Stuck in the Middle: the Effect of Number of Alternatives on Adaptation to Outcomes

Karim Kassam, Harvard University
Carey Morewedge, Carnegie Mellon University
Daniel Gilbert, Harvard University

Rationalization helps maintain well-being by convincing us that whatever happened was for the best, but its effectiveness depends on the number of alternatives to a given outcome. When there is a very small number of alternatives, it is relatively straightforward to compare options in a way that makes the experienced outcome seem best. When there is a very large number of alternatives, comparison becomes inappropriate and rationalization can proceed through other means. When there is a moderate number of alternatives, comparison is tempting but difficult, and rationalization falters. Three experiments demonstrate this non-linear relationship between number of alternatives and happiness.

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**Symposia Summary**

**Considering the Alternatives: Cognitive Mechanisms Underlying Choice Processes**

Karim Kassam, Harvard University, USA

**Session Overview**

In today’s society, choice pervades every aspect of our lives, and the number of alternatives is staggering. Recent research has shown that consumers’ reactions to a given decision outcome depend significantly on the number of alternatives: Rather than boost confidence and raise satisfaction, large numbers of alternatives end up making us less convinced of our decisions and less happy with our outcomes.

Though this phenomenon is well established, less is known about the psychological processes underlying these effects. The present symposium investigates different cognitive mechanisms relating to both the selection of alternatives and the reaction to different set sizes to understand why, when, and how increasing the alternatives will reduce consumers’ well-being. This knowledge of the cognitive mechanisms will allow researchers and marketers to make informed predictions of what a consumer might do or how she might feel in any given situation.

In the first presentation, Lee and colleagues investigate how adaptation leads to the selection of choice sets of varying size. Hedonic adaptation to changing surroundings is a well-established phenomenon, and how we adapt may have important consequences for how we subsequently choose. Their studies suggest that adaptation to one’s own physical attractiveness has implications for the partners that one seeks. Specifically, they find that less attractive people consider a larger pool of potential mates, but place less weight on attractiveness when making selections. The results indicate that adaptation can be an important factor in set size selection.

Next, Botti and colleagues explore how the extent of cognitive elaboration on the choice-set options interacts with set size to influence the choice-making experience. Elaboration has previously been shown to have beneficial effects on choice, leading to greater confidence; however, relative to a limited set, elaborating on an extensive set reduces positive affect. Taken together, these two effects pose a dilemma to consumers confronted with extensive choice: While elaborating on their options will diminish their positive mood, failing to elaborate will diminish their confidence in the outcomes they choose. This paper also investigates a possible solution to this dilemma: preference learning through repeated choice from the same set maintains a high level of confidence while at the same time reducing the need for elaboration and the associated negative influence on affect.

Finally, Kassam and colleagues examine how rationalization affects consumers’ satisfaction after a choice is made. The paper suggests that increasing the number of choice-set alternatives impacts happiness by hampering our ability to rationalize. The process of rationalization involves shifting our perspectives on a situation in such a way as to present it in a more positive light, and frequently depends on favorable comparison with alternatives. They find a non-linear relationship between satisfaction and number of alternatives. When the number of alternatives is small, comparison is easy and people are happy. With moderate numbers of alternatives, comparison maintains its allure but loses its effectiveness, and people end up less happy. When the number of alternatives is very large, people don’t attempt comparison and instead rationalize in other ways. Though large numbers of alternatives are detrimental during the process of choice, moderate numbers may actually result in less happiness after the fact.

**Potential Audience.** Researchers interested in consumer judgment and decision making, in choice theory and alternatives, or in the effect of choice-set size on product perception and preference. The three papers should also be of interest to marketing practitioners because they provide a more detailed explanation of how set size impacts consumer satisfaction which can be used to make predictions of consumer behavior in natural environments.

**Providing a Bridge.** The importance of set size when examining satisfaction from choice has recently been established in a variety of domains, but little is known of the cognitive mechanisms underlying these effects. In studying these mechanisms, we aim to provide a more detailed account of the phenomenon that can be used to more effectively predict consumer choice and satisfaction. In making this connection between theoretical psychology and marketing practice, we are aided by the diversity of perspectives of our contributing authors, which include academics in psychology, marketing and management, as well as practitioners from industry.

