JOEL HUBER, JOHN W. PAYNE, and CHRISTOPHER P. PUTO*

Frederick, Lee, and Baskin (2014) and Yang and Lynn (2014) argue that the conditions for obtaining the attraction effect are so restrictive that the practical validity of the attraction effect should be questioned. In this commentary, the authors first ground the attraction (asymmetric dominance) effect in its historical context as a test of an important theoretical assumption from rational choice theory. Drawing on the research reported by scholars from many fields of study, the authors argue that the finding of an asymmetric dominance effect remains robust because it holds when the conditions of the study are essentially replicated. Next, the authors identify some of the factors that mitigate (and amplify) the attraction effect and then position the effect into a larger theoretical debate involving the extent to which preferences are constructed versus merely revealed. The authors conclude by arguing that researchers who try to measure values as well as choice architects who attempt to shape values must be sensitive to the context-dependent properties of choice behavior, as illustrated by the attraction effect.

Keywords: replication, asymmetric dominance, attraction effect, context effects

Let's Be Honest About the Attraction Effect

The articles by Frederick, Lee, and Baskin (2014; FLB hereinafter) and Yang and Lynn (2014; YL hereinafter) propose boundary conditions on the attraction effect that may seem surprising to some. Specifically, FLB report that an attraction effect is found "when stimuli [are] represented numerically, but not otherwise" (p. 488). As such, the FLB and YL articles contribute to the existing literature by showing not only that the attraction (asymmetric dominance) effect replicates but also that there are moderators of the effect that both decrease and increase the size of the effect. However, the authors go on to argue that the conditions for obtaining the attraction effect, when it is found, are so restrictive that the practical validity of the effect should be questioned. Yang and Lynn report many other studies that also fail to obtain an attraction effect, leading the authors to question the practical implications of the attraction effect as well and conclude that the field of marketing should ensure that research is "relevant to marketing practice" (p. 513).

Although we appreciate the evidence reported in FLB showing some boundary conditions for the attraction effect, we disagree with their conclusions about the value of the attraction effect for both theory development and efforts to help shape preferences.

Our role in this commentary is threefold. First, we ground the attraction effect as first shown in Huber, Payne, and Puto (1982) in its historical context as a simple demonstration study testing an important theoretical assumption from rational choice theory. Next, we position the attraction effect within a larger theoretical debate involving the extent to which preferences are constructed, not just revealed, when people are asked to make choices. This debate began before our 1982 article was published but has accelerated since then. And, as is often the case in the social sciences, we have observed the received wisdom shift from a revealed values perspective to a constructed values perspective and, ultimately, to a more contingent perspective that aims to identify when each point of view is more or less appropriate. Here, we find ourselves in agreement with FLB and YL that there is a need to identify additional boundary conditions for the attraction effect. However, we argue that the original finding of an asymmetric dominance effect remains robust because it holds when the conditions of the study are essentially replicated. We then ask what it is about our publishing practices that make contingent results like those of FLB and YL surprising for some people. Over the

past 30 years, numerous studies have shown when the attraction effect is amplified and when it is mitigated. Nonetheless, some people may still find the FLB and YL results unexpected. Finally, we speculate on areas in which research into context effects such as asymmetric dominance can fruitfully continue to develop.

Let us begin with a brief story about the genesis of the original Huber, Payne, and Puto (1982) article. We set out to test a basic axiom of rational choice theory called "regularity." The regularity condition requires that if A is a subset of (i.e., includes fewer options than) B, the probability of choosing any option X from A must not be less than from B. More simply, one cannot increase the probability of choosing an alternative by adding another alternative to the choice set. Luce (1977) had previously declared that regularity was the only axiom of rational choice theory that had not been violated. The attraction effect also violates the choice property of "scalability," in which the probability of an alternative being chosen can be represented as a positive function of its utility value (Tversky 1972). The regularity condition is also required for menu independence. Menu independence is acknowledged as adding much of the "cutting power" to rational choice theory (and related empirical models) in that it allows knowledge of a preference relation between two objects to predict a person's choice over different menus or choice sets. As Sen (1997, p. 752, emphasis added) acknowledges, "*menu-dependence*—when true—may be a quite momentous characteristic of choice functions." Finally, as Tversky (1972) notes, menu independence follows from the assumption that a decision maker has a complete preference order across all options, and that—given an offered set—he or she selects the option highest on the order (i.e., "value maximization").

