferred the taste of their preferred brand when they knew which beers they were drinking, but not when taste tests were blind and brands were unidentified. Similar effects of expectations on perceptions have been found for assessments of sweetness in orange juice (Alba and Hoegg, 2007), richness in yogurt (Sanford, Fay, Stewart, and Moxey, 2002), and taste of beef (Levin and Gaeth, 1988).

The tendency for confirmatory processing given prior beliefs extends beyond perceptions to actual performance. For example, Shiv, Carmon, and Ariely (2005) found that beliefs about the correlation between product price and effectiveness led consumers who paid more for a sports drink to perform better after consuming it when purchase price was higher. This result, which mirrors findings in the medical literature on placebos, represents a nontrivial departure from prior findings of expectation-driven processing. Notably, the Shiv et al. findings indicate that consumers can be influenced by expectations even when they lack advanced knowledge of the specific options being examined. In other words, the effect of expectations on consumer behavior is not restricted solely to expectations about specific products but can exist on a choice-set level. As such, it is entirely possible that even when consumers know too little about the options to have option-specific expectations (e.g., a belief that Miller Lite is the best tasting light beer on the market), they may have set-level expectations that will influence the choice process. One such expectation regards the differences in overall value, or separation, of options in the choice set (i.e., expected separation).

Research Overview
As stated above, we explore two aspects of the consumer choice process that should be influenced if expected separation alters decision thresholds. First, we examine information search. If increases in expected separation raise the separation threshold, greater expected separation should lead to deeper information search, because breaching a higher threshold requires more information than breaching a lower threshold). Second, we look at settings where search is not possible. In these settings consumers need to distort information to a greater extent when expected separation is higher. This increased distortion allows consumers to create separation sufficient to breach a heightened separation threshold given the impossibility of creating that separation using additional information. Thus, in these situations greater expected separation should lead to greater distortion of attribute evaluations during the choice process. Both extended search and distortion similarly allow consumers to breach the higher separation threshold resulting from higher expected separation. Finally, as a consequence of these changes to the choice process, we expect that consumers expecting greater separation will estimate greater separation between the choice options, consistent with having breached a higher separation threshold.

The studies that follow are partitioned into two sections. The first set of studies examines the influence of expected separation on predicted and actual information search. The second set of studies consists of two experiments that examine the influence of expected separation on information distortion, with the final experiment examining the role of directional versus non-directional expected separation.

EXPECTED SEPARATION AND INFORMATION SEARCH
The literature on information search is extensive, with a strong emphasis on depth of search (for reviews, see Schmidt and Spreng 1996; Xia and Monroe 2004). Much of this literature focuses on the moderating effect of individual differences (Ratchford 1982) or contextual factors (Urbany 1986). Though beliefs certainly influence predictions and planning, there is little work on how beliefs influence information search (for an exception see Duncan and Olshavsky 1982). Moreover, we know of no systematic investigations of the role of expected separation on information search.

It is commonly accepted that greater separation thresholds will give rise to greater search because higher thresholds require consumers to estimate greater separation between the options before making a confident choice (Bockenholt et al. 1991; Busemeyer and Diederich 2000). As such, if consumers’ separation thresholds are proportional to the magnitude of expected separation they expect in the choice set, greater expected separation should yield greater search. We examine this issue in Study 2 (below). Before doing so, however, we address two other issues regarding the relationship between expected separation and the separation threshold.

If expected separation influences the separation threshold, then two things should be true. First, since the separation threshold is an input to various information processing decisions, consumers should be capable of accessing it before they even begin the choice process. As such, they should be capable of making projections about their search behavior that are consistent with the foregoing predictions regarding information search. That is, those with relatively high expected separation should be able to predict that they would search relatively more deeply than those with relatively lower expected separation. Second, if there is natural variation in expected separation across consumers, then any influence that manipulated expected separation has on
predicted search depth should be reproduced when expected separation and predicted search are measured.

**Study 1a: Expected Separation and Predicted Search**

As an initial exploration, this study was designed to determine whether expected separation influences predicted search in simulated shopping scenarios. This issue is relevant not only because it has implications for the effect of expected separation on the separation threshold, but it is also of practical importance because beliefs (if they have any influence at all) should influence search planning and time budgeting for search activities. To examine whether expected separation influences predicted search, we manipulated expected separation and assessed predicted search depth using three measures: number of criteria that would be examined, estimated time on task, and level of effort exerted during the search process (described below).

**Methods.** Participants (*n* = 61) were assigned to one of three levels of expected separation (low, medium, or high). The three levels of expected separation were created by altering a few words in each choice scenario. For example, “all places must be equally good” for low expected separation, “all places should be decent” for medium expected separation, and “several of these places must be real winners. Others could be a real disappointment” for high expected separation.\(^3\) Domain was a three level factor manipulated within subjects (hotels, vacation destinations, and a fictitious product called gimper).\(^4\) Expected separation was varied between domains so as to create all possible domain by expected separation combinations. The fictitious

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\(^3\) For instance, for the high separation condition for hotels participants read: “You are traveling through Europe and have just arrived at a small city in southern Spain. The lady at the tourist information office gives you a list of hotels. You ask her for a recommendation and she tells you it is against office policy to play favorites. However, she does tell you that some hotels talk a good game but are pretty seedy, though others are quite exceptional.”

\(^4\) The purpose of including a fictitious product was to be able to determine the extent to which...
product (i.e., gimpers) was included to establish a baseline for how much participants’ expectations could be influenced. Specifically, we reasoned that because participants lacked prior beliefs about gimpers, this would be the domain for which it would be easiest to vary expected separation. As such, if our manipulation of expected separation had an equal effect on predicted search depth across all three domains, this would mean that expected separation is a relatively malleable construct. This would have implications for the role various contextual factors (i.e., information order, prescreening, choice set categorization) could have on expected separation, and concomitantly on the choice process.

Participants read the description of the first product search scenario, and answered the search questions for that domain. They then followed the same procedure for the second and third domains. The three search depth questions were as follows. For effort, participants answered the question, “How much effort would you put looking for information about hotels?” Responses were reported using a 7-point scale, anchored by 1 (“A little”) and 7 (“A lot”). Time searching was assessed by asking participants “How much time do you expect to spend searching for a suitable option?” Answers were collected using a 7-point scale anchored by 1 (“Barely any”) and 7 (“Very much.”) Number of criteria was collected via open-ended response to the question, “How many criteria do you expect to use when making your choice?” Finally, participants answered demographic questions and suspicion check questions. No participant suspected our hypothesis regarding the relation between expected separation and depth of search.

Results. There was no effect of order or domain, and no interaction of expected separation with domain. As such, we combined data across domains and do not discuss domain further. ANOVA analyses revealed that expected separation was a significant positive predictor of information search for all three measures. That is, expected separation had a positive influence
on predicted effort \( (F(2, 179) = 8.17, p < .001) \), number of criteria \( (F(2, 179) = 5.29, p < .01) \), and search time \( (F(2, 179) = 8.64, p < .01) \). In other words, participants reported that they would invest more effort, consider more criteria, and spend more time searching for information as expected separation increased. Means for the different levels of expected separation are displayed in Table 1.

Insert table 1 about here.

