Complicating Choice

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Abstract

A great deal of research in consumer decision-making and social-cognition has explored consumers' attempts to simplify choices by bolstering their tentative choice candidate and/or denigrating the other alternatives. The present research investigates a diametrically opposed process, whereby consumers complicate their decisions. The authors demonstrate that, in order to complicate their choices, consumers increase choice conflict by over-weighing small disadvantages of superior alternatives, converging overall evaluations of alternatives, reversing the ordinal value of attributes, and even choosing less preferred alternatives. Further, the results from five studies support a unifying theoretical framework, namely the effort-compatibility principle. Specifically, it is argued that consumers strive for compatibility between the effort they anticipate and the effort that they actually exert. When a certain decision seems more difficult than initially expected, a simplifying process ensues. However, when the decision feels easier to resolve than was anticipated (e.g., when consumers face an important, yet easy choice), consumers artificially increase their effort.

"No question is so difficult to answer as that to which the answer is obvious"

~ George Bernard Shaw

Decisions are typically construed as resolutions that follow active deliberation. For example, Merriam-Webster's on-line dictionary defines a decision as "…a determination arrived at *after consideration*." Thus, a certain degree of consideration or deliberation is necessary to reach a decision. But, how much deliberation is enough? A great deal of research in behavioral decision theory and social cognition argues that consumers limit their deliberation and simplify their decisions in order to make easy, confident, and justifiable choices. For example, consumers have been shown to bolster their tentative choice candidate and/or denigrate the other available options (see Brownstein 2003 for a comprehensive review).

While simplifying processes in decision-making are important and ubiquitous, the present research demonstrates that, under certain conditions, consumers actually complicate their choices and bolster inferior options. Specifically, when consumers make important choices they are motivated to engage in a deliberate decision process that adequately vets the chosen alternative. Consequently, when an important decision feels too easy, consumers reconstruct their preferences in a manner that increases choice conflict.

Complicating decision processes are diametrically opposed to well-documented simplifying and justification processes. While complicating behavior may seem contradictory to much of the existing literature, in this article, we propose and empirically support a unifying effort-compatibility framework that accounts for simplifying, complicating, and the continuum between these two phenomena. This unifying framework postulates that consumers strive for compatibility between the effort they anticipate and the actual effort they invest in the decision. Accordingly, when a decision feels more difficult than what was initially anticipated, a simplifying process ensues. Conversely, when a decision is easier to make compared to what was originally anticipated, consumers artificially increase their deliberation and decision effort. We demonstrate that, in order to artificially create choice conflict, consumers (a) over-weigh

small disadvantages of superior alternatives; (b) converge their overall evaluations of alternatives; and (c) reverse the ordinal value of attributes. Interestingly, such distortions disappear once the choice is made and the need to engage in due-diligent deliberation ceases.

We review the extant literature on simplifying decision processes and then develop and position our conceptual framework. We demonstrate the existence of complicating decision processes in Study 1, and directly investigate the underlying psychological mechanism, namely effort-compatibility, by manipulating the anticipated and experienced effort (Studies 2a – 2c), and by employing a mediation analysis (Study 3). In Studies 4 and 5 we investigate the impact that complicating behavior has on preference construction and ultimate choice. We conclude by discussing the implications of our framework for consumer researchers and marketing managers.

Simplifying Decision Processes

A voluminous literature has demonstrated that after making choices (i.e., in the post-decisional phase), consumers increase their valuation of the chosen alternative and denigrate their valuation of the forgone alternative/s (Festinger 1957). In addition, research shows that consumers bolster their impending choices even before they finalize their decisions (see Brownstein 2003 for a review). For example, consumers often engage in selective information processing that favors one alternative at the expense of others. Bolstering one of the alternatives and/or denigrating the other alternatives decreases the choice conflict and facilitates easier, more confident choices. Such biased processing of choice alternatives in the pre-decisional phase has been analyzed and demonstrated in prior research, involving choice certainty theory (Mills 1968), conflict theory (Janis and Mann 1977; Mann, Janis, and Chaplin 1969), search for dominance structure (Montgomery 1983), motivated reasoning (e.g., Kunda 1990), motivated judgment (e.g., Kruglanski 1990), motivated inference (e.g., Pyszczynski and Greenberg 1987), confirmation bias (e.g., Lord, Ross, and Lepper 1979), distortion of information (e.g., Russo, Medvec, and Meloy 1996), and choice under incomplete information (e.g., Kivetz and Simonson 2000).

Research in behavioral decision theory suggests that consumers may not always seek to simplify and bolster their choices. Specifically, a motivation to make accurate decisions can attenuate the use of heuristics and simplifying processes (e.g., Payne, Bettman, and Johnson 1988). For example, increased accuracy motivation reduces or even eliminates anchoring and insufficient adjustment, primacy effects, and the fundamental attribution error (Kruglanski and Freund 1983; Tetlock 1985). Similarly, informing consumers that they will have to justify their decisions to others (Russo, Meloy, and Wilks 2000) was found to attenuate pre-decisional bolstering.

Thus previous research has identified situations in which consumers will simplify, or will avoid simplifying, their decisions. In this paper we examine a diametrically opposing behavior, whereby consumers actually make their decisions harder. Thus, the distinction between *not simplifying* and *complicating* is important. While the former is characterized by the mere attenuation of various simplifying biases, the latter represents a distinct set of complicating processes that introduce a bias of itself by making the decision more effortful than it has to be.

Complicating Decision Processes

Recent research supports the notion that consumers might be attracted to more difficult decisions. For example, Liu and Simonson (working paper) demonstrate that when faced with relatively unattractive alternatives, consumers are more likely to purchase a product when it is selected from a choice set that elicits greater conflict. Labroo and Kim (2009) document more favorable evaluations of a stimulus --- that is considered a means to a goal --- when that stimulus is less visually fluent. They explain this result as a meta-cognitive inference that the less fluent and harder to process stimulus is more instrumental for goal attainment.

Although the aforementioned research demonstrates that consumers react positively to more effortful situations, the choice difficulty in those studies was generated by the experimenter or the choice context. In the present article, we argue that consumers are not only attracted to difficult decision processes, but at times may endogenously seek to enhance their decision effort, that is, complicate their choices. We propose that, to increase their decision effort, consumers

may voluntarily enhance the decision conflict and trade-off difficulty in the choice set at hand by bolstering the less attractive alternative(s) in the set and denigrating the leading alternative. This could be achieved, for example, by overweighing small disadvantages of (and attributes that oppose) the leading alternative and/or under-weighing the large advantages of (and the attributes that favor) the leading alternative. Consumers may also reconstruct their preference ordering of attribute levels in a direction that detracts from their tentatively preferred alternative. Because such complicating decision processes are intended to ensure proper vetting of choice options, we expect them to occur only during the pre-decisional phase. Once a choice is made, the need for conflict enhancement behavior should disappear.

A Synthesis: The Effort-Compatibility Framework

If, as we have argued, consumers sometimes simplify their decisions and at others times complicate their decisions, then a question that naturally arises is: what determines which of these opposing processes will dominate? Building on prior research on satisficing and effort-accuracy tradeoffs (Payne, Bettman, and Johnson 1988; Simon 1957), we propose that consumers strive for compatibility between the effort they anticipate and the effort that they experience in making that decision. More specifically, consumers are predicted to complicate their decision-making when a decision feels easier compared to what they had anticipated for the type of impending choice and simplify their decision-making when they feel that a decision is harder than what they had anticipated.

The anticipated, as well as the experienced effort, may vary based on various factors, such as the level of similarity and comparability among alternatives (Greenleaf and Lehmann 1995; Johnson 1984), the type and amount of choice conflict (Barker 1942; Chatterjee and Heath 1996; Miller 1944), the importance of the decision and the level of accountability (Lerner and Tetlock 1999), the anticipated regret and degree of commitment (Janis and Mann 1977), and the effort invested by others (Kivetz and Zheng 2006). In the present article, we operationalize the experienced choice difficulty in several ways. For example, we construct choice sets with either high or low utility differences (or overall evaluation) between the alternatives. Consistent with

previous literature, we define the degree of choice conflict as the difference between the utilities of the alternatives. A larger utility difference between alternatives represents an easier choice because the consumer can more easily identify a preferred alternative (i.e., the one with greater utility). By contrast, a choice set with a smaller utility difference between alternatives represents a more difficult choice because the tradeoffs are more intense, and it is harder for the consumer to identify the preferred alternative (e.g., Chatterjee and Heath 1996; Tyebjee 1979). Specifically, given attribute weight measures for the set of *J* binary attributes the implied utility difference between the two alternatives can be calculated as:[1]

$$U_{diff} = | U_A - U_B | = | \sum_{j=1}^{J} W_j (I_{Aj} - I_{Bj}) \qquad (1)$$

where, W_j is the weight the decision maker attaches to attribute *j*, such that $\sum_{j=1}^{J} W_j = 100$, and I_{Kj} is a dummy variable that equals 1 if alternative K carries the consumer's most preferred level of attribute *j* and 0 otherwise.

Next, we detail our main hypotheses regarding consumers' switching between simplifying and complicating decision processes during different phases of decision-making.