Thus, our 1982 article was designed as a *demonstration study* showing that one could, under certain circumstances, obtain violations of the important theoretical assumption of regularity. We did not set out to suggest a tool for marketing practice. However, as marketing scholars interested in understanding choice processes, we elected to use consumer products in constructing our stimuli. Although our goal was to test an important theoretical issue, methodological difficulties loomed. We reasoned that it would be difficult to increase the share of a target alternative if the added alternative (decoy) took any share at all, and the best way to minimize the competitive impact of the decoy would be to make it dominated by the target. In our studies, the average choice proportions of the decoy option were limited to approximately 2%, indicating that dominance was recognized. Note that the key idea was to make dominance *asymmetric* in that the decoy option would be clearly dominated by the target but not by the competitor. A comparison between the competitor and the decoy would still require trade-offs to be made, but no trade-offs would be needed in a comparison between the target and decoy option. We also used what we knew about range and frequency effects to generate different levels of possible support for the target (Parducci 1974). Our first experiments showed positive results for some of the choice sets, but not for others. Gradually, we identified the choice sets that generated significant and replicable demonstrations that regularity can be violated under predictable conditions.

Over the past 30 years, many replications of the basic asymmetric dominance effect have appeared in the literature, undertaken by many researchers using different types of choice problems that involved both hypothetical and "real" consequences. These studies were conducted under a variety of circumstances, such as those with participants that ranged from picnickers to online panelists, as well as more controlled laboratory studies, including ones conducted with functional magnetic resonance imaging equipment (Hedgcock and Rao 2009).

The asymmetric dominance effect is not a phenomenon studied only by consumer researchers. Frederick, Lee, and Baskin (FLB) test a few domains outside marketing, but many more exist. Furthermore, along with additional evidence for the attraction effect, these studies specify conditions that both mitigate and amplify the effect. For example, Slaughter, Sinar, and Highhouse (1999) report a study showing the asymmetric dominance effect in a personnel assessment task that involved video clips of performance. Maylor and Roberts (2007) report an asymmetric dominance effect in a memory task. Kelman, Rottenstreich, and Tversky (1996) show context-dependent judgments in legal judgments, and Herne (1997) demonstrates decoy effects in policy judgments. There are also suggestions that decoy-type manipulations have been used to influence political races (Vedantam 2007). Finally, moving away from choice, Choplin and Hummel (2005) and Trueblood et al. (2013) find an asymmetric dominated effect in judgment of similarity among pairs of stimuli. We suspect that the attraction effect (originally reported in a consumer behavior journal) may be one of the biggest exports from marketing research to other fields in the social sciences precisely because of its important theoretical implications (although we have never investigated this notion).

There is nothing in the FLB or YL studies that contradicts the evidence in Huber, Payne, and Puto (1982) and many of the follow-up studies that regularity can be violated through the introduction of a perceived asymmetrically dominated alternative. Indeed, FLB show that the attraction effect, when tested as it has been in the past, largely replicates. See, for example, their Studies 2a and 2b, in which probabilities of gambles are expressed numerically. The replication of the attraction effect in the domain of risky choice is important because choice between numerical gambles has been used in literally thousands of studies in economics, psychology, and other fields to test theories. It has even been used for a variety of "practical" purposes, such as assessing individual risk preferences by financial institutions.

In the process of developing the demonstration stimuli reported in our original article, however, we became aware of experimental conditions in which the attraction effect did not work or was not as strong. For that reason, some of the null results reported by FLB and YL are not surprising to us, because we had observed them in our own experiments. However, because some of these factors have not been emphasized in the literature as much as they should have, we characterize them in the following section.

WHAT MITIGATES THE ATTRACTION EFFECT?

Both FLB and YL provide many examples of the failure of attraction, but their major theme is the demonstration that the effect is weakened and is *sometimes* reversed with rich,

nonnumeric stimuli. As we noted previously, however, other researchers *have* found attraction effects with nonnumeric stimuli. Nonetheless, we next characterize five general properties that inhibit the attraction effect: (1) strong prior trade-offs, (2) the inability to identify the dominance relationship quickly and easily, (3) cross-respondent value heterogeneity, and either (4) a strong dislike of the decoy or (5) a strong liking for the decoy.