Discussion. This study demonstrates that as expected separation increased, so did predicted search depth (number of choice criteria, search time and effort). These effects were demonstrated across several product domains, including two that were mundane (vacation destinations and restaurants) and one that was entirely novel (gimpers). Though the first study established a causal relation between expected separation and search, it remains unclear to what extent expected separation is responsible for variation in search depth across consumers in the actual marketplace. To this end the next study examines whether heterogeneity in expected separation across consumers produces a corresponding difference in search depth.

Study 1b: Measured Expected Separation and Predicted Search

This study sought to determine whether natural variation in expected separation across consumers predicts differences in predicted search depth. To this end, participants reported beliefs regarding separation for several domains (cars, hotels, restaurants, candy bars, and vacation spots) and predicted their search for a choice scenario in each domain. The key analysis was a domain-level test of association between expected separation and predicted search.
Methods. Participants \( n = 189 \) were shown scenarios and answered search depth questions similar to those used in study 1a. The only fundamental difference was that instead of manipulating expected separation we measured it for each choice domain. Specifically, participants answered six questions which were designed to capture their beliefs about separation among the options in the car domain (see table 2). Responses to each item were collected on a 7-point likert scale anchored by “strongly disagree” and “strongly agree.” Pretests revealed that all six items converged on a single factor, and reliability tests indicated high reliability (Cronbach \( \alpha > .70 \) for all domains).

Results. Analysis revealed that expected separation was lowest for the candy bars \( (M = 22.95) \), and highest for the vacation spots \( (M = 34.83) \), with the other three domains having mean expected separation scores nearer to hotels than to candy bars \( (M_{hotels} = 31.23; M_{restaurants} = 32.15; M_{cars} = 32.56) \). Interestingly, there was relatively little correlation in expected separation across domains, suggesting that expected separation is very much domain specific, perhaps depending on what prior experiences the consumer had with the domain or with related domains.

To test for the effect of expected separation on predicted search, we estimated one model for each of the three measures of search with the predictors being expected separation, domain, and the interaction of the two. Finding no domain interaction, we then estimated a second repeated measures model in which search was simply predicted by expected separation. For effort and criteria there was no interaction between expected separation and domain (both \( p > .15 \)), so we combined across domains and estimated a single model for each measure of depth predicted by expected separation. These models revealed a significant positive relation between expected separation and effort \( (F(1, 809) = 351.56, p < .001) \) and criteria \( (F(1, 733) = 21.47, p < \)
These relationships are presented in table 3, which uses a ternary split on expected separation to compute mean responses for each measure on the three resulting levels of expected separation. For predicted search time the full model revealed a significant domain by expected separation interaction that was due to a floor effect in the candy bars domain (i.e., time spent searching for candy bars was so low that it was not influenced by expected separation). Continuing the analysis without the candy bar data, the repeated measures model reveal a significant effect of expected separation on time spent searching during the choice process ($F(1, 642) = 48.1, p < .0001$).

Insert table 3 about here.

Discussion. These data reveal that natural variations in expected separation are correlated with predicted search in the same manner in which expected separation altered predicted search in study 1a. That is, as expected separation increased so did expected search depth as measured by effort, number of criteria that would be examined, and time that would be spent on the choice.

It is also revealing to compare the magnitude of search depth from this study, where expected separation was measured, to that of study 1a, where it was manipulated. When doing so, it appears that the manipulation of expected separation in study 1a had a less profound effect on predicted search depth than did measured expected separation. Specifically, roughly one third of the sample in study 1b had beliefs that produced separation thresholds that were smaller (yielding search depth that was shallower) than the low expected separation condition from study 1a. Likewise, roughly 1/3 of the sample where beliefs were measured predicted search that was deeper than the participants in the high expected separation condition of study 1a. As such, it appears that there is greater natural variation in expected separation for a given domain than can be achieved with a rather heavy-handed manipulation. Nevertheless, the
effectiveness of the manipulation suggests that beliefs relating to expected separation are not set in stone. This was also supported by the finding that we were equally able to manipulate expected separation in familiar domains in study 1a (e.g., hotels and backpacks) as we were in the fictional domain (e.g., gimpers).

Thus far we have shown that expected separation influences predicted search and that it does so if it is measured or manipulated. However, if expected separation is indeed influencing separation thresholds, then it should also influence actual search depth, holding actual difference in the choice options constant. We next explore this.

**Study 2: The Influence of Expected Separation on Information Search**

This study was designed to determine whether expected separation influences depth of search during a choice between two potential dates for a friend. Participants were instructed examine character trait ratings for two potential dates and selected the one they deemed best for a friend. Prior to the beginning their search, the magnitude of expected separation between the date candidate was manipulated to be either relatively low or relatively high (as described below). Participants had control over how many traits they examined and the order in which they examined them. Upon terminating their information search, participants selected a date candidate for their friend and then indicated how confident they were with their choice. Choice confidence is used as a measure of estimated separation between the candidates at the time of choice. The key dependent variables were number of traits examined (depth of search) and choice confidence (estimated separation). In line with the above, we expect greater expected separation will yield greater search depth and greater estimated separation between the candidates at the conclusion of the choice process.
In addition to manipulating expected separation, we also manipulated the actual difference in overall appeal of the two candidates to be either low, moderate, or high. As this was an agent task for which the participant had their friend’s trait importance weights, we did so by altering the information about the candidates. Our purpose in manipulating the difference in overall appeal of the candidates was to ensure that we could test the proposition that greater thresholds would increase the likelihood of selecting an objectively superior option. Specifically, it was important for the candidates to be adequately different so that choice of the better candidate (on average) was neither too high nor too low. To this end, we used three different levels of actual differences between options for different participant groups. By manipulating the actual difference in overall appeal between the candidates from small to large, we are virtually guaranteed being able to conduct a meaningful test of the choice accuracy hypothesis.

Methods. Participants \( n = 118 \) selected between two date candidates for a friend. Candidates were described on 18 trait categories, each containing between two and five traits. Participants were instructed to examine as many of the categories as they wished before picking one of the two date candidates for their friend. When the participant was ready to make a choice, he/she turned to the last page of the choice packet and circled the preferred date candidate.

Recall that we expect participants who expected greater separation between the candidates would search more deeply to breach their higher separation thresholds. As such, we expected that these participants would estimate greater separation between the candidates at the moment of choice than those who expected less separation. Thus, we needed to not only assess search depth, but also estimated separation between the candidates at the conclusion of the choice process. The task of assessing estimated final separation is complicated by the manipulation expected separation. That is, a simple query regarding how different in overall
value the candidates were was likely to produce an echo of the manipulation. As such, we followed the tradition of using choice confidence to proxy estimated separation between the date candidates (Holyoak and Simon 1999; Simon, Pham, Le, and Holyoak 2001; Weber, Böckenholt, Hilton, Wallace 2000). As such, after selecting a date candidate each participant indicated how confident they were with their choice answering the question, “How sure are you of your pick?” Responses were captured on a 7-point scale (1 = “not at all sure” and 7 = “very sure”).