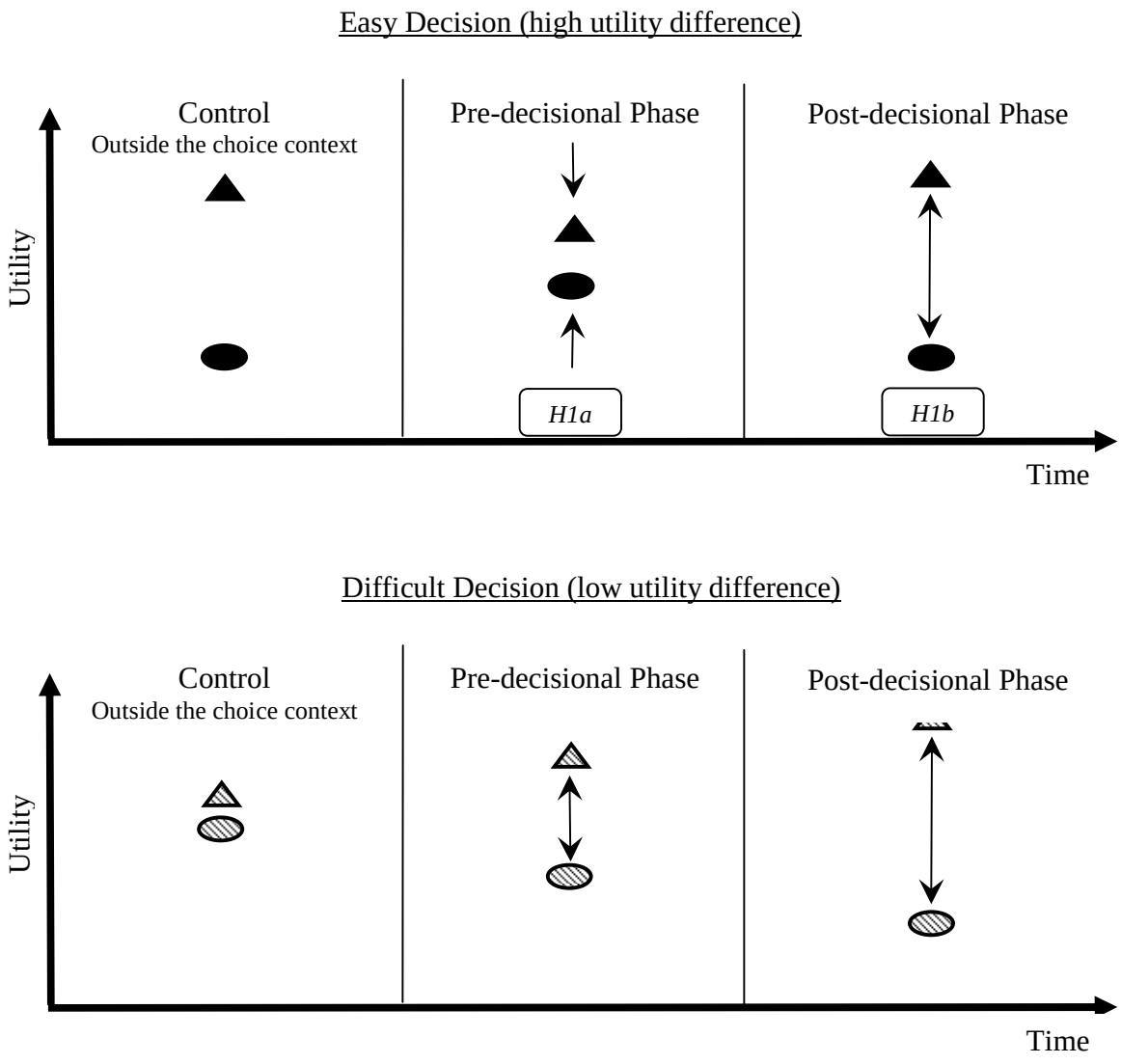
Easier Than Anticipated Decisions. As discussed earlier, we predict that consumers will pursue complicating decision processes when they feel that a choice is easier than what was anticipated. In particular, we expect that consumers will distort the attribute weights in a manner that weakens the tentatively preferred alternative and strengthens the other (near-dominated) alternatives. We also predict that once the choice is made, the need to regulate effort becomes irrelevant and complicating behavior will not be observed. Accordingly we define the following hypotheses, which are represented visually in the upper panel of Figure 1:

[1] Note, that the utility difference equation could be readily expanded to more than two attribute levels.

H1a: In the pre-decisional phase of an easier than anticipated decision, consumers will distort their attribute weighing in a direction that enhances their choice conflict and decreases the utility difference between the alternatives.

H1b: In the post-decisional phase of an easier than anticipated decision, the distortions in attribute weighing observed in the pre-decisional phase will attenuate.

Figure 1. Distortions during different decisional phases
(triangles and ellipsoids represent the chosen and non-chosen alternatives in the sets respectively)



Harder Than Anticipated Decisions. Consistent with a great deal of prior research, we predict that consumers will pursue simplifying processes when they feel that a decision is harder than what was anticipated for the choice at hand. Specifically, we expect that consumers will distort their weighing of different attributes in a manner that bolsters one of the alternatives and denigrates others (e.g., Janis and Mann 1977; Mills 1968; Montgomery 1983; Russo Medvec, and Meloy 1996; Svenson 1992, 1996). This simplifying process will lead to a reduction in choice conflict during the pre-decisional phase, as indicated in a higher utility difference between the alternatives. In addition, consistent with cognitive dissonance, after consumers make the difficult choice (i.e., in the post-decisional phase), the distortion in attribute weighing will persist in a manner that further bolsters the chosen alternative.

Study 1: Complicating versus Simplifying by Distorting Attribute Weights

In this study, respondents made choices between alternative physician services. A pre-test indicated that most respondents perceived such a decision as highly important. Study 1 tests Hypotheses 1a and 1b and examines both pre- and post-decisional processes as well as both easy and difficult choices, holding the degree of anticipated effort constant.

Method

Two hundred and twenty five students from a large east coast university were presented with two alternative physician services.[2] The physician services were described along three attributes that assumed one of two levels: (1) office hours that either did or did not include evenings and weekends; (2) average waiting time of either 3 or 10 days for a physician appointment; and (3) home visits either included or excluded. In order to construct easy vs. difficult choice set we conducted a pretest (see Pretest 1 in Appendix A for details) that measured the relative importance of the three attributes using a constant sum allocation task (of 100 points). The average importance

[2] Eight respondents were excluded from the analysis since they rated the decision as extremely unimportant (the number of excluded respondents was equally distributed across conditions). Analysis with these respondents did not substantively change the results.

of the three attributes was 48, 41, and 11, respectively. Using these attributes two choice sets were constructed to generate low and high difficulty choices (see Table 1).

In the low difficulty choice set one alternative dominated the other on the two most important attributes (attributes 1 and 2). Conversely, in the high difficulty choice set, each alternative offered a higher level on only one of the important attributes, creating a tradeoff between the two most important attributes. A pretest (see Pretest 2 in Appendix A for details) confirmed that the high difficulty choice set was rated as significantly more difficult than the low difficulty choice set. Further, the majority of the respondents rated the high-difficulty choice set as being *harder than anticipated* (above the scale's midpoint) and the low-difficulty choice set as being *easier than anticipated*.

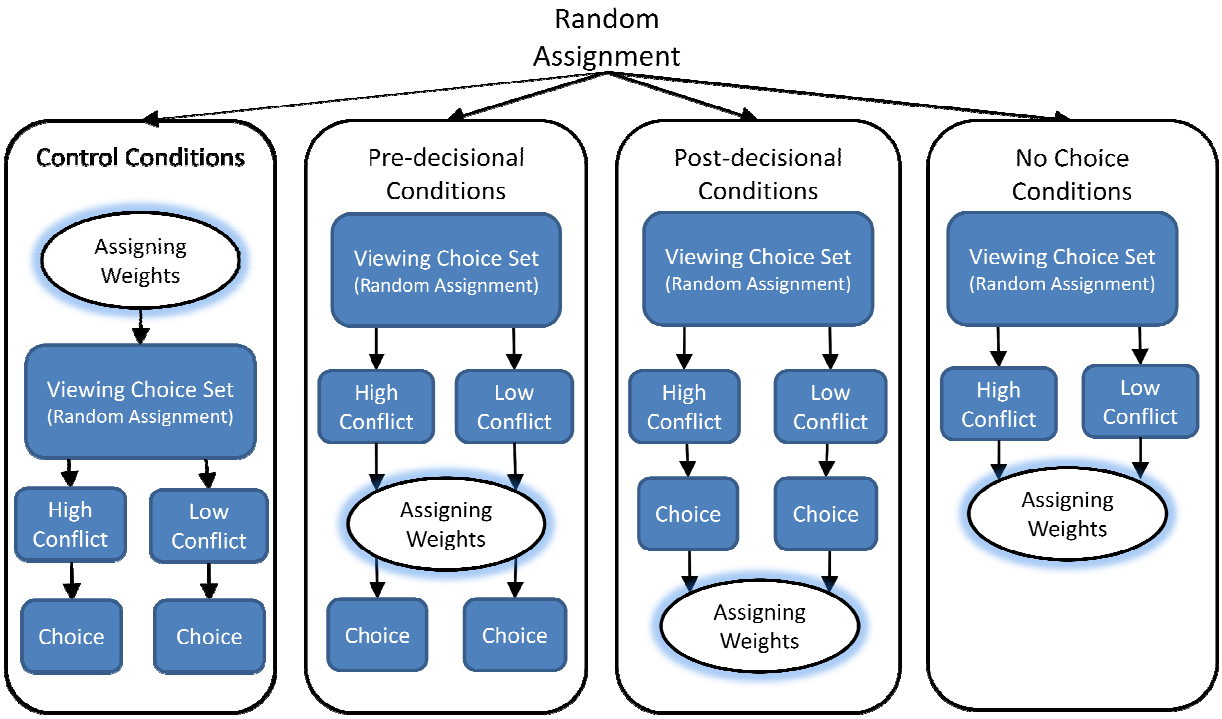
Table 1. Low and high difficulty choice sets used in Study 1

Attributes	Low Difficulty		High Difficulty	
	Alternative A	Alternative B	Alternative A	Alternative B
Evenings and Weekends Office Hours Included	Yes	No	Yes	No
Average Time to Schedule an Appointment	3 Days	10 Days	10 Days	3 Days
Home Visits	No	Yes	No	Yes

Main study. In order to test our hypotheses, we collected attribute weight measures (using a constant sum allocation of 100 points) for the three binary attributes described above. Across the different experimental conditions, we varied the phase during which the attribute weights were measured. The study consisted of a 2 (choice difficulty: low vs. high) x 4 (time of measuring attribute weights: control vs. pre-decisional vs. post-decisional vs. no-choice) between-subjects design. In the control conditions, respondents indicated their attribute weights prior to observing any choice task. These respondents were therefore not influenced by the manipulation of choice difficulty when indicating their attribute weights.[3] We compared the attribute weights (and the implied utility differences) assigned in the control condition to the attribute weights collected during, and after, the choice was made (i.e., the pre- and post-decisional phases, respectively). In the pre-decisional conditions, respondents were first presented with the choice set (low or high choice difficulty, manipulated between-subjects) and were then instructed to assign attribute weights before making their choice. In the post-decisional conditions, participants were asked to assign attribute weights immediately after making their choice (from a low or high difficulty choice set). Figure 2 illustrates the sequence of events in each of the conditions.