Strong Prior Trade-Offs

To the extent that a decision maker has clear prior preferences between the target and the competitor, the effect of adding an undesired decoy will be muted. When there are strong prior preferences, the classic model of choice assuming revealed preferences will apply. However, when prior preferences are weak, stemming from either unfamiliarity or indifference, choices are more likely to be constructed, and context will matter.

The classic attraction effect occurs when there are two attributes that must be traded off to make a choice or judgment. In the case of preference judgments, these attributes should be such that the decision maker is sure that more or less of an attribute is always better (i.e., preferred more). For example, other aspects being equal, it is reasonable to prefer a restaurant with an 85% approval over one with 75% approval and prefer to pay $15 over $25 for a comparable meal. However, for the attraction effect to occur, the decision maker should also be unsure whether a ten-point difference in restaurant ratings is worth a $10 price difference. This uncertainty is reasonable, especially in cases in which the particular approval ratings are not associated with stable price levels.

Strong prior trade-offs do not have to result from individual differences; they also can be generated by prior tasks that have been performed. For example, the attraction effect is diminished if the decision maker rates the importance of each of the attributes before choosing. In addition, practice making choices within a product category can generate stronger prior values. To illustrate this point, Huber tested asymmetric dominance on a commercial data set of 586 respondents, each of whom made 20 conjoint choices among three alternatives defined by three attributes. From each respondent's utility scores, he identified almost 4,000 choice sets in which one item was asymmetrically dominating. Then a simple test could determine for those observations whether the target received more than its expected choice share given each person's utilities. This was not a test of regularity but a particularly powerful test of scalability in the face of asymmetric dominance. Unfortunately, and despite extensive analyses, he could not detect any consistent increase of the target's share when it was asymmetrically dominating. The reason asymmetric dominance has no effect in conjoint is easy to understand by observing a person making conjoint choices. Respondents move quickly to find an alternative that possesses good features and lacks bad features—a simple rule for choice. Immediately afterward (typically in approximately 12 seconds), the choice is made. The attraction effect does not occur in conjoint choices because respondents have developed prior values or decision rules that guide their choices independent of competitive context.

Note, however, that repetition need not always dull the attraction effect. It did not do so in the Trueblood et al. (2013) study, and it does not happen as often with risky choices for a simple reason. In assessing the value of a gamble (winning amount × probability of winning) or the area of a rectangle (length × width), the value of one attribute depends on the level of the other. Thus, it is inappropriate to make a choice on the basis of just one attribute. When an additive separation between the attributes is difficult, an attraction effect may persist even after practice because there is no simple, and independent, scalable value for attributes that can be used to make choices.

We note also that the best core set to establish an attraction effect is one in which the choice shares in the competitor and target core set are approximately equal. That gives the researcher the most power to detect changes and makes it more likely that the decoy's presence will alter choices. Importantly, in the many examples given by FLB and YL, the choice probabilities in the core set differ substantially from 50%–50%. Violating that norm generates two problems. First, an unbalanced target–competitor split makes it more likely that there exists a strong prior trade-off that may be difficult to change through the presence of a decoy. Second, there is a loss in discriminatory power as choice probabilities deviate from 50%. Because of the loss in discriminatory power, in addition to a concern that choice between three options may differ from choice between two options, several researchers testing the attraction or asymmetric dominance effect have used an A, B, A′ versus A, B, B′ comparison, where X′ represents an asymmetrically dominated alternative. Although it is not a strict test of regularity, such a design does provide a more general—and arguably a more efficient—test of the assumption of menu independence.

Difficulty Perceiving the Dominance Relationship

Attraction depends on the ability to identify the dominance relationship quickly and unambiguously. Relatively minor formatting can matter, such as whether the decoy and the target are next to each other and whether it is easy to compare the values of the alternatives. Thus, it is to be expected that the attraction effect would be limited when the options are difficult to see or time is limited.

The finding that greater difficulty perceiving dominance reduces the attraction effect in some of FLB's and YL's demonstrations is not surprising. Decision makers cannot act on a relationship that they do not perceive. Simonson's (1989) experiment demonstrating a greater attraction effect when motivated to make the right choice fits this account. After all, greater motivation will lead a decision maker to examine all the alternatives and be more likely to determine the dominance relationship, thus amplifying the attraction effect. For a further discussion of this theoretical point, see Bettman, Luce, and Payne (1998).