Each participant was randomly assigned to one of six conditions produced by the 2 (expected separation: low versus high) by 3 (difference in overall value of the candidates: low, medium, and high) between-participants full-factorial design. Expected separation was manipulated by the instructions participants read at the beginning of the study. Those in the low expected separation condition read a scenario description indicating that the two candidates were likely to be “similar in overall appeal,” whereas those in the high expected separation were told that the two candidates were likely to be “different in overall appeal.”

Difference in overall value was manipulated by altering the extent to which the 18 characteristics objectively favored one of the two candidates. Pretests verified that the manipulation of the difference in overall appeal of the candidates was noticeable and effective. Participants in these pretests perceived greater differences for greater differences in overall value than for lower differences in overall value.

Results. The key dependent variables in this study were number of traits examined (search depth), choice confidence (estimated final separation), and choice of the objectively better candidate. We began by examining how the manipulated factors influenced the first two of these variables. For both dependent variables, we ran an ANOVA, with main effects for expected separation and difference in value of the candidates, and an interaction term. In both models,
there was no effect of actual difference in the candidates \( (p > .05) \), nor was the interaction term significant \( (p > .05) \). However, for both ANOVAs there was a positive main effect of expected separation (for search depth: \( F(1, 112) = 10.36, \ p < .01 \); for choice confidence: \( F(1, 116), p = .07 \)). Planned contrasts revealed that the number of traits examined by participants in the high expected separation condition \( (M = 12.20) \) was significantly greater than the number examined by participants in the low expected separation condition \( (M = 9.17; t(1,116) = -2.25, p < .01) \). Likewise, those in the high expected separation condition estimated marginally greater separation between the candidates \( (M_{\text{High}} = 5.56) \) than those in the low expected separation condition \( (M_{\text{Low}} = 5.16; t(116) = -1.84, p = .068) \). In sum, greater expected separation led to greater search depth, which ultimately resulted in greater estimated separation between the date candidates.

We next examined participants’ choices as a function of the manipulated variables. As expected, the greater the actual difference in the date candidates, the more likely participants were to select the better candidate \( (F(2, 113) = 11.7, p < .0001) \). This effect stems from the low actual difference condition. That is, there was an apparent ceiling effect on selection of the better candidate for high and moderate levels of actual difference in the candidates \( (M_{\text{High}} \text{ and } M_{\text{Moderate}} \text{ were both over 90%}) \). However, there was neither a ceiling nor a floor effect for participants in the low actual difference condition \( (M = 66\%) \). Hence, at this level of actual difference in the candidates it was neither impossible to identify the better candidate nor was it trivial to do so. As such, we looked for an effect of expected separation on choice accuracy when the actual difference between the two candidates was low. The choice data revealed no effect of expected separation on choice accuracy for those in the low actual difference condition \( (p > .05) \). \(^5\)

\(^5\) For completeness, we also examined whether there was an effect of expected separation on choice accuracy for the moderate and high levels of actual difference in the candidates, but we observed no such effect (both \( p > .xx \)).
In fact, accuracy was directionally lower expected separation than it was for higher expected separation.

Discussion. These results show that expected separation influences information search depth, with greater expected separation leading to greater search depth. This finding is consistent with the claim that higher levels of expected separation give rise to larger separation thresholds, which require greater search to breach them. As expected, greater search caused participants to estimate greater separation between the candidates, but it did not have any effect on choice accuracy. Rather, it seems that the greater search simply helped participants add to the estimated separation between the options, which was evidenced by the increase in choice confidence that was associated with increased expected separation. In other words, it seems that participants used their extended search to build support for their leading option as a means of breaching the threshold, rather than as a way to be more careful in their selection process in general.

The finding that the estimated separation between the candidates was insensitive to the actual difference between the candidates, suggests that search was not the only factor contributing to estimated separation. If search alone were the driving force behind estimated separation, then for any level of expected separation, actual objective separation between the choice options should have influenced final estimated separation. Since this was not the case, the possibility exists that participants engaged in biased information processing to help breach their separation threshold. In other words, participants may have distorted their evaluations of the candidates in order to manage how easy it was to breach the separation threshold. If so, those in the high expected separation condition would have engaged in information distortion to a greater degree than those in the low expected separation condition. In the studies that follow we examine this possibility.
To restrict the process in a manner that would allow us to better focus on distortion, we examine choices where participants cannot control information acquisition. We assess whether the magnitude of expected separation influences the amount of information distortion participants exhibit, thereby influencing the magnitude of estimated separation.

THE INFLUENCE OF EXPECTED SEPARATION ON INFORMATION PROCESSING

In situations where consumers do not have control over information acquisition expected separation cannot influence search depth. However, through its influence on the separation threshold, changes in expected separation might be observed in how consumers process the information that is given to them. Specifically, it has been suggested that those with higher separation thresholds are more likely to distort new information to favor the option that is tentatively preferred or leading the choice process (Russo, Meloy, and Medvec 1998). The idea here is that by distorting information so that it favors the leading option, consumers can create greater separation between the options than would result if they evaluated the information without bias. The idea that consumers can regulate the magnitude of separation they estimate between options by biasing the information they encounter is consistent with a broad range of perspectives on how consumers create separation during predecisional choice processes (Brownstein 2003; Montgomery 1990; Svenson 1996; Holyoak and Simon 1999; Russo and Carlson 2001).

It is worth noting that our interest lies not in whether consumers bias their evaluation of information to favor their leading option (they most certainly do), but rather in the extent to
which consumers use distortion to breach their separation threshold when search is not possible. We expect that greater expected separation at the beginning of the choice process will give rise to greater information distortion during the choice process, resulting in greater estimated separation between the choice options at the conclusion of the choice process.

**Study 3: Expected Separation and Information Distortion**

This study has three primary goals. The first goal is to assess whether expected separation influences final estimated separation in choice processes where consumers do not control information search. Assuming that final estimated separation is influenced by expected separation, the next question is how does this occur in a setting where search is not within the control of the consumer? The second goal of this study is to determine whether predecisional information distortion plays a role in regulating the amount of separation that consumers estimate to exist between the choice options. Our third goal is to examine whether there is a relationship between expected separation and choice accuracy in a choice process where search is not possible. Recall that in study 2 we observed that greater effort associated with greater expected separation (which was required for greater search depth) did not produce greater choice accuracy. Thus, it seems that effort was a byproduct of search (i.e., greater search is needed to breach a higher separation threshold), not a reflection of a more careful choice process. If consumers pursue higher thresholds as we have suggested (i.e., by altering the choice process in whatever manner is necessary to breach the separation threshold), then we would not necessarily expect to find a relationship between choice accuracy and expected when search is not possible. Rather, we expect that as expected separation increases, so will distortion, but that greater effort
will not be exerted during the choice process, so there will be no influence of expected separation on choice accuracy.

Methods

**Participants, Design, and Choice Task.** One hundred undergraduates received extra course credit for participating in this study. Each participant chose between two backpacks that were described by five attributes (Auxiliary Compartments, Customer Service, Main Compartment, Other Features, and Terms of Sale). Each attribute described both backpacks on several numeric components. For example, a typical Main Compartment attribute read:

Backpack X has a main compartment with dimensions as follows:
Width = 36cm; Height = 58cm; Depth = 22cm

Backpack E has a main compartment with dimensions as follows:
Width = 41cm; Height = 57cm; Depth = 22cm

The key data for this study were obtained from the choice processes of these participants, and from previously obtained unbiased evaluations of the attributes. The method used to collect the unbiased attribute evaluations is described below.