[3] In subsequent analyses, we combined the attribute weights collected in the two control conditions (low and high difficulty choice sets) since, as expected, we found no difference between the attribute weights in these two conditions ($p > 0.7$).

Figure 2. Experimental design and sequence of events in each condition of Study 1



Results

Utility differences. An implied utility difference between the two alternatives was calculated for each respondent using the assigned attribute weights, following Equation 1. Note that because the utility difference is calculated using constant sum allocations, its range (in absolute value) could vary between 0 and 100. Higher utility differences indicate an easier choice (as one alternative is distinctly more attractive than the other), whereas lower utility differences indicate a more difficult choice (as the two alternatives are valued similarly).

Manipulation check. In order to validate our choice difficulty manipulation, we calculated the average utility difference for the low and high difficulty choice sets for participants assigned to the control condition (outside of any motivation to simplify or complicate the choice). As expected, the average calculated utility difference was significantly higher for the low relative to the high difficulty choice set (M_{low} = 78.2 vs. M_{high} = 28.1, $F(1, 216) = 72.9$, $p < .01$). Further, for

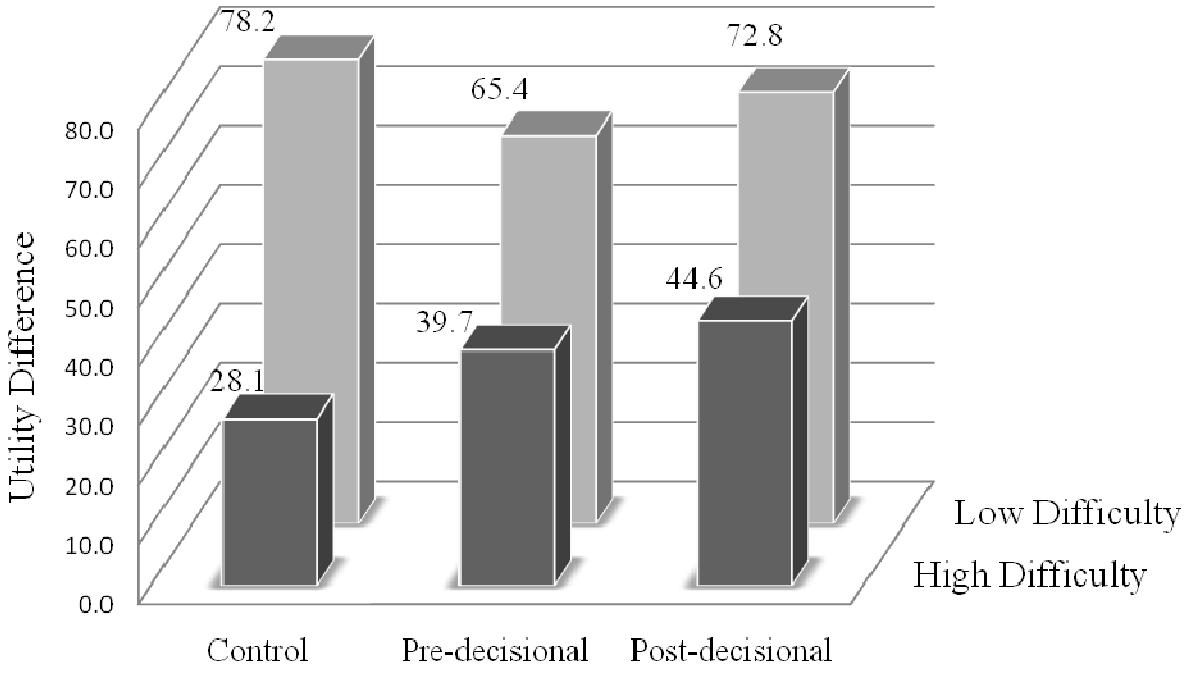
all of the respondents, the calculated individual-level utility difference for the low difficulty choice set was greater than the utility difference for the high difficulty choice set, thus ruling out aggregation bias (Hutchinson, Kamakura, and Lynch 2000).

High Difficulty Choices. The dark bars in Figure 3 depict the average utility differences elicited from respondents assigned to the high difficulty choice set. Consistent with prior research on simplifying behaviors, when respondents considered a high difficulty choice set, their utility difference between the two alternatives was significantly greater in the pre-decisional condition than in the control condition (M_{pre} = 39.6 vs. $M_{control}$ = 28.1, F(1,216) = 4.0, $p < .05$). That is, when respondents faced a harder than anticipated choice, they simplified their task by increasing the weight of the attributes that favored their tentatively preferred alternative. Additionally, consistent with research on dissonance reduction, the utility difference further increased in the post-decisional condition. Therefore, the change in utility difference going from the control to the pre- and to the post-decisional phase is expected to have a monotonically increasing pattern. Indeed, a linear trend analysis of the utility difference in the three conditions was found to be positive and significant (F(1,216) = 7.82, $p = .01$).

Low Difficulty Choices. The light bars in Figure 3 depict the average utility differences observed among respondents assigned to the low difficulty choice set. Supporting the effort-compatibility framework, the pattern of results in the low difficulty choice conditions was substantially different from that observed in the high difficulty choice conditions; the interaction between choice difficulty and time of measuring attribute weights was statistically significant and in the predicted direction (F(1,216) = 8.44, $p < .01$). Consistent with H1a, when respondents faced an easier than anticipated decision, the utility difference between the two alternatives was significantly smaller in the pre-decisional condition relative to the control condition ($M_{control}$ = 78.2, M_{pre} = 65.4, F(1,216) = 4.4, $p < .05$). That is, respondents complicated their task by increasing their weighing of an attribute that opposed their tentatively preferred alternative. It is noteworthy that although they complicated their (easy) decision, all of the participants in the low difficulty conditions eventually chose the near-dominant alternative.

As predicted by H1b, the complicating behavior attenuated in the post-decisional phase. The change in utility difference going from the control to the pre- and to the post-decisional phase is hypothesized to follow a U-shape pattern. That is, we expect the high utility difference in the control condition to decrease in the pre-decisional phase and then increase again in the post-decisional phase. A quadratic trend analysis (Keppel and Wickens 2004) approached significance ($F(1,216) = 3.5$, $p = .06$) suggesting a U-shape utility difference pattern (light bars in Figure 3). Furthermore, the utility difference in the post-decisional condition returned to levels similar to those of the control condition ($M_{post} = 72.8$ vs. $M_{control} = 78.2$, $F(1,216) = .77$, $p = .4$).

Figure 3. Utility differences across the conditions in Study 1



Attribute weights. To directly examine the distortion of attribute weights, we analyzed the observed weight of the least important attribute ("home visits either included or excluded"), which opposed the nearly-dominant alternative.[4] Respondents assigned to the low difficulty choice set enhanced their conflict in choice by nearly doubling the weight of the attribute that opposed their tentative (and ultimate) choice (M_{pre} = 17.3 vs. $M_{control}$ = 10.8, $p < .05$). Because attribute weights were provided using a constant sum allocation, any increase in the weight of "home visits" would be accompanied by a decrease in the weights of the two attributes that supported the near-dominating alternative (which was ultimately chosen). Further, consistent with H1b, once respondents made their choice, the weight of the "homes visits" attribute returned to its level in the control condition (M_{post} = 13.6 vs. $M_{control}$ = 10.8, $p = .4$).

Study 1: Discussion

Consistent with a great deal of prior research, the findings indicated that in both the pre- and post-decisional phases, respondents facing difficult choices shifted their attribute weighing in a direction that supported their tentatively, and ultimately, chosen alternative. Importantly, a very different pattern of results was predicted and observed for respondents who faced an easy, yet important choice among physician services. These respondents seemed to have increased their decision conflict and their experienced effort by distorting their attribute weighing in a manner that weakened their preferred alternative. Once respondents completed their due-diligent deliberation and made a final choice, their attribute weighing reverted back to the levels observed among control respondents. Overall, the results support the effort-compatibility framework, whereby, consumers are predicted to simplify harder than anticipated choices and complicate easier than anticipated choices.

A possible alternative explanation for the observed complicating process is a rational, or market efficiency, inference (Chernev and Carpenter 2001; Prelec, Wernerfelt, and Zettelmeyer

[4] Due to space limitation all other attribute weights and their variation across different decisional phases are provided in the web appendix.

1997). According to the inference rival account, consumers facing a low difficulty choice set infer that the least important attribute (opposing the nearly-dominant alternative) is more critical than they initially thought because that renders the two alternatives more competitive and Pareto-optimal. This rival account cannot explain the entire pattern of observed results. First, inferences should affect attribute weighing both before and after respondents make a choice (i.e., both in the pre- and post-decisional phases). In contrast, the results indicated that attribute weighing shifted against the preferred alternative only in the pre-decisional phase. Second, the inference account does not predict the pattern of results observed in the high difficulty choice conditions.

