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Source: *Journal of Consumer Research*, Vol. 16, No. 2 (Sep., 1989), pp. 158-174

Published by: Oxford University Press

Stable URL: <https://www.jstor.org/stable/2489315>

Accessed: 07-09-2018 12:05 UTC

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# Choice Based on Reasons: The Case of Attraction and Compromise Effects

ITAMAR SIMONSON\*

Building on previous research, this article proposes that choice behavior under preference uncertainty may be easier to explain by assuming that consumers select the alternative supported by the best reasons. This approach provides an explanation for the so-called attraction effect and leads to the prediction of a compromise effect. Consistent with the hypotheses, the results indicate that (1) brands tend to gain share when they become compromise alternatives in a choice set; (2) attraction and compromise effects tend to be stronger among subjects who expect to justify their decisions to others; and (3) selections of dominating and compromise brands are associated with more elaborate and difficult decisions.

Choice involves two types of uncertainty: uncertainty about future consequences of current actions and uncertainty about future preferences regarding those consequences (March 1978; Savage 1954). In a buying context, there is often uncertainty about the true values of alternatives on the different attributes. In addition, consumers may be uncertain about the weights of the attributes and about their preferences for different combinations of attribute values. Although much attention has focused on the first type of uncertainty (e.g., Payne, Bettman, and Johnson 1988; Simon 1957), the second type has received less consideration (but see Kahneman and Snell forthcoming; March 1978; Tversky 1988). Nevertheless, a main objective of decision and consumer research is to understand the strategies that decision makers use when making judgments and choices in the face of both types of uncertainty.

Recently, a number of decision researchers (e.g., Montgomery 1983; Slovic 1975; Slovic, Fischhoff, and Lichtenstein 1982; Tversky 1988) have advanced the idea that individual choice behavior under preference uncertainty can be better understood when seen as based on the available reasons or justifications for and against each alternative. This view proposes that decision makers having difficulty determining which

alternative would provide the highest utility tend to make the choice that is supported by the best overall reasons. For example, Montgomery (1983, p. 343) suggests that decision makers determine that they are prepared to make a choice when they find "arguments strong enough for making a decision." According to Slovic (1975), decision makers faced with a need to choose between two equally valued alternatives tend to prefer the one that is superior on the more important attribute. He argues that this tie-breaking strategy is selected because it is easy to justify.

One difficulty in using the reasons supporting each alternative to explain choice behavior is that there are many potential justifications or reasons that might be used in most choice problems. Furthermore, there is currently only limited knowledge about the factors that determine how compelling an argument is in a particular situation (Reike and Sillars 1975; Stein and Miller forthcoming). Reasons supporting each alternative can be explained post hoc, but it is difficult to make a priori predictions concerning choice behavior. Still, examining the reasons for selecting alternatives, especially in relatively simple problems, might improve our understanding of choice behavior under uncertainty. In particular, this approach would prove useful if it can explain observed behavior that appears inconsistent with other approaches to choice.

The attraction (or asymmetric dominance) effect, which has received considerable interest recently (Huber, Payne, and Puto 1982; Huber and Puto 1983; Ratneshwar, Shocker, and Stewart 1987; Sattath 1989; Tversky 1988), offers a suitable test problem. It refers to the ability of an asymmetrically dominated or relatively inferior alternative, when added to a set, to increase the attractiveness and choice probability of the dominating alternative. This finding violates regularity, which is a minimum condition of most

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choice models (Luce 1977). A number of explanations have been offered for the attraction effect (Huber et al. 1982; Huber and Puto 1983; Ratneshwar et al. 1987), but considerable doubts remain regarding its underlying cause(s). Choice sets that are used to demonstrate the attraction effect are very simple, involving only two or three alternatives described on two attributes. Thus, there is only a limited number of possible reasons that could be used to support alternative choices, including one building on the dominance relationship. Specifically, it is suggested below that a possible explanation for the attraction effect is that it reflects the impact of the added dominated alternative on the ability to justify to oneself and to others a choice of the dominating alternative.