**Unbiased Attribute Evaluations.** Before making the choice, participants read and evaluated ten attributes, two for each of the five attribute categories above. Five of these attributes (one from each category) were the attributes that described the two backpacks in the subsequent choice process. A key difference, however, was that participants believed they were evaluating a different pair of backpacks on each attribute (i.e., 10 pairs of backpacks in all). To support this, the backpack names were changed across every attribute, so that participants believed they were seeing information for 20 different backpacks across 10 different attributes.
This prevented participants from cumulating a preference for one of the backpacks across the attributes. After reading each attribute, participants provided an evaluation of the attribute that reflected their relative preference for the two backpacks based on the information in the attribute. These attribute evaluations were captured on a 0-100 point scale that was anchored on opposite ends by the names of the two backpacks. A rating of 0 (100) indicated a strong preference for the backpack whose name anchored the left (right) end of the scale, and a rating of 50 indicated indifference between the backpacks.

Participants were told that these attribute evaluations would provide the product simulator with the necessary information about them to construct backpacks. However, as mentioned above, the reality was that this initial attribute evaluation task provided unbiased attribute evaluations for each attribute by each participant and credentialed the manipulation of expected separation (see below).

After evaluating the ten attributes, participants completed a filler task that served two purposes. First, the task helped establish the claim that the product simulator’s algorithm was refining participants’ backpack preferences by collecting relevant attribute tradeoff information. Second, it created a time delay between the initial evaluation task and the choice process that enabled at least some memory decay.

*MManipulation of Expected Separation.* Participants were assigned to one of two expected separation conditions. After the filler task, participants were introduced to the backpack choice task by reading an introductory paragraph. This paragraph informed participants that a product simulator had used their previous preference inputs to design two backpacks. Those in the low (high) expected separation condition were told, “The product simulator has created two backpacks that you should find approximately equally appealing (differentially appealing). That
is, according to the simulator, you should find one a little more appealing than the other (substantially prefer one over the other).” Thus, participants in the two conditions had different expectations about the magnitude of the difference in the overall appeal of the two backpacks, but they did not have any expectation about which backpack was likely to be better.

The Choice Process. After finishing the filler task, participants read a choice cover story that contained the manipulation of expected separation and then began examining the five attributes on which the choice process was based. To assess predicisional distortion, participants answered three progress questions after each attribute. The first captured participants’ evaluation of the attribute on a 101-point scale, anchored by the names of the two backpacks. The second and third progress questions required participants to indicate which backpack they currently favored and to report their confidence that they would select the leading backpack when the choice process was over. Confidence in the leader was assessed using a 50% - 100% confidence scale. After reading all five attributes and selecting their preferred backpack, participants reported how certain they were with their choice in response to the following question, “Now that you have made your decision, how certain are you that you made the correct choice? That is, if more information were available, how certain are you that you would select the same backpack you selected above?” Responses, which were captured on a scale from 50% (Not at all sure) to 100% (Absolutely certain), were used to proxy estimated separation between the backpacks.

Results

Estimated Separation and Time on Task. Participants in the high expected separation condition reported significantly greater estimated separation between the backpacks (M = 77.5) than those in the low expected separation condition (M = 70.1; t(98) = 2.89, p < .01). That is,
those expecting that one of the backpacks would be much more appealing to them than the other were more confident with their choice than those expecting that one of the backpacks would be slightly more attractive than the other. It is worth noting that even the participants in the low expected separation condition had reasonably high confidence in their chosen option. This suggests that participants in both conditions made a sincere effort to find the option they liked better. We tested this assertion directly by comparing the time participants spent reading the attributes and answering the progress questions across conditions. Comparisons revealed no difference in the time participants spent reading the attributes ($M_{\text{LowES}} = 146$ sec versus $M_{\text{HighES}} = 156$ sec, $t(51) = 0.74, p > .30$) or in the time spent answering the progress questions ($M_{\text{LowES}} = 76$ sec versus $M_{\text{HighES}} = 81$ sec, $t(51) = .88, p > .30$). That is, participants worked hard to identify their preferred option in both conditions. This suggests that greater effort is not a direct consequence of greater expected separation. In fact, if there were a direct relationship at all, we might have expected that greater expected separation would lead to less effort. That is, there is substantial evidence that individuals exert more effort as choice alternatives become closer in overall appeal (Bockenholt et al., 1991; Huber and Klein, 1991). Thus, if expectations directed effort in the same way, we would expect greater effort to coincide with lower levels of expected separation.

Predecisional Distortion. Predecisional distortion was measured using a variant of the standard approach (e.g., Russo et al. 1998). Specifically, we computed (at the participant level) the absolute difference between each attribute’s evaluation and its unbiased evaluation for that participant (i.e., that participant’s evaluation of the attribute during the initial stage). Each deviation was signed positively (negatively) if it favored the participant’s leading (trailing) backpack when the attribute in question was encountered. These attribute-level distortions were
then averaged for attributes two through six to produce a single distortion statistic for each
participant. (Note that it is not possible to calculate distortion of the first attribute as there is no
leader to determine how to sign any deviation that is observed.) This distortion statistic takes on
positive values when individuals bias their attribute evaluations to favor their leader and negative
values when they bias them to favor the trailer.

To determine whether distortion differed across expected separation conditions, we
compared the average distortion by those in the low expected separation condition ($M = 3.9$) to
that of participants in the high expected separation condition ($M = 10.4$). As expected, the latter
was significantly greater than the former ($3.9; t(98) = 2.25, p < .05$). For completeness, we also
computed the average interattribute correlation for those in the high expected separation
condition ($M = .264$) and for those in the low expected separation condition ($M = .048$), and
found that the former was reliably greater than the latter, $t(18) = 2.62, p < .05$. In other words,
those in the high expected separation condition distorted their attributes, so that their evaluations
were more correlated (i.e., to achieve greater separation) than those in the low expected
separation condition.

**Choice Accuracy.** The within-participant assessment of unbiased attribute evaluations
afforded us the opportunity to assess choice accuracy as a function of expected separation. To
obtain an estimate of which backpack each participant preferred before the choice process, we
calculated each participant’s average unbiased attribute evaluation. This average evaluation is
essentially equivalent to a weighted-added attribute model, with equal attribute weights. We used
two rules to examine selection of the objectively superior option. The weak rule was such that
when the average evaluation was below (above) 51, the backpack that anchored the lower
(upper) end of the evaluation scale was deemed objectively superior. The strong rule considered
only those participants whose average evaluation was below 45 or above 55. Again, for the former (latter) the backpack anchoring the lower (upper) end of the evaluation scale was classified as the superior backpack.

Using the weak rule, we were able to classify all 100 participants. Results revealed that 59% of participants selected the backpack that was objectively better to them according to the weighted-added model with equal weights. More importantly, there was no effect of expected separation on choice of the better backpack. That is, those in the low expected separation condition were as likely ($M = 58\%$) to select the better backpack at the end of the choice process as were those in the high expected separation condition ($M = 60\%$). The null result also obtained for the strict preference rule. Namely, 62.5% of participants in the low expected separation condition who qualified as having a strong a priori preference for one of the backpacks picked the objectively superior backpack, as compared with only 53.1% of participants in the high expected separation condition who had a strong a priori preference between the backpacks. Based on these data, and on the time data above, we see no evidence that consumers engage in either more or less careful processing of the information as a consequence of bigger or smaller separation thresholds. Rather, the evidence suggests that they simply alter the choice process in a manner that will bring about sufficient separation to breach their threshold.