To further examine the inference explanation, we included in the main study a no-choice condition. Similar to the pre-decisional condition, in the no-choice condition respondents were exposed to the choice set before assigning attribute weights. However, unlike the pre-decisional condition, in the no-choice condition, respondents were not informed that they will be required to choose between the alternatives. The inference account predicts that respondents would provide similar attribute weights in the no-choice and pre-decisional conditions, as respondents in both conditions receive similar information about the alternatives. By contrast, our conceptualization predicts that eliminating the need to chose would "liberate" respondents from the need to work harder to fully "vet" their decision, thereby attenuating any complicating behavior. Supporting this prediction and inconsistent with the inference account, there was no difference in attribute weighing between the no-choice and control conditions in either the low difficulty ($M_{control}$ = 78.2, $M_{no\text{-}choice}$ = 75.3) or the high difficulty conditions ($M_{control}$ = 28.1, $M_{no\text{-}choice}$ = 31.4; both *p's* = .6).

Studies 2a - 2c: Direct Tests of the Effort-Compatibility Principle

The results of Study 1 indicated that respondents simplified harder than anticipated choices by bolstering their preferred alternative; conversely, respondents complicated easier than anticipated choices by weakening their preferred alternative. These findings are consistent with the effort-compatibility framework, which suggests that simplifying and complicating decision processes are determined by the relative levels of two constructs, namely, anticipated and

experienced effort. In this study we directly test the effort-compatibility framework. Focusing our attention on low difficulty choice sets, we examine how complicating behavior either persists or attenuates at different levels of anticipated and experienced effort.

Based on the effort-compatibility framework, we predict that in the pre-decisional phase of an easier than anticipated decision, decreasing the anticipated effort will lead to the attenuation of complicating behavior. Further, holding the anticipated effort constant, increasing the experienced decision difficulty is expected to attenuate complicating behavior. Finally, the effort-compatibility framework implies that because decisions of greater importance are associated with higher expected effort and greater motivation to engage in a rigorous decision process, such decisions are more likely to give rise to complicating behavior. The discussion leads to the following hypotheses:

> In the pre-decisional phase, distortion of attribute weights in a direction that increases choice conflict (complicate) will attenuate when consumers **(H2a)** anticipate the decision to be less effortful, **(H2b)** perceive the decision as being more effortful, and **(H3)** perceive the decision as being less important.

Next, we report three studies that test the aforementioned hypotheses.

Studies 2a – 2c: Method Overview

In all three studies, respondents were presented with two alternatives; each described using three binary attributes. Similar to the low difficulty choice sets employed in Study 1, one alternative was superior on the two most important attributes but inferior on the less important attribute, giving rise to low choice conflict choice sets.[5] As in Study 1, respondents were asked to allocate a constant sum of 100 points across the three attributes, reflecting the relative weight they assigned to each attribute, either before they observed the choice set (control condition) or after they viewed the choice set but before they made their choice (pre-decisional condition). In

[5] A manipulation check examining the attribute weights in the control condition confirmed that the choice conflict in experiments 2a-2c was indeed low.

Study 2b we also added a post-decisional condition, in which respondents assigned attribute weights after they had made their choice.

In all three studies, we tested for complicating behavior by analyzing the weight of the least important attribute, which opposed the nearly-dominant alternative. Since we employed in Studies 2a-2c only low-difficulty choice sets, performing such analysis is more intuitive and mathematically equivalent to the measure of utility difference (as computed in Equation 1). A higher weight assigned to the attribute opposing the nearly-dominant alternative indicates a lower utility difference and a more pronounced complicating process. Table 2 provides a detailed description of the stimuli employed in Studies 2a - 2c.

Table 2. Studies 2a, 2b, and 2c: Stimuli description

(the least important attribute opposing the superior alternative is marked with an asterisk)

Study 2a

Attribute (MP3 players)	**Option A**	**Option B**
Memory	2 Gb	1 Gb
Battery	14 Hours	8 Hours
*Receive Radio Transmission	No	Yes

Study 2b

Attribute (MP3 Players)	**Option A**	**Option B**
Memory	2 Gb	1 Gb
Battery	10 Hours	5 Hours
*Recording Option	No	Yes

Study 2c

Attribute (Physicians)	**Option A**	**Option B**
Evening and weekends office hours	Yes	No
Time to schedule an appointment	3 days	10 days
*Home Visits	No	Yes

Study 2a (n = 64): Manipulating the Anticipated Effort (Test of H2a)

Study 2a consisted of a 2 (anticipated effort: low vs. high) x 2 (time of measuring attribute weights: control vs. pre-decisional) between-subjects design. After completing a non-related lab study, respondents were asked if they would like to receive an extra dollar for participating in a short survey that takes about one minute or three minutes to complete (low vs. high anticipated effort, respectively, manipulated between-subjects). Based on a pretest, the actual time took for the completion of this task averaged one minute and forty eight seconds with all respondents taking more than one but less than three minutes. The compensation-to-time ratio in both conditions was much higher than the ratio respondents experienced in the prior, non-related lab study; this was intended to eliminate any differences in respondents' involvement across the two conditions. Indeed, the participation rate was very high in both conditions (with only one student refusing to participate).

Results. In the high anticipated effort condition ("typical completion time of three minutes"), the average weight of the attribute opposing the superior alternative was significantly higher in the pre-decisional condition than it was in the control condition ($M_{control}$ = 10.9, M_{pre} = 20.9, $F(1, 63) = 5.55$, $p < .03$). That is, in the high anticipated effort condition, respondents complicated their decision and increased their experienced effort by increasing the weight of the attribute that weakened their preferred alternative. Conversely, in the low anticipated effort condition ("typical completion time of one minute"), no significant difference in the attribute weights was observed between the pre-decisional condition and the control condition ($M_{control}$ = 10.3, M_{pre} = 6.75, $F(1, 63) = .7$, $p > .4$). Interestingly, the results in the low anticipated effort condition were directionally consistent with a simplifying process, whereby respondents distorted their attribute weights in a manner that decreased the (already low) choice conflict. Overall, Study 2a supports H2a and highlights the role of anticipated effort in the observed complicating behavior.

In Study 2a we directly manipulated the anticipated effort. In study 2b we hold the anticipated effort constant and increase the experience effort exogenously through fluency manipulation.

Study 2b (n = 193): Manipulating the Experienced Effort (Test of H2b)

Study 2b consisted of a 2 (experienced effort: low vs. high) x 3 (time of measuring attribute weights: control vs. pre-decisional vs. post-decisional) between-subjects design. In order to manipulate the experienced effort, we built on recent research on perceptual fluency (e.g., Schwarz 2004). Such research has demonstrated that, for example, when choice alternatives are described using degraded, difficult-to-read fonts, consumers experience greater choice difficulty and tend to defer their choices (Novemsky et al. 2007). In the context of the present research, we predict that, increasing the experienced choice difficulty --- by decreasing the perceptual fluency of the choice alternatives --- will attenuate the tendency to complicate choices. Accordingly, the fonts used to describe the alternatives were either easy to read (i.e., Times New Roman 14 pts. with regular character spacing) or difficult to read (i.e., Times New Roman 9 pts. with condensed character spacing of 1 pts.),[6] representing low versus high experienced difficulty, respectively.[7]

Results. In the low experienced effort condition (easy-to-read fonts), significant differences in the reported attribute weights were observed between the control and pre-decisional phase conditions ($M_{control}$ = 10.6, M_{pre} = 19.8, $F(1, 192) = 7.06$, $p < .01$). Replicating the results obtained in Study 1, respondents in this low experienced difficulty condition complicated their choice by nearly doubling the weight of the attribute that opposed the leading alternative in the choice set. However, in the high experienced effort condition (degraded fonts), no significant difference in the reported attribute weights was observed between the control and pre-decisional

[6] This specific spacing of characters was done using Hebrew fonts, and may have a different impact when using English fonts.

[7] A pre-test confirmed that respondents could fully read and understand the description of the different alternatives in either font conditions. Additional pretest (N = 33) confirmed that the degraded font manipulation significantly increased consumers' experienced level of difficulty and effort in choice ($p < .01$).

phase conditions ($M_{control}$ = 9.3, M_{pre} = 12.6, F(1, 192) = 1.1, $p > .25$). These results support hypothesis 2b. Additionally, consistent with hypothesis 1b, no significant differences were found between the control and post-decisional conditions in either the easy-to-read font condition ($M_{control}$ = 10.6, M_{post} = 14.0, F(1, 192) = .8, $p > .37$) or the hard-to-read font condition ($M_{control}$ = 9.3, M_{post} = 11.25, F(1, 192) = .38, $p > .5$).

Overall, the results supported the role of experienced effort in the observed complicating behavior. Using a well-accepted procedure to manipulate experienced effort in choice (perceptual fluency), we found that consumers' tendency to complicate their choices was attenuated when an external source of decision effort was introduced to increase the experienced effort in choice. Such external effort substituted for consumers' need to internally and artificially enhance their effort during the decision process. In Study 2c we manipulate the anticipated effort by manipulating how important consumers perceive the decision to be.

Study 2c (n = 83): Manipulating the Perceived Importance of the Decision (Test of H3)

Study 2c consisted of a 2 (decision importance: low vs. high) x 2 (time of measuring attribute weights: control vs. pre-decisional) between-subjects design. Respondents were asked to imagine that they were about to join a new health plan that required them to choose a physician. Respondents in the high decision importance condition were asked to imagine that their choice was binding for a year and that switching physicians before the year ended would be difficult and would require paying additional fees. Conversely, respondents assigned to the low decision importance condition were told to imagine that their choice was not binding and that they could easily switch doctors whenever they wanted without paying any additional fees. We predict complicating behavior when responds' anticipated effort is high (high decision importance condition) but not when it is low (low decision importance condition).