We suggest that whenever there is a possibility that stimuli may obfuscate the experimental effect (i.e., hide the dominance in these experiments), it is important to include some form of manipulation check. If the dominance is not perceived, the attraction effect is unlikely to occur. Experiments designed to detect when dominance is or is not perceived are quite different from those designed to show that attraction does not occur. FLB and YL focus on the latter and do not verify whether dominance was perceived. For an

example of an effective manipulation check when using complicated choice stimuli, see Fischhoff (1983).

An Undesirable Decoy

Heath and Chatterjee's (1995) meta-analysis demonstrates that the attraction effect is attenuated when the decoy is located in an undesired region of the product space. For example, they show that, in general, high-price/high-quality decoys have a greater impact among respondents who desire and can afford to pay for high-quality products. They then show that the low-price/low-quality decoy works better among respondents with limited financial resources. Similarly, Malkoc, Hedgcock, and Hoeffler (2013) provide evidence that the attraction effect is strongly limited when the attributes are expressed as losses. Because the decoy is particularly undesired, it may drive attention to the competitor. Alternatively, it may be that the gain from the decoy to the target in a negative domain does not provide the emotional boost that might occur from dominance in a positive domain. An attentional model makes sense of both results. The attraction effect only happens if the decision maker observes and is rewarded by the dominance relationship. Thus, a decoy in an undesired region may be less effective simply because consumers are not at all attracted to it.

A Viable Decoy

Some people choose the decoy either by chance or because it is better for them rather than because they do not desire it. In the FLB and YL studies, participants chose as many as 18% of decoys. Such tests work strongly against the attraction effect because the decoy and the target are designed to be close competitors. Their similarity implies that a viable decoy, if chosen, is more likely to take share from the target, thus working against a violation of regularity.

There are a variety of mechanisms through which an alternative that seems to be dominated can be a viable choice, even after careful reflection. Consider the better bedroom suite choice in FLB, in which 13% of respondents chose the less-fancy suite, even with equal prices. It may be reasonable to prefer a less upscale suite, but the large percentage of decoy choices indicates that experiment is a poor test of the attraction effect because individual tastes mask/overpower the dominance.

A different mechanism that might distort the results occurs when the decoy is simply preferred over the target. Consider a $28 flank steak compared with $30 filet mignon. Apart from a possible preference for a chewier and possibly more flavorful flank steak, consider the viability of the $30 filet mignon. It is reasonable to assume that the filet may have something wrong with it given the relative price. Retailers know about price-quality inference and often account for very low prices by stating they come from a special purchase or are only available for a trial period. However, from the perspective of a choice experiment, such inferences from price to quality confound the attempt to test the attraction effect cleanly.

A significant amount of participants choosing the decoy implies either a lack of perceived dominance and/or a lack of attention to the choice problem. Pettibone's (2012) recent article shows that the attraction effect vanishes when people do not have time to assess the information. Thus, it is important in any test of the attraction effect to adjust the format, tasks, and alternatives so that the share of the decoy is very close to zero. Frederick, Lee, and Baskin note that the choice of the decoy almost never happened in their gamble experiments, demonstrating that most respondents understood the circular probability diagrams and perceived the dominance. Consequently, the low decoy share makes their test a particularly strong and, from our perspective, important example of a boundary condition on the attraction effect.

Heterogeneity in Values Across Respondents

Previously, we proposed that an even split in choice shares is helpful if one wants to test attraction. However, preference heterogeneity across alternatives can undo even a perfect split. In the soft drink choice, if half the respondents strongly want a lemon-lime soda and the other half want a cola, it is very unlikely that asymmetric dominance will alter those choices. Put differently, the most critical condition is that people have either very weak or initially unformed preferences between the target and the competitor. They will be the people most affected by the attraction effect. The converse is also true: the greater the heterogeneity in basic trade-off values, the smaller the attraction effect.

Simonson (2014) discusses heterogeneity interfering with the repulsion effect, whereby an undesired element in the decoy taints that of the target. Simonson's insight is that decoys that are repulsive for some may be attractive for others, and when combined, these effects can cancel the net effect of adding the decoy. The important point is that the attraction effect is an aggregate-level effect whose implications on individual choice behavior can distort or even be confounded by preference heterogeneity.