Discussion

Participants who were told that a product simulator had designed two backpacks to be near in overall appeal exhibited less attribute attractiveness restructuring and ultimately estimated less separation between the two backpacks than participants who were told that the simulator had designed the two backpacks to be somewhat different in overall appeal. Despite
this difference, there was no evidence that those in the low expected separation condition expanded less effort trying to identify the backpack they preferred.

It seems that when information search is not under consumers’ control, they can still enhance their estimated separation to reach a heightened separation threshold through predecisional distortion. Specifically, participants expecting relatively large separation between the backpacks engaged in more predecisional distortion than those expected low separation. In fact, for two of the three measures (leader-driven distortion and interattribute correlations), those in the low expected separation condition did not exhibit predecisional distortion at all. Given the robustness and tenacity of predecisional distortion, this result is surprising in its own right. That is, to our knowledge this is the first documented case in which a subset of individuals has not engaged in predecisional distortion. Given the somewhat surprising nature of these results, a replication seemed in order. In the next study, we sought to replicate this result in a study in which a more natural means was used to manipulate expected separation.

**Study 4: Using a Small Price Difference to Signal Low Expected Separation**

As the choice process unfolds, it is likely that expected separation turns into a directional expectation (i.e., an expectation of the superiority of a particular option over the others). As such, there are relatively few types of information that consumers encounter during a typical choice process that can alter their expected separation without creating a directional expectation. However, one such type of information is a small price difference between two brands. When encountered as the initial piece of information consumers may expect the two brands will be close in overall appeal (i.e., low expected separation). In contrast, when this information does not
appear early in the choice process, default (relatively high) levels of expected separation should
govern the choice process.

Based on this reasoning, we set out to manipulate expected separation in this study by
varying the serial position of a small price difference (i.e., $1) between the two brands of
backpacks. We expected participants who see this small price difference as the first attribute in
the sequence will expect less separation between the backpacks than participants who see it last
in the attribute sequence. In addition to the change in how expected separation was manipulated,
this study differed from the previous study in one other fundamental way. Specifically, instead of
using within-participant baselines for each attribute’s unbiased diagnosticity, we use a single
control group to estimate the unbiased diagnosticity of each attribute.

Methods

Participants, Design, and Choice Task. Two hundred and fifty-three undergraduate
students received extra course credit for their participation in this study. Participants were
randomly assigned to one of six conditions and were given a corresponding stimulus packet,
which they completed at their own pace. The six conditions consisted of two choice conditions
(low and high expected separation), a no-choice control condition, and three manipulation check
conditions. All participants read a cover story that told participants they should imagine they
were choosing one of two backpacks to give as a gift to a sibling. Participants in the two choice
conditions read and evaluated six attributes describing the two backpacks. Listed below are the
Price, Materials, and Zippers attributes, which each played a critical role in the design:

Methods. Participants (n = 113) were randomly assigned to one of three conditions and
were given a corresponding stimulus packet, which they completed at their own pace. The three
conditions consisted of two choice conditions (low and high expected separation) and a no-choice control condition. All participants read a cover story that instructed them to imagine they were choosing one of two backpacks as a gift for a sibling. Participants in the two choice conditions read and evaluated six attributes describing the two backpacks in one of two orders (price-first or price-last). As noted above, we expected participants who saw price first would expect less separation between the choice options. This was verified via a pretest.6

Participants in the choice conditions answered the same three progress questions from Study 2a after each attribute, with the sole difference being that the 101-point attribute evaluation scale was replaced by a 9-point scale. In addition, the calculation of predecisional distortion was used an unbiased estimate from the no-choice control group (n = 24).

Prices. Backpack T is priced at $44.95 and Backpack R is priced at $45.95.

Materials. Backpack T has triple-layer, reinforced nylon straps with a cushioned, no-slip patch attached to each strap. The pack is made of heavy-duty nylon with double-stitched seams. It has been treated with a water-resistant coating to insure that it is waterproof. Backpack R has foam-padded, heavy duty, textured nylon straps. The texture of the nylon straps prevents slippage. The pack is made of densely woven nylon that is so tight that it is waterproof without treatment.

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6 The effect of the price position on expected separation was verified using three manipulation check conditions (n = 137). After reading the choice introduction, participants in these conditions read one of three attributes (viz., Price, Materials or Zippers), answered the three choice progress questions, and then answered the following question, “How different in overall appeal do you expect these two backpacks will be?” Responses to this question were collected on a 7-point scale anchored by “not at all” and “very much.” The expected separation reported by participants in the three manipulation check conditions confirmed that the Price attribute lead to lower expected separation (M = 2.02) than either the Zippers (M = 3.95) or the Materials attribute (M = 4.31). A Tukey test of multiple planned contrasts revealed that the former was reliably lower than both of the latter (each p < .001). In sum, participants in the price-first condition expected less separation between the backpacks than those in the price-last condition.
Zippers. Backpack T has a rust-proof metal zipper, coated with a thin layer of black plastic for smoother running. The zipper is double-stitched for added reinforcement. Backpack R has a reinforced, stainless steel zipper treated with lubricant for smoother running. In addition, a flap of material ties down over the top of the pack.

Participants read information regarding the six attributes in one of four orders. These orders were created by positioning Price before or after the remaining five attributes (Materials, Company History, Dimensions, Bottoms, and Zippers). The latter appeared in a randomly determined order or its reverse. Thus, Price appeared first (hereafter referred to as the price-first or low expected separation condition) in two of the orders and last in the other two (hereafter referred to as price-last or relatively high expected separation condition). Note that when Price was first (last), either Materials or Zippers appeared last (first).

After reading information regarding each attribute, participants in the choice conditions answered the three progress questions from Study 2a, with one small change—the 101-point attribute evaluation scale was replaced by a 9-point evaluation scale. As in Study 2a, responses to these questions allow us to assess the extent to which participants in the choice conditions engaged in predecisional distortion of the attribute information that was given to them during the choice process. We measured predecisional distortion using the three measures from Study 2a. The only difference was that we used a control group to obtain estimates of each attribute’s unbiased diagnosticity (see below).

No-choice Control Condition. Participants in the no-choice control condition \( (n = 24) \) also read and evaluated the six attributes. However, they did so under the guise of familiarizing themselves with the type of information they would later use to make a backpack choice. After reading each attribute they evaluated it on the same 9-point relative preference scale used by
choice participants. To ensure that participants did not form a preference for one of the backpacks, a different pair of backpack names (i.e., letters) was used for each of the six attributes. Because these participants were not making a choice, they did not answer the leadership or leadership confidence questions. This group’s average evaluation of each attribute provides the unbiased baseline attribute diagnosticities that are needed for assessing leader-driven and choice-driven distortion.