Results. In the high-importance decision condition (i.e., the binding choice), the weight of the attribute opposing the superior alternative was significantly higher in the pre-decisional phase than in the control ($M_{control}$ = 6.25, M_{pre} = 13.1, F(1, 82) = 6.89, $p < .01$). Conversely, in

the low-importance decision condition (i.e., the non-binding choice), no significant difference in attribute weights was observed between the pre-decisional condition and the control condition ($M_{control}$ = 9.1, M_{pre} = 7.7, F(1, 82) = 0.28, $p > .5$). Therefore, framing the decision as less important attenuated the observed complicating behavior. These results support H3 and the proposed effort-compatibility framework. More specifically, respondents who faced an important yet seemingly easy choice were motivated to complicate their decision and overweighed an attribute that opposed their ultimate choice in order to match the anticipated and experienced effort. This complicating process disappeared when the same easy choice was framed as less important. These findings suggest that a motivation to engage in a diligent decision process, which is particularly likely to exists when consumers make important decisions, is the psychological mechanism underlying the observed complicating behavior.

Studies 2a – 2c: Discussion

The results of Studies 2a through 2c are summarized in Table 3. The findings provide direct support for the proposed effort-compatibility conceptualization. Additionally, the results help rule out alternative explanations such as inference-making and conversational norms (Grice 1975). Specifically, inference-making and conversational norms cannot explain why the observed complicating behavior disappeared when the decision was framed as unimportant. Further, these rival accounts cannot predict the moderating effects of anticipated and experienced decision effort.

Still, Studies 1 and 2 leave open several issues. First, complicating behavior was captured only through distortions of attribute weights. Although such distortions reflect an increase in choice conflict, one might argue that such an operationalization is relatively narrow and does not reflect a broader notion of "complicating" behavior. Second, Studies 1 and 2 investigated complicating versus simplifying behavior by examining only two levels of decision difficulty (low vs. high). A more comprehensive test of the effort-compatibility principle would involve a continuous analysis that incorporates several levels of decision difficulty. Such an analysis would potentially allow us to better integrate the complicating effect with previous findings of simplifying behaviors and their attenuation (e.g., Mann and Taylor 1970). Third, Studies 2a

through 2c investigated the effort-compatibility framework by manipulating the relevant constructs (anticipated and experienced effort). Directly measuring the anticipated effort and conducting a moderated mediation analysis can further support the hypothesized relationships between the different theoretical constructs.

Table 3. Studies 2a, 2b, and 2c: Weight of the attrbiutes opposing choice

Study 2a (n = 64) Stimuli: MP3 players		**Weight of "Receive radio transmission" Stage of assigning weights**		
		Control	Pre	Post
Anticipated Effort	Low (1 min.)	10.3	6.75[a]	-
	High (3 min.)	10.9[b]	20.9[a,b]	-

Study 2b (n = 193) Stimuli: MP3 players		**Weight of "Recording option" Stage of assigning weights**		
		Control	Pre	Post
Experienced Effort	Low (clear)	10.6[a]	19.8[a,b]	14.0
	High (degraded)	9.3	12.6[b]	11.25

Study 2c (n = 83) Stimuli: Physician services		**Weight of "Home visits" Stage of assigning weights**		
		Control	Pre	Post
Decision Importance	Low (non-binding)	9.1	7.7[a]	-
	High (binding)	6.25[b]	13.1[a,b]	-

* Means with the same letter (within each pane) are significantly different.

In the next study we adopt Mann and Taylor's (1970) research paradigm. In particular, the study (i) investigates holistic judgments (instead of attribute weights); (ii) examines a continuum of choice difficulties; (iii) directly measures the anticipated effort and examines its

mediating role; and (iv) replicates previous findings of simplifying behavior and its attenuation using a within-subjects experimental design.

Study 3: Complicating versus Simplifying by Distorting Holistic Judgments

The present study is built on the experimental design and stimuli used by Mann and Taylor (1970). Mann and Taylor employed a test/re-test within-subject design; they first asked participants to rate their liking of twelve famous paintings and then asked these participants to re-rate two of the paintings prior to choosing their most preferred one. Participants either faced a difficult choice (i.e., choosing between two paintings that were initially rated no more than 1 point apart) or a relatively easy choice (i.e., choosing between two paintings that were initially rated at least 5 points apart). Mann and Taylor demonstrated that, when facing a difficult choice, respondents simplified their decisions; in particular, the overall ratings of the two paintings diverged prior to choice. However, when participants faced easier choices, no significant pre-decisional distortions in overall liking were found.

At first glance, the null effect observed in the "low-difficulty" condition in Mann and Taylor (1970) seems inconsistent with the effort-compatibility framework. If the decision was indeed relatively easy, then the effort-compatibility framework should predict complicating behavior rather than attenuation of simplifying behavior. Closer examination of the experimental design employed by Mann and Taylor helps resolve this seeming inconsistency. Specifically, in both their "high-difficulty" and "low-difficulty" conditions, participants were presented with choices between two paintings that were both initially rated on the positive side of the liking scale (i.e., 8 to 15). Thus, even the "low difficulty" condition in Mann and Taylor was moderately difficult using only half of the liking scale. Accordingly, the null effect in Mann and Taylor's "low difficulty" condition may be consistent with the effort-compatibility framework if the (moderate) choice difficulty matched the expected effort from the painting task. An interesting question is whether one would have observed complicating behavior ---

manifested in the convergence of evaluations --- in the Mann and Taylor study had respondents faced even easier decisions.

In order to test this conjecture, we adopted Mann and Taylor's study paradigm, but we employed the entire range of choice difficulty levels. More specifically, in our study, after participants rate the *exact same* twelve famous paintings used in the Mann and Taylor study, the participants choose between two randomly drawn paintings from the possible set of twelve paintings. This procedure allows examining the entire range of choice difficulty. We also measure participants' anticipated effort and test whether it mediates the observed complicating behavior.

Method

One hundred and ninety seven students from a large east coast university participated in the study which consisted of two main parts. In the first part, respondents rated the twelve paintings on a 1 to 15 liking scale (ranging from "extremely dislike" to "extremely like"), followed by a ranking task of all twelve paintings from best to worst.[8] Next, participants were asked to imagine that they were the curators of a large museum (responsible for planning, purchasing, and managing the museum's collection of famous paintings). Participants were then told to imagine that they were considering purchasing a painting for the museum's collection and that they would have to choose (based on their own preferences) between two possible paintings. In order to manipulate the decision's perceived importance, we adopted the procedure used by Jecker (1964). Specifically, in the low decision importance condition, participants were told that "…although you will need to make a choice between the paintings, because the museum collection is expected to expand rapidly there is an extremely good chance (around 98%) that eventually both paintings will be added to the collection." We contrasted this low decision importance condition with two high decision importance conditions: in one high decision importance condition, respondents were told nothing about any chance of the museum acquiring both paintings, whereas in a second high decision importance condition, respondents were told that there was an extremely small chance (around 2%) that eventually both paintings will be added to the collection. The later high decision

[8] As in the original paper by Mann ant Taylor (1970), we did not use the ranking data for analysis.

importance condition was used in order to verify that the mere introduction of probabilities into the decision was not driving the results. As expected, these two high importance conditions did not differ on any manipulation-check or dependent-variable, and therefore, we collapsed them into one condition (hereafter, the "high decision importance" condition). The first part of the study (which did not include the actual choice between the paintings) concluded with manipulation checks in which participants rated (a) how important they perceive the decision to be on an 11-point scale ranging from "extremely unimportant" (1) to "extremely important" (11); and (b) how effortful they anticipate the decision to be on an 11-point scale ranging from "extremely effortless" (1) to "extremely effortful" (11).

After completing several unrelated filler tasks, participants were reminded of the decision at hand and were presented with two paintings that were randomly drawn from the twelve paintings they rated in the first part of the study. Participants were asked to re-rate the two paintings on the 15-point liking scale and then to choose their preferred painting.

Similar to Mann and Taylor's experimental design, a control condition was included in this study. In the control condition participants were asked to rate and rank the twelve paintings but were neither informed about an impending choice nor given any "curator" scenario or importance/anticipated-effort measures. After completing the filler tasks, participants in the control condition were asked to re-rate the paintings. This procedure enabled us to account for any statistical artifacts that may have been generated by the test-retest design we employed.

Results

Manipulation checks. Respondents' ratings of the decision's importance and anticipated difficulty indicated that the decision difficulty manipulation operated as intended. First, the perceived decision importance was significantly higher in the high compared to low decision importance condition ($M_{\text{high importance}} = 8.9$ vs. $M_{\text{low importance}} = 7.0$, $p < .001$). Additionally, respondents anticipated the decision to be significantly more effortful in the high relative to the low decision importance condition ($M_{\text{high importance}} = 8.1$ vs. $M_{\text{low importance}} = 6.7$, $p < .001$). This

result, provide empirical evidence for the relationship we postulate in Study 2c between the decision importance and anticipated effort.

Dependent Variable. As in Mann and Taylor, for each participant, we calculated the absolute difference between the ratings given to the two (randomly drawn) paintings in the first part of the study (ΔR1), and in the second part of the study (ΔR2). We define a simplifying-complicating score (hereafter "SC score") as the change in the differences in ratings between the first and second part of the study (SC = ΔR2 - ΔR1). The ratings in the first part of the study (before the decision-importance manipulation and before a choice was mentioned), represent a "context-independent" measure of overall liking at the individual-participant level. By contrast, the ratings in the second part of the study reflect participants' preferences within the context of the impending choice (pre-decisional phase). If the overall liking scores of the two paintings diverged in the second part of the study, then the computed SC score would be positive, indicating a simplifying behavior. By contrast, if the overall liking scores of the two paintings converged in the second part of the study, then the SC score would be negative, representing complicating behavior.[9] The SC scores were used to investigate both the direction and magnitude of simplifying versus complicating behaviors. We also compared the calculated SC scores in the experimental conditions to those obtained in the control condition to account for statistical artifacts (such as regression to the mean) that could potentially arise from the test-retest design that was employed.

Independent Variables. As in Mann and Taylor, the context-independent level of choice difficulty was determined using the absolute difference in the overall liking ratings of the two paintings in the first part of the study (ΔR1). The greater the difference between the liking of the two paintings (i.e., the larger is ΔR1), the easier it is to choose between the two paintings. The anticipated effort was measured using respondents' self-reports on an 11-point scale.