More generally, both pictures and sensory responses (e.g., tastes) can be problematic in testing violations of regularity simply because the richness in such stimuli may evoke multiple responses. Note that it is not that competitive context has no effect in such cases but rather that variability in response makes violation of regularity in aggregate choice shares inappropriate to assess within-respondent context effects.

DOES THE ATTRACTION EFFECT HAPPEN OFTEN IN MARKETPLACE CHOICES?

We suspect that the asymmetric dominance effect occurs rarely in the marketplace today, at least in its strict regularity-violating form. There are two reasons for this. First, most market choices have multiple complex attributes rather than two numeric ones. The multiple attributes make it virtually impossible to find an alternative without some unique benefit. More importantly, people may have strong preferences for complex attributes (e.g., brand name, country of origin, product type), but there are situations in which those preferences are reversed. That means that dominance is not unambiguous or automatic, as can be the case with a numerical rating or a performance measure. Second, very few completely dominated decoys continue to exist in the marketplace over time. The costs of producing and distributing dominated options that consumers will not choose is likely to make pure asymmetric dominance rare in active marketplaces.

To be sure, there are studies demonstrating the attraction effect in some market contexts. Consider the Doyle et al. (1999) study of Heinz baked beans in a market display. The same cans of Heinz baked beans in a display priced at £.31

served as a decoy to increase the share of the £.29 targets. Relative sales of the target increased compared with a lower-price/lower-quality competitor. The authors also showed no effect from including dented decoys to attract attention to that competitor, which would have been consistent with a repulsion effect.

Good grocers know about this repulsion effect and are careful to remove tainted fruit or damaged merchandise from a bin. However, in the positive domain, attraction is reasonable. Consider discovering a display of navel oranges priced at $.79 each. All have delightful orange color and regular shapes, but some are noticeably larger than the others. In that case, it is likely that the smaller oranges serve as a decoy to increase sales of the larger ones.

The asymmetric dominance is considered robust in laboratory studies compared with the compromise effect, another form of context dependence in preference. However, in the marketplace, there are many more examples of merchants framing a target product by surrounding it with higher-price/higher-quality and lower-price/lower-quality items. Aversion to these extreme alternatives then drives consumers to the compromise options. Thus, although asymmetric dominance may be more robust than compromise in the lab, we more often observe successful use of compromise in the marketplace. Both, however, are important conceptual context effects in choice, and both provide evidence for the more general insight that preferences are constructed.

Finally, the rarity of dominated alternatives may be lessened in the emerging digital marketplace. One need only visit Amazon.com, where almost every choice includes a price and a reviewer's 1–5 "star" rating, or find product tests in a computer magazine that include prices with some form of rating scale for each tested product. There, the possibility of dominance (and decoy exploitation) exists. In addition, consider a product or service marketer who elects to "attack" a competitor by trying to dominate it with a new offering that attempts to outdo the competitor on its current strongest attribute but fails to do so in the buyers' minds. This arguably occurred with the introduction of the NeXT brand computer, which was a higher-priced, lower-featured (e.g., no disk drive) attempt to outdo Apple. The market perceived Apple's high-end machines to be of superior value, causing the NeXT computer to be a decoy that arguably increased Apple's share of that market.

WHY STUDY ASYMMETRIC DOMINANCE IF IT RARELY EXISTS IN THE MARKETPLACE?

If asymmetric dominance has relatively little impact in today's marketplace, why should we attend to it and teach it in our classes? The reason to teach it is to make clear that context matters—that is, to show that *how* an offering stacks up against its competition can be more important than its inherent quality. From a theoretical perspective, pure dominance does not matter in and of itself but rather as an example of the impact of an important context effect. We should think of dominance as a weak but positive cue that supports the target. When faced with choices in which one has weak preferences, the decoy *can* increase the target's share.

Importantly, evidence of violations of regularity due to the attraction effect implies that choice behavior can be context dependent. As we note previously, this evidence of context-dependent preferences, coupled with evidence of a wide variety of task effects (e.g., response mode effects) and framing effects, indicates that preferences are often constructed and not simply read from a master list of values. This more general idea that preferences may be constructed is important not only at the theory level but also at a practical level in helping people make better decisions. The current efforts to improve decisions through "nudges" or changes in choice and information architectures are the result of a shift toward the view that many important expressions of preference (e.g., retirement savings plans) are constructed, at least in part (Thaler and Sunstein 2009). We suspect that FLB and YL would agree that nudges have practical value in the real world.