**Manipulation Check.** Given the subtle nature of the manipulation, we ran a separate pretest to verify the effect of the manipulation on expected separation. The effect of the price position on expected separation was verified using three manipulation check conditions \( n = 137 \). After reading the choice introduction, participants read one of three attributes (viz., Price, Materials or Zippers), answered the three choice progress questions, and then answered the following question, “How different in overall appeal do you expect these two backpacks will be?” Responses to this question were collected on a 7-point scale anchored at opposite ends by “not at all” and “very much.”

The expected separation reported by participants in the three manipulation check conditions confirmed that the Price attribute lead to lower expected separation \( (M = 2.02) \) than either the Zippers \( (M = 3.95) \) or the Materials attribute \( (M = 4.31) \). A Tukey test of multiple planned contrasts revealed the former was reliably lower than both of the latter \( (p < .001) \). In sum, participants in the price-first condition expected less separation between the backpacks than those in the price-last condition.\(^7\)

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\(^7\) If this manipulation created a directional expectation that differed across conditions, then those who saw price first should have shown a weaker preference for their leading backpack after reading the first attribute (Price) than participants who saw Price last and read either Zipper or Materials first. This difference in directional disposition, if it occurred, might have contributed (along with the non-directional effect of the Price information) to an overall decrease in observed separation. However, the mean evaluation of Price by the no-choice control group \( (4.50) \) was not closer to neutral (i.e., to the scale midpoint of 5) than the means of the two non-Price attributes \( (5.25 \text{ for} \)
Results

*Estimated Separation.* As hypothesized, participants in the low expected separation (Price-first) condition estimated lower final separation between the backpacks ($M = 70.1$) than those in the high expected separation (Price-last) condition ($M = 75.2$; $t(90) = 1.71, p < .05$). Thus, even though all participants saw the same information, those in the price-first condition expected less separation and ultimately estimated less separation between the backpacks than those in the price-last condition.

*Predecisional Distortion.* Predecisional distortion was assessed by calculating the difference between each participant’s attribute evaluation and the attribute’s unbiased diagnosticity as proxied by the mean evaluation of the attribute by the no-choice control group. For each attribute, this difference was signed positively (negatively) if the participant’s leader when it was encountered anchored the upper (lower) end of the evaluation scale. As such, evaluations that were extreme (relative to the control group) in favor of the leader (trailer) would be signed positively (negatively). We then averaged these signed deviations over attributes two through six to obtain a single distortion statistic for each participant. In theory, this statistic could take values between $-4$ (extreme distortion to favor the trailer) and $+4$ (extreme distortion to favor the leader).

The average distortion over all participants ($M = 0.27$) was reliably greater than zero ($p < .05$), indicating that individuals biased their attribute evaluations to favor whichever backpack was leading. However, the bulk of this distortion came from participants who saw price last and had an average distortion four times greater ($M = 0.43$) than participants who saw price first ($M =$ Materials and 4.35 for Zippers). Therefore, there was no evidence that Price created a weaker directional disposition than did either of the other attributes that appeared first, Materials and Zippers.
.10). Not only was the distortion of participants who saw price first lower than that of participants who saw price last ($t(90) = 1.65, p < .05$) but it was not even reliably greater than zero. In other words, participants in the low expected separation condition did not bias the information to support their leading backpack.

Discussion

The positioning of a small price difference influenced expected separation during the initial formative stages of the choice process, eventually leading to an influence on estimated separation between the two brands of backpacks. Equally as important, predecisional distortion was also moderated by the manipulation (i.e., those in the low expected separation condition exhibited less predecisional distortion than those in the relatively high expected separation condition).

The results of this study raises the question of whether price unique in its ability to drive expected separation down from its default level. Put differently, are there other attributes (e.g., similar Consumer Reports ratings) that can have the same effect on the choice process when their serial position is varied? To examine this issue, we ran the following study.

**Study 5: A Replication and Extension**

This study is a conceptual replication of study 4, with three key differences. First, the choice domains was resort hotels, not backpacks. Second, the key attribute, whose position was used to alter expected separation, was similar magazine ratings, not similar prices. Third, instead
of positioning this key attribute in only the first and last serial positions, we manipulated information order such that it appeared in all six attribute positions with common frequency.

Methods

Participants, Design and Choice Task. Participants were 113 undergraduate students who received extra course credit. Each picked the one of two hotels that they preferred for a spring break vacation after reading six attributes (Concierge, Location, Pool, Ratings, Restaurants, Rooms, and Turndown Service). Each attribute was a narrative paragraph like the Rooms attribute below.

Rooms at Hotel B are decorated in a traditional fashion. The rooms, which have adjoining living and bedroom areas, are moderate to large in size and are well furnished. All rooms have cable TV, and there is an in-hotel movie system with an extensive title list that allows guests to charge movies to their rooms.

Rooms at Hotel Y have separate living and bedrooms. The rooms are of moderate size and there is a cable TV in both the living room and the bedroom. There is a sound system and a small refrigerator in the living room area and VCRs are available for rental for a nominal charge.

Participants were assigned either to a no-choice control condition \((n = 24)\) or to one of six choice conditions \((n = 89)\). Choice condition participants read the attributes in one of six different orders (see below), selected their preferred hotel, and reported their final confidence in response to the same question used in study 1.
Manipulating Expected Separation. Low expected separation between the hotels was signaled through the serial position of the Ratings attribute. This attribute, which indicated that the two hotels were close in overall appeal, read as follows:

Hotel B was rated as one of the “Top Ten Best Buys” for spring break goers and was given ratings of 91 (out of 100) for service and was given a rating of 91 for food and entertainment by AAA Hotel Ratings.

Hotel Y also made the “Top Ten Best Buys” for spring break goers and was given a rating of 90 (out of 100) for service and a rating of 92 for food and entertainment by AAA Hotel Ratings.

As in study 4, expected separation was manipulated by varying the serial position of this attribute (i.e., the earlier it appeared, the greater its impact should have been on the rest of the choice process). As such, we expected that estimated separation would increase monotonically with the serial position of this attribute.

The between-participants design required that the Ratings attribute appear equally often in all six serial positions (1st through 6th). To this end, the five non-Ratings attributes were randomly ordered. The Ratings attribute was inserted before the first non-Ratings attribute, after this attribute, after the second non-Ratings attribute, etc. This yielded six different attribute orders. Participant assigned to the choice condition read the attributes in one of these orders.

To verify the effectiveness of the manipulation of expected separation, 24 participants were assigned to a control group that did not make a choice. Instead, after reading each of the six attributes, these participants answered the following question designed to assess expected separation, “How different in overall appeal do you expect these two hotels will be?” Responses were collected on a 7-point scale anchored at opposite ends by “not at all” and “very much.” For
the manipulation of expected separation to have had its intended effect, the Ratings attribute should have yielded lower expected separation than the other attributes. The responses provided by participants in the control condition were used to check this.

Note that control participants were not only prohibited from expressing a choice, but to ensure no bias in each attribute’s observed separation (i.e., in the difference in “overall appeal”), they were also prevented from forming a preference spontaneously. This was accomplished by changing the two letters that identified the two hotels for each attribute. Thus, control participants believed they were examining six different pairs of hotels. This prevented the formation of any cumulative preference for one hotel (Russo, Meloy and Medvec 1998) and, therefore, any bias in later estimates of separation derived from earlier judgments.