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[9] For example, assume that a participant rated the two paintings in the first part of the study as 5 and 11 and in the second part re-rated these paintings as 4 and 13. Accordingly, ΔR1 = |11 – 5| = 6, ΔR2 = |13 – 4| = 9, and SC = 9 – 6 = 3, which indicates simplifying behavior. If, however, the ratings in the second part were 7 and 9, then the SC score would be 2 – 6 = - 4, which represents complicating decision process.

Analysis. We report both the results of dichotomized levels of decision difficulty as in Mann and Taylor, as well as a moderated mediation analysis using a continuous analysis.

Dichotomized analysis: Respondents were classified into three levels of choice difficulty based on a tertiary-split of their ΔR1 scores ("high," "moderate," and "low" decision difficulty groups were 0.43 [s.d. = .5], 2.89 [s.d. = .77], and 6.37 [s.d. = 1.56], respectively). Next, in order to test for simplifying versus complicating behavior, the SC scores were computed across these groups in both the low and high decision importance conditions (see Table 4a).

High Decision Difficulty. Replicating the results reported in Mann and Taylor, when confronted with a difficult choice (context-independent ratings between the two paintings were similar) re-evaluations of the paintings diverged in both the low and high decision importance cells (indicating a simplifying process), and differed significantly from the control condition ($M_{low\_decision\_importance}$ = 1.65 and $M_{high\_decision\_importance}$ = 1.66 vs. $M_{control}$ = .03, both *p's* < .001).

Moderate Decision Difficulty. When confronted with a moderately difficult choice (context-independent ratings between the two paintings were somewhat apart) respondents' re-evaluations of the paintings did not differ significantly from the pattern observed in the control condition ($M_{low\_decision\_importance}$ = .75, $M_{high\_decision\_importance}$ = .85, $M_{control}$ = .2, $p > .18$ and $p > .2$).

Low Decision Difficulty. As predicted by the effort-compatibility principle, when confronted with an easy decision (context-independent ratings between the two paintings were far apart) respondents' behavior was determined by the level of decision importance. Specifically, respondents assigned to the high decision importance condition complicated their decision ($M_{high\_decision\_importance}$ = -1.1, $M_{control}$ = -.01, $p < .03$). However, respondents assigned to the low decision importance condition did not exhibit such a convergence of overall evaluations ($M_{low\_decision\_importance}$ = -.61, $M_{control}$ = -.01, $p > .2$). Thus, using the *exact same* stimuli as in Mann and Taylor, but using the entire scale, enabled us to construct low-difficulty choice sets and observe convergence of evaluations (i.e., complicating behavior) when the decision was framed as important and therefore, respondents anticipated high effort.

It is important to note that in order to directly validate the proposed mechanism (i.e., effort compatibility hypothesis) we can perform a similar analysis using the stated anticipated

effort instead of the manipulated decision importance. Accordingly, respondents were classified into two groups, based on a median-split of their anticipated effort scores ("high" vs. "low" anticipated effort groups were 9.24 [s.d. = .9] vs. 6.02 [s.d. = 1.21], respectively). Supporting the effort compatibility hypothesis, incorporating the anticipated effort into the analysis produced similar (and even stronger) pattern of results (see Table 4b).

Table 4a. Study 3: SC scores across levels of difficulty and decision importance

	Difficult	Moderately Difficult	Easy
Low Decision Importance	1.65*	0.75	-0.61
High Decision Importance	1.66*	0.84	-1.1*
Control	0.03	0.20	-0.01

* Significantly different from control ($p < .001$)

Table 4b. Study 3: SC scores across levels of difficulty and anticipated effort

	Difficult	Moderately Difficult	Easy
Low Anticipated Effort	1.59*	0.67	0.71
High Anticipated Effort	1.60*	0.94	-2.25*
Control	0.03	0.20	-0.01

* Significantly different from control ($p < .001$)

A similar pattern of results is obtained when we examine the percent of respondents who either simplified or complicated their decision. Table 5 presents the percentage of respondents with either positive or negative SC scores (i.e., indicating simplifying or complicating behavior,

respectively). A significant proportion of respondents simplified their decision when they anticipated low effort but encountered a difficult decision (M = 77% vs. $M_{control}$ = 47%, $Z = 2.44$, $p < .02$). By contrast, a significant proportion of respondents complicated their decision when they anticipated high effort but encountered an easy decision (M = 75% vs. $M_{control}$ = 53%, $Z = 2.16$, $p < .03$). Furthermore, in the moderate difficulty condition, when the need for complicating or simplifying is lower, the proportion of respondents that neither simplified nor complicated was higher than in the easy or difficult choice conditions ($Z = 2.18$, $p < .03$ and $Z = 4.45$, $p < .001$ respectively). In all other cells, the percent of respondents that either complicated or simplified their choice did not significantly differ from that observed in the control condition. These results are consistent with the effort-compatibility framework, suggesting that complicating or simplifying behavior occurs when the anticipated effort and experienced difficulty do not match.

Table 5. Study 3: Portions of respondents that simplified, complicated or did not distort

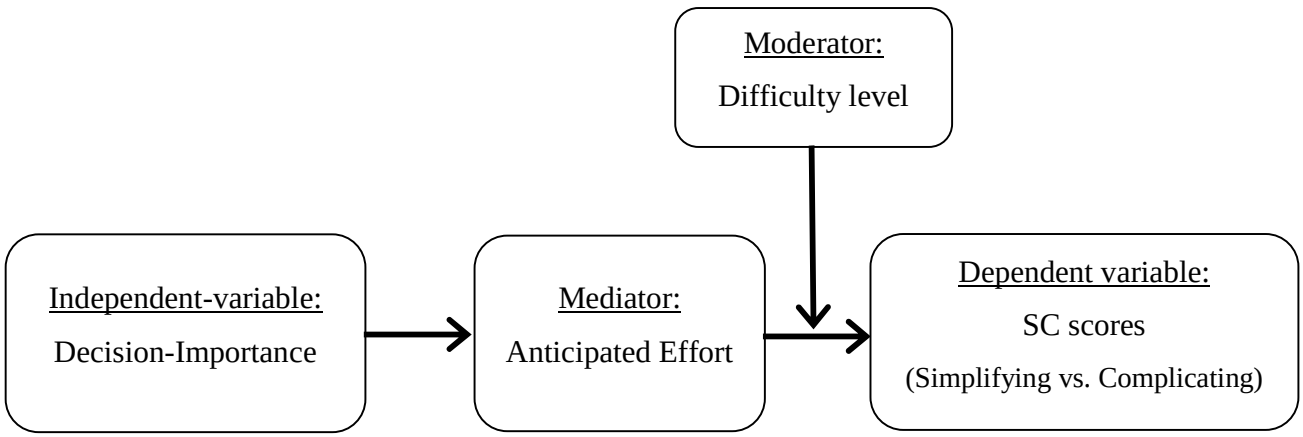
	Difficult	Moderately Difficult	Easy
Low Anticipated Effort	**77% Simplified** **14% Complicated** **9% Neither**	44% Simplified 15% Complicated 41% Neither	52% Simplified 29% Complicated 19% Neither
High Anticipated Effort	65% Simplified 35% Complicated 0% Neither	43% Simplified 26% Complicated 31% Neither	**10% Simplified** **75% Complicated** **15% Neither**

* Gray-shaded cells are significantly different from the control.

Moderated Mediation Analysis. Due to the known limitations of data discretization (Fitzsimons 2008), we also performed a continuous moderated mediation analysis. In particular, we predicted that respondents' anticipated effort will mediate the effect of the decision importance manipulation and that this mediation will be moderated by the level of choice difficulty (see Figure 4).

After mean-centering the mediator (anticipated effort), we regressed it on the independent variable (high vs. low decision importance). As expected, decision importance had a significant positive effect on anticipated effort (β = .67, p < .0001). Next, we regressed the dependent variable (SC score) on (i) the independent variable (decision importance), (ii) the mediator (anticipated effort), (iii) the moderator (decision difficulty level), and (iv) the interaction between the mediator and the moderator. As expected, lower choice difficulty (higher ΔR1 levels) led to significantly lower SC scores (β = -.33, p < .0001), indicating that easier choices led to complicating behavior and that more difficult choices led to simplifying behavior. Importantly, the interaction between the moderator and mediator was negative and significant (β = -.11, p < .01), indicating that when confronted with an easy choice, respondents who anticipated high effort (as opposed to low effort) complicated their decision. Similarly, when confronted with a difficult choice, respondents who anticipated low effort (as opposed to high effort) simplified their decision. Finally, the decision importance variable (high vs. low) did not approach statistical significance, indicating that the effect of decision importance was fully mediated through the anticipated effort measure.

Figure 4: Moderated Mediation in Study 3



Study 3: Discussion

Study 3 provides additional evidence for complicating behavior and for the effort-compatibility framework as an underlying psychological mechanism. First, the study demonstrates complicating behavior by measuring overall liking in addition to the stated attribute weights used in Studies 1 and 2. Second, we explicitly measured anticipated effort, confirmed its relationship with decision importance, and demonstrated its mediating effect on complicating and simplifying behaviors. Consistent with the effort-compatibility framework, complicating and simplifying behaviors were observed only when there was a mismatch between the expected effort and the choice's difficulty. Third, building on and extending Mann and Taylor (1970), we show the full continuum of simplifying behavior, its attenuation, and complicating behavior. Thus, we demonstrate that complicating behavior and the effort-compatibility principle are complementary and not contradictory to previous findings. Finally, Study 3 demonstrated complicating behavior at the individual level using a within-subject design.