**Extended Abstracts**

“If I’m Not Hot, Are You Hot or Not? Attractiveness Adaptation and Dating Preferences”

Leonard Lee, Columbia University

George Loewenstein, Carnegie Mellon University

Dan Ariely, MIT

Jame Hong, HOTorNOT.com

Jim Young, HOTorNOT.com

It is well established that people adapt to diverse circumstances, such as chronic health problems and low income, quickly reporting roughly similar levels of happiness to those in more objectively advantageous situations. Such “hedonic adaptation” serves important functions, increasing the motivation to change what can be changed and decreasing the motivation to change what cannot be changed. If the “why” of adaptation is relatively well understood, the “how” is much less well understood; there has been relatively little research into the psychological processes that support adaptation. For example, do people adapt to a lowered income by cultivating inexpensive hobbies and tastes, by persuading themselves that their income isn’t, in fact, low, or by simply deciding that income isn’t very important in the scheme of things? As the question suggests, different possible mechanisms can support hedonic adaptation.

In this work, we examine adaptation to one of the most important dimensions on which people vary—physical attractiveness. Specifically, we investigate whether individuals’ own physical attractiveness affects the number of potential mates they see as viable, as well as their perception of the attractiveness of others. It should not take much persuading that beauty is highly valued in our society; physically attractive people are not only popular romantic targets but also benefit from a “halo effect”, whereby they are seen as possessing a wide range of other favorable traits and personal qualities such as social and intellectual competence. If beauty is considered a benefit, then one benefit of beauty is the capacity to bond with others who are also beautiful. Studies of assortative mating find very strong correlations between the attractiveness of dating and marital partners. The phenomenon of assortative mating raises the question of how people adapt to the attractiveness of individuals they may marry. Do people adjust their
aspirations for whom they will accept as dating or marital partners, regardless of how attractive they themselves are, seem to judge the attractiveness of others in similar ways. With almost 450,000 observations, the latter result is rather stunning; if there was any connection between own-attractiveness and the perceived attractiveness of others, we should have ample statistical power to detect it. Thus, overall, the results from analyzing the H O T or NOT data sets in Study 1 imply that, whereas less attractive people are willing to accept less attractive others as dating partners, they do not delude themselves into thinking that these less attractive others are, in fact, physically attractive. There is no evidence of adaptation at this level.

Yet, possibly, adaptation could take other forms. Perhaps, instead of wearing a different pair of lens when judging the attractiveness of others, people of different physical attractiveness levels might instead vary the importance they place on different desirable attributes in their romantic partners. Drawing from cognitive dissonance theory, we hypothesize that people might adapt to the unlikelihood of attracting a more physically attractive partner by placing less weight on physical attractiveness and more weight on other attributes such as intelligence and sense of humor. To test this hypothesis, we ran a speed dating event in Study 2 where participants were asked to (1) complete a short survey in which they indicated how much they weighed each of six criteria (physical attractiveness, intelligence, sense of humor, kindness, confidence, and extroversion) when selecting a potential date prior to the speed dating event; and (2) rate each participant whom they speed dated on his or her physical attractiveness during the actual event. Correlation analyses between the participants’ own-attractiveness and their self reported standardized weights for each of the six criteria revealed that less attractive people tend to place less weight on physical attractiveness in date selection and greater weight on other non-attractiveness-related attributes such as sense of humor.

The results of Studies 1 and 2 highlight one plausible mechanism underlying hedonic adaptation: when faced with a range of options (e.g., potential partners) or life situations (e.g., states of health) of varying (objective) hedonic value, instead of adopting a “sour grapes” mindset and deluding themselves that what is unattainable isn’t as great as what it looks, people divert their focus to the merits of options that are attainable to them. Such motivated changes in dating preferences not only supports hedonic adaptation, but also increases the pool of potential mates, reducing the likelihood that physically unattractive people will end up without partners, and supporting assortative mating. Much like the famous line from a Crosby Stills Nash and Young song, people find a way to love the one they are with.

“Thinking Deeply: The Affective Costs of Elaborating on Too Much Choice”
Simona Botti, Cornell University
Sheena S. Iyengar, Columbia University

As consumers, we are often confronted with abundant choice, from the many options we encounter on a trip to buy groceries to the hundreds of options we encounter on a trip to the mall. In response to this explosion in choice, a growing body of research has found that the provision of choice can elicit a host of undesirable effects, such as lower satisfaction with the decision outcome and more negative affective responses (Botti and Iyengar 2006). However, there has been little research on how the size of the choice set interacts with additional factors to produce these effects. In the present studies we address this issue by examining the moderating role of elaboration, an effortful mode of cognitive processing marked by thoughtful analysis and a thorough scrutiny of the options. We propose that, although elaboration enhances confidence in the chosen outcome, elaborating on extensive options worsens choosers’ affective response to the decision process. This negative effect of elaboration is however tempered when consumers repeatedly choose from the same sets as the amount of elaboration is reduced by learning.