Results

**Manipulation Check.** Responses from participants in the no-choice control condition verified that the Ratings attribute created lower expected separation than did the other attributes. The average expected separation after reading the Ratings attribute was 2.29 on the 1-to-7 scale, a value reliably lower than the average expected separation across the other five attributes ($M = 4.36$, $t(46) = 3.10$, $p < .01$). These data confirmed the success of the necessary condition for the manipulation to have its intended effect, namely that the Rating attribute would create an expectation of low separation. Expected separation did not differ across the five non-Ratings attributes ($F < 1, ns$).

**Estimated Separation.** The predicted effect of expected separation on judged separation should have been manifest as an increase in final choice confidence as the Ratings attribute moved from the first to the last serial position. These six values, in order, were: .70, .74, .74, .77,
.80, and .80. To verify the reliability of this increasing pattern, final choice confidence was regressed on the serial position of the Ratings attribute. The regression revealed a significant effect of position on final choice confidence ($t(88) = 2.58, p < .05$). The slope coefficient from this regression ($\beta = .02$) indicated that choice confidence increased (on average) 2 percent for each position the Ratings attribute was moved nearer to the end of the attribute sequence.

Discussion

These data showed how varying the serial position of expectation-setting information, without changing the information itself, can systematically affect observed separation. Together with the data from studies 1 and 2, these results supported the hypothesis that expected separation influences observed separation.

GENERAL DISCUSSION

An effect of expected separation on estimated separation was obtained for situations in which consumers could search for new information (study 1-2) and for situations in which they could not (study 3-5). It was posited that expectations of separation will lead consumers to heighten the separation threshold they required before making a choice. In other words, when consumers expect greater differences in overall value among products, they require a greater difference in overall value between the chosen option and the alternatives than they would given low separation.
When information search was possible, greater search depth helped consumers estimate greater separation to breach the higher decision threshold (studies 1-2). When no search was possible, consumers used predecisional distortion in the form of attribute value restructuring to enhance estimated separation according to expected separation, again allowing them to breach a heightened decision threshold (study 3-5). Thus, this article demonstrated that expected separation influences estimated separation and identified two means through which this occurs (i.e., greater search and predecisional distortion). These processes allow consumers to “create” higher estimated separation, which in turn allows them to breach a higher decision threshold.

Notably, the effects of expected separation on perceived separation obtained across a variety of product domains (backpacks, cookbooks, hotels, wines), with different tactics for manipulating expected separation (pre-screening of alternatives, instructing participants as to variance in available alternatives, and varying the serial position of an expectation-setting attribute), and for each of two dependent measures (the range of estimated prices and final choice confidence).

Overall, the studies demonstrated that consumer’s pre-existing beliefs about differences among options might play a meaningful part in determining consumer choice process. The role of these pre-existing beliefs might be above and beyond that of any specific characteristics of the available options.

These findings have both theoretical and practical implications for consumer behavior. With respect to theory, our findings suggest that expected separation is an important contributor to consumer search depth and to information processing. This would be particularly true in situations where search is likely to have the greatest impact on consumer choice (i.e., when consumers lack individuating information about the specific options available). Further, the
studies provide one of the few empirical demonstrations of the influence of beliefs regarding the choice-set as a whole on decision processes. Finally, this research offers a first step in demonstrating that decision thresholds might vary across people, product domains, and situations, rather than pre-determined.

As for practice, the current findings suggest that marketers might be able to influence behavior by altering meta-beliefs such the magnitude of expected separation consumers have for the marketers’ category rather than focusing on beliefs regarding particular products or services. The consequence of influence on expected separation would presumably depend on which options would benefit from greater search depth (perhaps minor brands) and which options would be harmed by it (perhaps major brands).

In the remained of this paper we start with some discussion of limitations. We then extend our discussion to particular substantive areas. First, we discuss marketing implications of expected separation. Then, we follow with discussion regarding further research exploring the role of expected separation in consumer behavior.

Limitations

Separation thresholds have not thus far been measured, partly since the posited process is an unconscious one. However, the concept is theoretically useful and compelling in this context. In addition, in study 1 threshold can be directly inferred from its measured proxy, estimated difference. Specifically, one can infer that the desired separation between options (i.e., the separation threshold) is the one obtained during the search process, i.e. estimated separation.

Separation threshold has been advanced before as a framework for conceptualizing choice. The threshold is a theoretical construct and therefore not necessarily a measurable entity.
However, one might treat it as an actual psychological process, in which case some means of assessing it could potentially be devised. Whether its position as a part of a theoretical framework conceptualizing way or due to difficulties in operationalizing the concept, the threshold concept has not been operationalized thus far. Future research might thus benefit from clarifying the concept and devising a means of measuring it.

Practical implications

The estimated separation between two products should influence outcomes such as willingness to pay, satisfaction with the chosen product, perceived performance of the chosen option, and brand loyalty (because it is harder to induce buyers to switch from a brand that is judged to be more strongly superior). If expected and, therefore, estimated separation are too high, then the choice process is likely to be terminated too soon, risking a premature commitment to an inferior alternative. Alternatively, if the search process is not ended prematurely, it may conclude with too much confidence (due to continued attribute attractiveness restructuring in support of the chosen option). Then consumers who end up believing that their chosen alternative is better than it really is are likely to overpay for that brand, positively distort its performance and their satisfaction with it, and remain loyal to it in the face of a superior new entrant. Conversely, if expected and judged separation are too low, the choice process will either be terminated too late, wasting time and possibly money, or with too little confidence, leading to unnecessary anxiety or regret. Because of the importance of estimated separation and its potential determination by expected separation, we follow with a discussion of two of the factors that are likely to influence expected separation in natural settings, pricing and screening.
Pricing. Consider a marketing manager who is introducing a new product or a product that is new to a region or to an audience. That is, imagine a situation in which consumers have negligible knowledge of a product’s quality relative to its competitors. For the marketing manager of a new superior product there is a tension between the value of setting a competitive price, say just below the target competitor’s, and the low estimated separation that such a price may convey. The small but clear price advantage might help establish the new product as the early leader in a consumer’s comparison with the competitor, an advantage that has been found to influence choice through the same attribute attractiveness restructuring measured in studies 3 and 4 above (Carlson et al. 2006). However, at the same time, that small price difference is likely to establish low expected separation. This, in turn, will make it difficult for the true superiority of the new product to emerge in the final judged advantage in quality, reducing the likelihood of purchase. If the marketing manager prices the product well below the competitor’s price, he risks conveying an image of low quality as well as sacrificing revenue. If the price is set well above the competitor’s, the product must overcome its disadvantage on this dimension. The point to be made is not about any one strategy, but that when a product is new, both directional information about relative quality and nondirectional information about expected separation may need to be considered in determining an effective introductory price.

Now consider the case where the new product is inferior to competing brands. Based on expected separation considerations, the manager of an inferior brand might do well to set price below but very near the competition’s price. This low expected separation influences the choice process, through attribute attractiveness restructuring, to result in relatively low observed separation between the products. The consequence should be a larger market share than the inferior brand would otherwise command. Again, the main point is that in the case of a new
product whose quality is unknown, expected separation may play a role in consumer choice and, therefore, might usefully be considered in managerial pricing strategy.