Study 3, also helps in ruling out alternative explanations, such as inferences regarding market efficiency and conversational norms. Inferences about market efficiency are less likely in the domain of artwork, because preferences for paintings and art are expected to be subjective and heterogeneous. Further, a choice between any two paintings may be considered difficult for some respondents but easy for others. Knowing this, respondents should be less likely to question the experimenters' motives when confronted with what subjectively feels to them as a decision that is "too easy," thus, ruling out conversational norms explanations.

Study 4: Complicating Choices through Distortions of Preference Ordering

The findings so far provide evidence for two different types of complicating behavior: distortions in attribute weights and variations in holistic liking judgments. The next study examines a third manifestation of complicating behavior. In particular, we examine whether consumers would reverse their preference ordering of attribute levels (e.g., "more is better" would become "less is better") in a direction that detracts from a near-dominant alternative. We

hypothesize that consumers who face an important, yet relatively easy, decision will re-construe their preference for the level of an attribute as either desirable or undesirable in a manner that weakens their preferred alternative and bolsters the other alternative. Naturally, such a preference reconstruction process is more likely to occur when the inherent (ordinal) value of the attribute is ambiguous. The discussion leads to the following hypothesis:

H4: In the pre-decisional phase of an easier than anticipated decision, consumers will re-construe the preference ordering of attribute levels in a direction that complicates their choice and decreases the utility difference between the alternatives.

In order to test this hypothesis, we constructed a low difficulty choice between two possible job opportunities, with one opportunity nearly dominating the other. We rotated, between-subjects, the value of an ambiguous attribute (i.e., working in a team of 3 or 6 members) across the two alternative jobs. We elicited respondents' ordinal preference toward this ambiguous attribute either before they viewed the choice set (control condition) or afterwards (during the pre-decisional phase).

Method

One hundred and eighty three undergraduate students from a large university in northern Israel were presented with a choice between two job opportunities. The two job opportunities were described along three attributes that assumed one of two levels: (a) average salary or 10% above average salary; (b) 15 or 45 minutes of commute time to work; and (c) working in a team of three or six members. The dependent variable was respondents' preference for having three versus six team members, an attribute that was pre-tested and found to be the least important attribute.

Using these attributes, we constructed the two low difficulty choice sets shown in Table 6. In both of these low difficulty choice sets, one alternative was superior on the two important attributes (i.e., attributes (a) and (b)). The third attribute (number of team members) was counterbalanced between the two choice sets, such that the nearly-dominated alternative had

either three or six team members. In both choice sets, the two alternatives were said to be identical on all aspects besides the three detailed attributes.

Respondents were randomly assigned to one of three conditions, a control condition or one of two pre-decisional conditions. In each of the three conditions, respondents were asked to indicate whether they preferred to work with three or six team members. In the control conditions, respondents indicated their preference prior to observing any choice task. This control condition was intended to measure the baseline preference in the sampled population toward working with three versus six team members. In the pre-decisional conditions, respondents were first presented with one of the low difficulty choice sets depicted in Table 6 (Choice Set 1 or 2, manipulated between-subjects); these respondents were then instructed to indicate their preference between working with three or six team members before choosing between the two alternative job opportunities.

Table 6. Two low-difficulty choice sets used in Study 4

Choice Set 1

Attributes	Alternative A	Alternative B
Commute	15 minutes	75 minutes
Salary	10% above average	average
Number of Team Members	6 members	3 members

Choice Set 2

Attributes	Alternative A	Alternative B
Commute	15 minutes	75 minutes
Salary	10% above average	average
Number of Team Members	3 members	6 members

Results

When faced with a choice set in which the nearly dominating alternative had three team members, respondents' preference for three team members was 73%. By contrast, when respondents considered an easy choice in which the less attractive option had six team members, their preference for three team members decreased to 54% ($z = 2.21$, $p < .03$). In the control condition, 64% of respondents preferred working with three rather than six team members. This pattern of results supports H4 and is consistent with the notion that, in the pre-decisional phase of an easy decision, consumers reconstruct their preferences in a direction that enhances their choice conflict and decreases the utility difference between the alternatives. Further, these results indicate that consumers complicate their decisions not only by shifting their attribute weighing (Studies 1 and 2) or by changing their overall evaluation (Study 3) but also by reversing their preference ordering.

Study 5: The Effect of Complicating on Choice

In the studies reported thus far, although respondents complicated their decision, all of them eventually chose the near-dominant alternative. In addition, in these studies, the respondents were interrupted in the middle of their natural decision process (in the pre-decisional phase) and were asked to indicate their attribute weights (Studies 1 and 2), overall liking (Study 3), or preferences towards an attribute level (Study 4) giving rise to potential measurement effect issues. In the current study we address both of these concerns. First, we demonstrate that a complicating process could also influence and reverse the ultimate choice. Second, we provide evidence for complicating behavior without interrupting the decision maker's natural decision process.

Method

Seventy undergraduate students from a large university in northern Israel were presented with a choice between three job opportunities. Similar to Study 4, each alternative was described along three attributes: commute time, salary, and the number of team members. Using these attributes, three alternatives (denoted A, B, and C) were constructed (see Table 7). Alternatives

A and C were constructed such that choosing between them will involve a tradeoff between the two most important attributes, salary and commute (*Alternative A*: 15 minutes commute, 8% above average salary, 6 team members; *Alternative C*: 45 minutes commute, 10% above average salary, 3 team members). In contrast, Alternative B was constructed to be inferior on the two most important attributes, making it an unattractive option compared to alternatives A and C (*Alternative B*: 75 minutes commute, average salary, 3 team members). Therefore, as supported by a pre-test[10], choosing from the set {A, B, C} is a relatively difficult task as alternatives A and C create a high conflict. In contrast, choosing from the set {A, B} is a relatively easy task as A nearly dominates B.

Respondents were randomly assigned to one of three conditions: a simultaneous-choice control condition, a sequential-choice test condition, and a sequential-choice control condition. In the simultaneous-choice control condition, participants were presented simultaneously with alternatives A, B and C and were asked to choose their most preferred alternative. Because choosing between alternatives A and C involves a relatively high level of conflict, no complicating behavior was predicted. In the sequential-choice test condition, respondents were first presented with a binary choice set containing alternatives A and B and were informed that they would have to choose between these two alternatives. However, before actually making a choice, a third alternative (alternative C) was added to the choice set, and respondents were asked to choose from the triplet {A, B, C}. Therefore, in both conditions, respondents eventually observed and were asked to choose among the same three alternatives: A, B, and C. Accordingly, one should not expect to see any difference in choice shares of the alternatives across the two conditions. However, the effort-compatibility framework predicts a difference in choice shares. Specifically, because alternative A is superior to alternative B on the two most important attributes, consistent with the results of Study 4, we would expect respondents to bolster the attractiveness of Alternative B by constructing a preference toward three rather than

[10] In a pretest (n = 102, between-subject design) the choice set {A, B, C} was rated as being more difficult than the choice set {A, B} ($M_{triplet} = 3.17$, $M_{binary} = 2.16$, $p < .001$). In addition, 90% of respondents rated the binary choice set as easier than what they would anticipate (compared with 58% in the in the triplet choice set; $z < .0001$).

six team members. Additionally, and consistent with Studies 1 and 2, we would also expect that these respondents will increase the weight they assign to this attribute. Both of these effects together should enhance the attractiveness and importance of having three team members. Moreover, both of these effects would make any other alternative that offers three team members more desirable than it would have been had a complicating process was not triggered. Therefore, Alternative C, which offers three team members should be preferred more when a complicating process is triggered (in the sequential-choice test condition) compared to when it is not (in the simultaneous-choice control condition).

To control for an alternative explanation, whereby the sequential and delayed presentation of alternative C might make it more salient and, therefore, increase its choice share, we added a sequential-choice *control* condition. The only difference between the sequential choice control and the sequential choice test conditions was that in the sequential choice control alternative C included six rather than three team members. Thus, according to the complication process that entails the construction of a preference toward having three team members we should not observe an enhanced preference for a sequentially-presented alternative C when that alternative includes six, rather than three, team members.

Results and Discussion

The choice shares across the different conditions are presented in Table 7. Consistent with our predictions, the choice share of alternative C increased dramatically from 13% in the simultaneous-choice control condition to 58.3% in the sequential-choice test condition ($p < .01$). Further, consistent with the effort-compatibility hypothesis and inconsistent with the saliency rival account, when alternative C offered six team members in the sequential-choice control condition, no difference in choice shares was observed between the two control conditions ($p > .6$).

The results of Study 5 demonstrate the impact of complicating behavior on choice. Specifically, the choice shares of an alternative increased when it offered an aspect that became more desirable due to a complicating process in the pre-decisional phase.

Table 7. Experimental conditions and choice shares in Study 5

Simultaneous-Choice Control Condition

Attribute	Alternative A	Alternative B	Alternative C	
Commute	15 Minutes	75 Minutes	45 Minutes	
Salary	8% above average	average	10% above average	
Number of team members	6	3	3	
Choice Share	**87%**	**0%**	**13%**	

Sequential-Choice Test Condition

Attribute	Alternative A	Alternative B		Alternative C
Commute	15 Minutes	75 Minutes	delay	45 Minutes
Salary	8% above average	average		10% above average
Number of team members	6	3		3
Choice Share	**42%**	**0%**		**58.3%**

Sequential-Choice Control Condition

Attribute	Alternative A	Alternative B		Alternative C
Commute	15 Minutes	75 Minutes	delay	45 Minutes
Salary	8% above average	average		10% above average
Number of team members	6	3		6
Choice Share	**82.7%**	**0%**		**17.3%**

General Discussion

A great deal of research indicates that consumers limit their cognitive effort and deliberation about choices by bolstering their preferred choice alternative and/or denigrating the other alternatives. In this article we hypothesize and empirically demonstrate that, under predictable conditions, consumers construct an effortful and deliberative decision even when such a process is normatively superfluous. We demonstrate that consumers complicate their decisions, at times even creating an "illusion of choice." Such behavior may first appear contradictory to well-documented simplifying processes, such as pre-decisional distortion of information and post-choice cognitive dissonance. However, we test and support an effort-compatibility framework that accounts for both simplifying and complicating processes.