Research has found that positive affect is generally enhanced by the act of choosing (Taylor and Brown 1988) but it is worsened by the increased elaboration associated with cognitively difficult tasks and emotionally difficult trade-offs (Garbarino and Edell 1997; Luce 1998). Building on prior research showing that choosing from a larger, as opposed to smaller, choice-sets is more cognitively and emotionally challenging (Iyengar and Lepper 2000) we hypothesize that consumers who choose from abundant options will experience lower positive affect than those who choose from limited options.

As a preliminary investigation of this hypothesis we conducted a pre-test in which participants chose a restaurant from either a larger (30) or a smaller (10) list of restaurant advertisements. The advertisements included the restaurants’ name and location; their Zagat ratings for food, décor, service, and average cost; and the written reviews of the restaurants from Zagat and City Search. To measure the extent to which participants elaborated on their options we asked them to list all the features that they took into account when making their choice; we then coded these features as either salient or non-salient attributes, where salient attributes (i.e., Zagat ratings and average price) were easier to discern and compare than non-salient attributes (i.e., style of décor and type of clientele). We expected that whereas participants at all levels of elaboration would utilize salient attributes, participants at high levels of elaboration would be more likely to broaden their search and utilize non-salient attributes than participants at low levels of elaboration ( Petty and Wegener 1998). Results confirmed these predictions: Increased reliance on non-salient attributes was associated with decreased positive affect for participants in the extensive choice condition. Conversely, the use of salient attributes did not differentially impact positive affect for participants in the two choice conditions.

Study 1 replicated these results by manipulating the extent of both choice and elaboration and examined the effect of elaboration on decision confidence. This effect is particularly relevant because prior research has shown that elaboration enhances consumers’ confidence ( Cialdini, Petty, and Cacioppo 1981) posing a dilemma to consumers confronted with extensive options: They can mitigate decreased confidence in their choice by elaborating while they choose—but only at the expense of their positive mood. As in the preliminary investigation, participants in Study 1 chose a restaurant from either a limited (15) or an extensive (45) set of options. Extent
of elaboration was manipulated by using time constraints so that participants had either a limited (3 minutes) or an extended (15 minutes) amount of time to make their choice. To check this manipulation, we asked participants to describe their thought process during the decision task and coded these thoughts to measure the extent to which participants both relied on non-salient information and confronted trade-offs. This manipulation check confirmed that, relative to those in the limited time condition, participants in the extended time condition were more likely to consider non-salient features and to weigh trade-offs when making their choice. Results show that, as predicted, in the high elaboration condition participants experienced lower positive affect when choosing from an extensive as compared to a limited array; this difference was however not significant in the low elaboration condition. In addition, participants who had ample time to elaborate on their options felt overall more confident in their choices than participants who had little time to elaborate.

These two effects suggest a double bind for consumers facing extensive choice: While elaborating on a large number of options may diminish their positive mood, failing to elaborate may diminish their confidence in the chosen outcomes. Study 2 solved this dilemma by looking at situations that can mitigate the negative effects of elaboration on positive affect. Prior research has shown that preference learning reduces the amount of elaboration required to make a choice (Alba and Hutchinson 1987) but not the level of decision confidence (Chernev 2003). Hence, if consumers faced with larger choice sets were given the possibility to learn their preferences they might still enjoy decision confidence while at the same time avoid the emotional suffering associated with elaboration. In Study 2 preference learning was achieved by having participants make repeated choices from the same sets over a period of two weeks. Participants were asked to select ten consecutive songs from the same list of either a limited (30 songs from 10 albums) or an extensive (300 songs from 100 albums) number of unfamiliar mp3 music files. Results show that, as predicted, choice repetition decreased the amount of time and the extent of elaboration, and increased perceived expertise. As a result, both decision confidence and positive affect increased in the extensive choice condition, causing participants faced with a larger choice set to be more confident and happier with their choice than those faced with a smaller set.