**Screening.** Consumers who must choose from a large set of products often screen them to reduce the choice set to a more manageable size (e.g., Bettman and Park 1980; Nedungadi 1990). Most of the work on screening assumes that the post-screening choice process proceeds immediately after the screening phase. However, in those cases where the directional results of the screening are not passed on to the final choice process, nondirectional expected separation may well be retained and subsequently influence the choice phase.

In actual practice, screening and choice may be distinct for a number of reasons. Sometimes the choice process is interrupted and the consumer can’t return to it soon enough to recall the relative status of the remaining options. At other times, the process is naturally accomplished in two stages, as when planning a trip. Some aspects like travel and hotel reservations need to be made several weeks in advance, while other details like restaurants can wait. Finally, two different individuals may execute the screening and the choice stages. To avoid influence, the screener might withhold his or her option-specific directional priors, leaving the chooser with only the knowledge that the set was screened in advance. For example, the first author’s wife and he often use a two-stage choice process in which one of the two creates the consideration set and the other picks from that set. Thus, it is not uncommon for the screening and final choice of options to occur separately, whether by different persons or at different times. In such cases something as general as expected separation may be available while more specific directional information about option quality may not.

Conventional wisdom holds that products surviving the initial screening stage can be subjected to compensatory processing, which should result in better consumer choices (Alba et
al. 1997; Lynch and Ariely 2000). Considerations of expected separation suggest the opposite, at least in some cases. If the expected separation for those options that survive an initial screening stage is relatively low (and delay or some other reason causes the loss of directional quality information), consumers may alter their processing to yield little separation between choice options. A superior product would not seem superior, and an inferior product won’t seem inferior. Indeed, this mechanism may be one reason for evidence that prescreening sometimes leads to lower quality choices (e.g., Diehl 2005; Van Zee, Paluchowski, and Beach 1992). There are many factors that influence the accuracy of a consumer’s product or brand choice and, therefore, should be considered in building theories of consumer choice. The point here is that in at least some situations, one of those factors should be the impact of expected separation.

Extensions

The studies reported above constitute an initial exploration of expected separation. Several extensions offer interesting possibilities. We next consider some of these.

Choice Set Construction. Not nearly enough is known about how consumers form consideration sets. One common claim is that consumers limit the number of options in the consideration set in order to reduce the cognitive costs associated with more effortful strategies used in the final stage of choice (Nedungadi 1990; Mehta, Rajiv, Srinivasan 2003). However, expected separation might also play a role in consideration set formation. For example, if expected separation is high, consumers anticipate easily identifying a small set of options that are clearly superior. Hence, high expected separation is predicted to yield smaller consideration sets. Through attribute attractiveness restructuring, the narrow consideration set may partly result from the expectation of high separation rather than from large real differences. Such a self-
fulfilling expectation may be especially likely for consumers who believe that they know a lot about a product category (which should lead them to expect high separation), though not about the specific alternatives that they are about to encounter (e.g., film buff choosing among recently opened films). For such consumers, smaller consideration sets are a way to affirm their product knowledge to themselves and to others. Thus, an expectation of the separation between products that exists early in the choice process may affect, among other things, the construction and eventual size of the consideration set.

*Decision threshold.* While the role of the decision threshold in the process demonstrated in this paper makes theoretical sense, the studies reported here did not include direct measures of the choice threshold. Further research is needed to solidify the role of the enhanced decision threshold in determining the effects of expected separation. In addition, research that demonstrates other factors that might determine consumers’ decision thresholds would help shed further light on this potentially important aspect of consumer choice processes.

*Origins of expected separation.* Most of the studies in the current paper engaged in manipulations of expected separation. If the role of expected separation in the choice process is important, our understanding of the consumer choice process might benefit from further research that establishes measures of naturally occurring expected separation, examines situations in which expected separation arises, and explores the processes by which consumers develop expectations of separation.

A New View of the Consumer Decision Making Process

Traditional views of consumer decision making suggest that consumers have a set of preferences, which they accommodate by careful examination of the available options. Under
such views, the process of consumer choice is one of matching options to preferences, with the emphasis on searching to remove the uncertainty associated with imperfect option knowledge. A more nuanced view is that consumers often lack strong preferences, and so construct them en route to selecting an option (e.g., Bettman et al. 1998). This constructed preference view, while accommodating of a wide range of choice anomalies, is infirmed by a lack of constraints on the preference construction process. The current article helps in this regard.

The view of consumer choice endorsed by the current work is one of a process in which support of an emerging preference is affected by the magnitude of expected separation. Because expectations can be influenced by the choice environment and strategies applied during the choice process, support for the emerging preference can be influenced by a multitude of factors. This view suggests that the process of consumer choice (and perhaps even the consumption of the selected option) extends beyond learning about and experiencing a choice option to creating and experiencing the sense of how different a chosen option is from other alternatives.

In short, although directional expectations and option-specific beliefs have dominated the research landscape, the current work suggests that nondirectional expectations and beliefs about choice-sets as a whole exist and influence consumer choice in settings where directional and specific expectations are weak – for instance when consumers know too little about the options. Learning more about such expectations and beliefs would broaden our understanding of consumers’ choice processes.
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On Levav (2007)


Table 1. Items Used for Assessing Expected Separation in the Car Domain (Study 1b)

<table>
<thead>
<tr>
<th>Question Item</th>
<th>Scoring</th>
</tr>
</thead>
<tbody>
<tr>
<td>Different manufacturers make cars that are very different in quality.</td>
<td>normal</td>
</tr>
<tr>
<td>Different manufacturers make cars that are very similar in quality.</td>
<td>reverse</td>
</tr>
<tr>
<td>Most cars are very different.</td>
<td>normal</td>
</tr>
<tr>
<td>Most cars are very basically the same.</td>
<td>reverse</td>
</tr>
<tr>
<td>If cars were priced according to the value they offer, most cars would be priced very differently.</td>
<td>normal</td>
</tr>
<tr>
<td>If cars were priced according to the value they offer, most cars would be priced the same.</td>
<td>reverse</td>
</tr>
</tbody>
</table>
Table 2. Information Search by Expected Separation (Study 1a)

<table>
<thead>
<tr>
<th>Search Dimension</th>
<th>Magnitude of Expected Separation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Low</td>
</tr>
<tr>
<td>Effort</td>
<td>5.15</td>
</tr>
<tr>
<td>Time</td>
<td>4.95</td>
</tr>
<tr>
<td>Number of Criteria</td>
<td>3.30</td>
</tr>
</tbody>
</table>
Table 3. Information Search by Expected Separation as Measured (Study1b)

<table>
<thead>
<tr>
<th>Search Dimension</th>
<th>Trinary Split of Expected Separation</th>
<th>Overall Average</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Low</td>
<td>Medium</td>
</tr>
<tr>
<td>Effort</td>
<td>3.91</td>
<td>5.19</td>
</tr>
<tr>
<td>Time</td>
<td>4.33</td>
<td>5.85</td>
</tr>
<tr>
<td># of Criteria</td>
<td>3.44</td>
<td>4.52</td>
</tr>
</tbody>
</table>