Review of Key Findings. We have proposed that consumers value and strive for compatibility between the effort they anticipate and the actual effort they exert. Consistent with existing literature, when choices seemed harder than anticipated, consumers simplified their decisions. However, when choices seemed easier than anticipated, consumers complicated their decisions. We demonstrated that consumers artificially increased their experienced conflict by enhancing the importance of attributes that opposed the superior alternative (Studies 1 and 2), by distorting the overall evaluation of the alternatives (Study 3), and by reversing their preference ordering in a manner that intensified their choice conflict (Study 4). In addition, we showed how complicating behavior, once triggered, could alter the ultimate choice (Study 5). Consistent with the proposed effort-compatibility principle, complicating behavior is attenuated when effort regulation becomes irrelevant, that is, after the choice is finalized or when no choice is required. Further, we demonstrated that introducing an exogenous source of difficulty (by decreasing perceptual fluency) attenuated complicating behavior (Study 2b). Directly manipulating consumers' expectations of high versus low effort resulted in either a complicating versus a simplifying behavior, respectively (Study 2a). We demonstrated that complicating behavior is consistent with a motivation to engage in adequate due diligence by observing complicating behavior in a decision that was framed as important but not when the same decision was framed

as unimportant (Study 2c). Finally, we found that anticipated effort mediates the effect of decision-importance on the emergence of complicating versus simplifying behaviors (Study 3).

Alternative Explanations. Taken together, the aforementioned studies help rule out several alternative explanations. One rival account involves inferences of market-efficiency (Chernev and Carpenter 2001), whereby consumers believe that alternatives in the marketplace are likely to be Pareto-optimal. According to this market-efficiency inference account respondents reconstruct their preferences in a manner that strengthens the near-dominated alternative because they infer that the marketplace would not sustain such an alternative. However, this rival account cannot explain why respondents do not bolster the weaker alternative when (a) they weigh attributes in the post-decisional phase (Studies 1 and 2b); (b) no choice is required (Study 1); (c) an external source of decision effort is introduced (Study 2b); (d) the anticipated effort is low (Study 2a); and (e) the decision is perceived as unimportant (Study 2c). Furthermore, Study 3 provides additional support for the mediating role of anticipated effort in the observed complicating behavior. This study explores complicating behavior in a domain (artwork) that is less likely to trigger market efficiency inferences. It is important to note that, for similar reasons, the results of Studies 1 through 5 cannot be fully explained by rival accounts based on social inference (Prelec, Wernerfelt, and Zettelmeyer 1997), conversational norms (Grice 1975), or impression management (e.g., respondents wishing to portray the outward appearance of engaging in sufficient deliberation). Overall, the current findings are consistent with a motivational (rather than an inferential) process whereby consumers complicate their decisions in order to feel that they are investing enough effort to make an adequate choice.

Relationship to Prior Research. In the present research, we demonstrated that deviations from compatibility between the exerted and anticipated effort may lead to complicating or simplifying behaviors, and accordingly, may bias preferences and choices. It is important to note that the complicating behavior reported throughout this article is not merely an attenuation of a simplification or bolstering process, which may be explained and predicted by other theories or frameworks such as the effort-accuracy framework. Instead, the present findings demonstrate

that complicating behavior consists of a diametrically opposed bias. For example, relative to consumers' context-independent preferences (when no choice was required or no choice set was observed), simplifying resulted in *overweighting*, and complicating resulted in *underweighting*, of attributes that supported the near-dominant alternative, which was ultimately chosen.

The effort-compatibility framework may also help reconcile findings from prior research. First, supporting the effort-compatibility framework, we found that respondents simplified difficult choices, and justified past choices, by bolstering their preferred alternative. These results are consistent with a great deal of research on motivated reasoning, confirmation bias, cognitive dissonance, search for dominance, and distortion of information.

Second, previous research demonstrated that pre-decisional bolstering is attenuated when decisions are relatively easy (e.g., Mann and Taylor 1970). As demonstrated in Study 3, such a null effect can be consistent with the proposed effort-compatibility principle if the decisions in these past studies actually involved a moderate level of choice difficulty (i.e., produced a match between the anticipated and experienced effort). Indeed, a careful review of the aforementioned articles indicates that the authors used either high or moderate levels of decision difficulty, obtaining either simplifying or null effects, respectively. To the best of our knowledge, the only exception is a study that examined the impact of extremely difficult versus extremely easy decisions (Tyszka 1998). Similar to Mann and Taylor (1970), Tyszka (1998, Study 1) employed a test-retest design and examined how the evaluations of target stimuli changed prior to choice. Interestingly, the results obtained in the extremely easy condition appear to reflect complicating behavior prior to choice (convergence of evaluations). However, because the author did not predict this result, the design used in the study did not employ a control condition that would allow ruling out regression to the mean as an alternative explanation. As Tyszka noted: "…*for the distant alternatives there was a decrease in the assessments of overall attractiveness of the chosen alternative and an increase in the assessments of overall attractiveness of the non-chosen alternatives… perhaps this is an effect of the regression toward average*" (Tyszka, 1998, p.200).

Third, scholars have raised the notion that deliberation may lead to worse decisions (see, e.g., Wilson and Schooler 1991). We argue that enticing consumers to deliberate about their

decisions may generate complicating behaviors by creating an expectation that more effort is adequate to make the decision at hand. Relatedly, Dijksterhuis et al. (2004) demonstrated that respondents who carefully deliberated relatively easy, yet important decisions made worse decisions relative to respondents who engaged in a distraction task. Dijksterhuis et al. (2004) interpreted this result as the benefit of unconscious thought. This finding is consistent with the effort-compatibility principle, as the careful deliberation condition may have triggered complicating behavior by implying a need for investing greater effort in the decision (akin to Study 2a), whereas the unrelated task condition may have introduced an exogenous source of effort that relieved respondents from the need to complicate (akin to our Study 2b). This argument is supported by Payne et al. (2008) who found that respondents made better decisions when they were instructed to "choose whenever ready" (self-paced condition, which can be interpreted as a match between exerted and anticipated effort) compared to when they were asked to think about the problem for a long and fixed time period.

Boundary Conditions and Ecological and Managerial Relevance. The effort-compatibility principle suggests boundary conditions for both simplifying and complicating behavior. Throughout this article we have explored these boundary conditions and provided evidence for both simplifying and complicating processes. For example, as demonstrated in Study 3, the moderating role of anticipated effort suggests that simplifying and complicating behaviors are likely to occur only when there is a mismatch between the anticipated effort and the experienced choice difficulty. However, a question that may arise is how often do we face in the "real world" important, yet easy, decisions that could trigger complicating behavior? Admittedly, many day-to-day decisions, such as grocery purchases, are habitual or easy to make and may often lead to simplifying behavior. However, it is the less frequent, yet potentially life-changing consequential decisions, involving our careers, homes, care-takers, and life partners, that motivate us to engage in due diligence and (often unnecessarily) complicate our decisions. Further, while the pre-decisional phase is short-lived in a lab setting, in real world decisions, the pre-decisional phase can span a

greater period of time, thus creating days, weeks, or months of deliberation and agonizing over decisions, some of which might even consist of "illusionary choices."

The potential duration of the pre-decisional phase (in which complicating behavior may take place) in "real world" situations open an opportunity for marketers, policy makers, and advisors to influence and intervene in such behavior. For example, easy or even illusionary choices in the real world may stem from short-lived or expiring opportunities (e.g., a new listing of an exceptionally attractive apartment or a most eligible bachelor). Complicating behavior in such situations may carry dire consequences, as one could miss an "opportunity of a lifetime". Helping consumers overcome the need for effort regulation, or providing consumers with a more constructive outlet to exert their effort, may help consumers make better decisions. Furthermore, in decision contexts that involve sequential presentation of alternatives (e.g., buying a house using a real estate agent), the order in which the alternatives are presented may trigger simplifying or complicating behavior, which, in turn, may influence which alternative will eventually be chosen (see Study 5). Finally, one could explore additional methods by which consumers may complicate their decisions. For example, consumers may look for additional information about the alternatives or search for more alternatives in order to prolong their decisions. In addition, consumers may selectively look for information that will increase the conflict they experience in choice in order to feel as if a diligent decision process has been carried out. Such behavior may have important theoretical and practical implications.

To summarize, the present research demonstrates that consumers not only simplify and bolster the difficult choices they make, but also make harder and less appealing the obvious choices that they might "fake". Such an "illusion of choice" can often lead consumers to agonize over (non) decisions.

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Appendix A. Pretests for Study 1

Pre-tests 1. In order to design easy versus difficult choices, we conducted a pre-test (n = 30). In this pre-test, respondents were asked to allocate a constant sum (of 100 points) across the three attributes, used in Study 1, to reflect the relative weight that they assigned to each attribute. The average weights of the three attributes were 48 points for "office hours include evenings and weekends," 41 points for "average time to schedule an appointment," and 11 points for "services include home visits." The average weight of the two most important attributes was 89%, and for all 30 respondents, the sum of the weights of these two attributes was greater than 50%.

Pre-test 2. In order to confirm that the choice sets shown in Table 1 evoked the intended levels of difficulty we conducted a pre-test (n = 31). In this pre-test, respondents were shown either the low-difficulty or high-difficulty choice sets and were asked to (i) rate on a 7-point scale how difficult they found the decision to be and (ii) rate on a 9-point scale how much the decision seemed easier or harder than anticipated. As expected, the high difficulty choice set was rated as being more difficult compared to the low difficulty choice set (M_{high} = 4.86 vs. M_{low} = 2.75, $p < .01$). Further, the majority of the respondents (80%) rated the high-difficulty choice set as being *harder than anticipated* (above the scale's midpoint). Conversely, the majority of respondents (64%) rated the low-difficulty choice set as being *easier than anticipated* (z = 2.67, $p < .01$).