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Karim S. Kassam, Harvard University  
Carey K. Morewedge, Carnegie Mellon University  
Daniel T. Gilbert, Harvard University

We tend to go through life with fewer regrets than an objective observer might imagine. Not everyone is admitted into their preferred college, we may not get the job we really want, and the beautiful woman we ask on a date may well say no, but in the end we love our alma maters, are happy with our jobs and can’t imagine having married anyone else. Research suggests that one reason for our ability to adapt to any situation is rationalization. We rationalize automatically and unconsciously, even when it seems there’s no way to construe the facts to make a horrible failure look like an incredible victory.

One way that people create satisfaction with their outcomes is by favorably comparing those outcomes to their alternatives. By focusing on positive aspects of a given outcome and negative aspects of alternative outcomes, we are able to frame the situation in the best possible light. Consumers use comparison to make their selections look better than the alternatives (Brehm, 1956), voters use comparison to make the election winner look better than other candidates (Beasley & Joslyn, 2001), and high school seniors use comparison to make colleges that have admitted them look better than those that haven’t (Lyubomirsky & Ross, 1999).

Though are abilities to adapt to even extreme situations are formidable, there are factors that can slow the process. The reliance of rationalization on comparison suggests one such factor. Comparing two outcomes is relatively straightforward, but as the number of outcomes increases comparison quickly becomes difficult or impossible. When the set of alternatives grows from small to moderate, the number of pair-wise comparisons necessary to establish that a given outcome is best may overwhelm our psychological abilities and thus hinder adaptation. When the number of alternatives gets very large, direct comparison quickly becomes impossible. We might not be able to keep ten or more possibilities in mind, let alone compare them. Taken together, this suggests a non-linear relationship between number of alternatives and happiness. Both very small and very large numbers of alternatives may result in positive affect changes that are not seen when a moderate number of alternatives is considered. While we might expect hedonic adaptation to proceed similarly regardless of the number of alternatives, both the underlying mechanisms and the results may change when alternatives go from few to moderate to many. We conducted three studies which provide evidence for this non-linear relationship.

In Study 1, we compared participants who knew the alternative to the prize they won, to those who knew the alternative comes from a set of four possible alternatives, and those who had no knowledge of the possible alternatives. All participants won the same prize, the best in the set. Those unable to make the comparisons are likely to be less happy. In addition, those with no knowledge of potential alternatives were expected to rationalize other than by comparison, and thus become relatively happy. Participants were least happy when they compared the prize they won to a moderate number of alternative prizes (i.e., four other prizes). In other words although all participants won the same prize, those who saw a single, salient alternative to the prize they won, and those for whom the alternative could have been anything were significantly happier than participants who knew the alternative was from a moderate-sized set.

Study 2 extended the results and provided an even stronger test of our hypothesis. All participants saw the entire set of prizes, and all won the prize they had previously ranked lowest. Subsequently, after winning the worst prize, some participants saw that the alternative to the prize won was the prize they had ranked next-to-last in the pre-ranking. These participants were objectively in the best situation, they may not have won the prize they wanted, but the prize they almost won was similarly undesirable. Others saw that the alternative to the prize won was the prize they had ranked highest in the pre-ranking. These participants were objectively in the worst situation, not only did they win the worst prize, but the prize they almost won was the prize they wanted most. A third group knew only that the alternative was one of a set of four possible prizes. Even though all participants won their lowest ranked prize, those who saw a single, salient alternative to the prize they won, and those for whom the alternative could have been anything were significantly happier than those who knew the alternative was from a moderate-sized set. Interestingly, this difference persisted even for those who had almost won the prize they wanted most, i.e. those faced with the most difficult comparison.

Study 3 provided further support for a non-linear relationship. Participants pre-ranked a set of twenty possible prizes, and all won the prize they had rated lowest. Some participants saw a small number of alternatives (two), others a moderate number (four), and others a very large number (nineteen). Once again, even though
everyone won the worst prize, those who saw the prize together with a moderate number of alternatives were significantly less happy than those who saw it together with either a very small or very large number of alternatives.

Our abilities to rationalize outcomes have a profound affect on our well-being. Whatever we choose, we find reasons after the fact suggesting that whatever we ended up with was for the best. Though these abilities are formidable, the present research suggests that they are also vulnerable. Comparison may be a favored method of rationalization, but in cases where there are a moderate number of alternatives, comparison becomes difficult while maintaining its allure. That difficulty limits our ability to adapt and consequently limits our happiness.

REFERENCES