In a broader sense, discovering that one item is clearly better than an alternative certainly affects choices, but because of heterogeneity in our goals and search experiences, it may be difficult to identify whether uncovering dominance altered a decision. From that perspective, the attraction effect reflects one context effect that may only be cleanly identifiable over a narrowly defined domain of choice problems. Although we believe that attraction has a role in more complex choices, more work in eye tracking and neuroscience is needed to detect the impact of idiosyncratic dominance on choice.

RESEARCH INTO THE ATTRACTION EFFECT

The attraction effect has been documented for 32 years, so it is appropriate to ask why it remains controversial. We believe one reason is that authors sometimes practice overgeneralization, which can be reinforced by a conservative review process that places undue weight on previously published research. Overgeneralization occurs when researchers correctly report results of experiments but leave the reader with the impression that the results apply beyond the original domain. In our view, FLB and YL overgeneralize about the limits of the attraction effect. However, it is also likely that some published reports on the occurrence of the attraction effect overgeneralize. This may be a systematic problem. Often, editors encourage authors to exaggerate the way their findings build on extant research. Furthermore, a conservative bias in publications can take a particularly troubling form. Suppose FLB were to try to publish their Studies 2a–2c on gambles as a separate article. That article might have difficulty being accepted because it does not sufficiently explain why probability circles are so different from numbers. In that regard, we would like Studies 2a and 2b in the FLB article to be performed with eye-tracking technology to determine whether the cause of the difference in the size of the attraction effect is due to a shift from a more attribute-based relationship comparison process (in the case of the numeric representation of the probabilities) to more alternative-focused processing with the more graphical (perceptual-based) representation of the probabilities.

We also acknowledge that it is difficult to publish replications with only null effects because the reasons for null effects are many. Nonetheless, as a field we aim to build on previous studies that have shown an effect. For that reason, it is appropriate to have FLB and YL featured with commentaries in *Journal of Marketing Research*. Their results on boundary conditions may not be novel for people who have had experience with many studies of the attraction

effect. However, they may be surprising to those who accepted the overgeneralizations that surrounded the attraction effect.

As more replications are attempted in the marketing discipline, it is important to recognize that three kinds of replication are needed. First, there are pure replications aimed to duplicate the original study as closely as possible. Pure replications are appropriate but require a large number of respondents showing a null effect to overthrow a previously accepted result. Simonson (2014) questions the purity of some of the purported replications reported by FLB, and we share that skepticism. Domain replications, in which an effect is tested with different respondents, product categories, or stimuli levels, are also valuable. Finally, there are conceptual or theory-driven replications that test the effect given different tasks or, by employing different processes, revealing predicted moderators of an effect. Malkoc, Hedgcock, and Hoeffler (2013) provide a summary of moderators that have been found in such studies. Most of the replications in FLB and YL are domain replications because of potentially important differences in respondents, tasks, or the meaning of the stimuli.

In summary, the experiments of Frederick, Lee, and Baskin (2014) and Yang and Lynn (2014) contribute to the literature by providing additional evidence for boundaries of the attraction effect. It is likely that future meta-analyses will mine and replicate their results, which will help develop a clearer understanding of the meaning and domain of the attraction effect. Nonetheless, we stand by the following conclusions, based on more than 30 years of research on the attraction effect: First, the attraction effect does replicate. Second, the attraction effect has predictable and important boundaries. Third, the attraction effect implies, and is implied by, the concept of constructed preferences. Fourth, whenever preferences are likely to be constructed, researchers who try to measure values, as well as choice architects who attempt to shape values, must be sensitive to the context-dependent properties of choice behavior.

REFERENCES

Bettman, James R., Mary F. Luce, and John W. Payne (1998), "Constructive Consumer Choice Processes," *Journal of Consumer Research*, 25 (3), 187–217.

Choplin, Jessica M. and John E. Hummel (2005), "Comparison-Induced Decoy Effects," *Memory & Cognition*, 33 (2), 332–43.

Doyle, John R., David J. O'Connor, Gareth M. Reynolds, and Paul A. Bottomley (1999), "The Robustness of the Asymmetrically Dominated Effect: Buying Frames, Phantom Alternatives, and In-Store Purchases," *Psychology and Marketing*, 16 (3), 225–43.

Fischhoff, Baruch (1983), "Predicting Frames," *Journal of Experimental Psychology: Learning, Memory and Cognition*, 9 (1), 103–116.

Frederick, Shane, Leonard Lee, and Ernst Baskin (2014), "The Limits of Attraction," *Journal of Marketing Research*, 51 (August), 487–507.

Heath, Timothy B. and Subimal Chatterjee (1995), "Asymmetric Decoy Effects on Lower-Quality Brands: Meta-Analytic and Experimental Evidence," *Journal of Consumer Research*, 22 (3), 268–84.

Hedgcock, William and Akshay Rao (2009), "Trade-Off Aversion as an Explanation for the Attraction Effect: A Functional Magnetic Resonance Imaging Study," *Journal of Marketing Research*, February, 46 (February), 1–13.

Herne, Kaisa (1997), "Decoy Alternatives in Policy Choices: Asymmetric Domination and Compromise Effects," 13 (3), 575–89.

Huber, Joel, John W. Payne, and Christopher Puto (1982), "Adding Asymmetrically Dominated Alternatives: Violations of Regularity and the Similarity Hypothesis," *Journal of Consumer Research*, 9 (1), 90–98.

Kelman, Mark, Yuval Rottenstreich, and Amos Tversky (1996), "Context-Dependence in Legal Decision Making," *Journal of Legal Studies*, 25 (2), 287–318.

Luce, R. Duncan (1977), "The Choice Axiom After Twenty Years," *Journal of Mathematical Psychology*, 15 (3), 215–33.

Malkoc, Selin A., William Hedgcock, and Steve Hoeffler (2013), "Between a Rock and a Hard Place: The Failure of the Attraction Effect Among Unattractive Alternatives," *Journal of Consumer Psychology*, 23 (3), 317–29.

Maylor, Elizabeth and Matthew A.J. Roberts (2007), "Similarity and Attraction Effects in Episodic Memory Judgments," *Cognition*, 105 (3), 715–23.

Parducci, Allen (1974), "Contextual Effects: A Range-Frequency Analysis," in *Handbook of Perception*, Vol. 2, Edward C. Carterette and Morton P. Friedman, eds. New York: Academic Press.

Pettibone, Jonathan C. (2012), "Testing the Effect of Time Pressure on Asymmetric Dominance and Compromise Decoys in Choice," *Judgment and Decision Making*, 7 (4), 513–23.

Sen, Ammartya K. (1997), "Maximization and the Act of Choice," *Econometrica*, 65 (4), 745–79.

Simonson, Itamar (1989), "Choice Based on Reasons: The Case of Attraction and Compromise Effects," *Journal of Consumer Research*, 16 (2), 158–74.

——— (2014), "Vices and Virtues of Misguided Replications: The Case of Asymmetric Dominance," *Journal of Marketing Research*, 51 (August), 514–519.

Slaughter, Jerel E., Evan F. Sinar, and Scott Highhouse (1999), "Decoy Effects and Attribute-Level Inferences," *Journal of Applied Psychology*, 84 (5), 823–28.

Thaler, Richard H. and Cass R. Sunstein (2009), *Nudge: Improving Decisions About Health, Wealth, and Happiness*. New York: Penguin Books.

Trueblood, Jennifer S., Scott D. Brown, Andrew Heathcote, and Jerome R. Busemeyer (2013), "Not Just for Consumers: Context Effects Are Fundamental to Decision Making," *Psychological Science*, 24 (6), 901–908.

Tversky, Amos (1972), "Elimination by Aspects: A Theory of Choice," *Psychological Review*, 79 (4), 281–99.

Vedantam, Shankar (2007), "The Decoy Effect, or How to Win an Election," *The Washington Post*, (April 2), (accessed May 14, 2014), [available at http://www.washingtonpost.com/wp-dyn/content/article/2007/04/01/AR2007040100973.html].

Yang, Sybil and Michael Lynn (2014), "More Evidence Challenging the Robustness and Usefulness of the Attraction Effect," *Journal of Marketing Research*, 51 (August), 508–513.