Given that the attraction effect has already been demonstrated, any hypothesis regarding its causes would be a post hoc explanation. A more powerful test of the advantages of focusing on reasons to explain choice is the ability of that approach to predict choice phenomena that are difficult to explain otherwise. One such effect, referred to here as a compromise effect, is postulated. It proposes that an alternative would tend to gain market share when it becomes a compromise or middle option in the set. Such an effect would operate in an opposite direction to the familiar substitution or similarity effect (Huber and Puto 1983) and would suggest that a brand in a two-alternative set can gain market share following the addition of an adjacent competitor that makes the brand a compromise choice within the set.

Several empirical investigations of the attraction and compromise effects and their explanations are reported. The findings suggest that by focusing on the reasons supporting each alternative and on how different choices might be evaluated by others, it is possible to account for both effects. The implications of these findings to consumer decision research are discussed.

## REASONS AND JUSTIFICATIONS IN CHOICE

The idea of focusing on the reasons supporting alternatives to explain choice behavior is based on the implicit assumption that people seek reasons for their choices. This assumption derives from much research in the social psychological and decision making literatures indicating that people have a variety of motives for justifying their decisions to themselves and to others. The need to justify decisions to oneself might reflect a desire to enhance one's self-esteem (Hall and Lindzey 1978), anticipation of the possibility of regret (Bell 1982) or cognitive dissonance (Festinger 1957), as well as people's perception of themselves as rational beings with reasons for preferring one option over others (Abelson 1964).

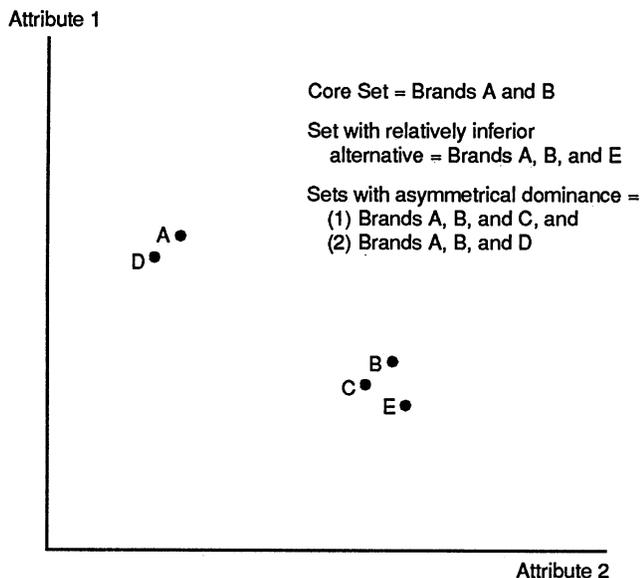
With respect to external justification, the assumption is that decision makers choose alternatives that are perceived as most justifiable to those others who will evaluate their choices, such as superiors, spouses, or groups to which the decision makers belong. The anticipated evaluation by others may be explicit in that the decision maker is responsible to someone else, or implicit in that others will be observing the decision and the decision maker desires to appear competent (Curley, Yates, and Abrams 1986; Tetlock 1985). Motives for seeking justifications to others are discussed in a number of literatures, including those dealing with self-presentation and impression management (for reviews, see Baumeister 1982; Schlenker 1980), social exchange (e.g., Blau 1964), conformity (e.g., Deutsch and Gerard 1955), and ingratiation (e.g., Jones 1964).

Social interactionists have argued that people tend to internalize the criteria employed by others, using those standards to justify their decisions to themselves (Schlenker 1980, p. 92). Thus, even when there is no overt need to justify to others, an expected evaluation by others is likely to influence choice behavior.

There has been little research seeking to explain choice behavior by focusing on the reasons that support alternatives (Montgomery 1983; Slovic 1975; Slovic et al. 1982; Tversky 1972). Perhaps this is because effective use of reasons to explain choice behavior appears to depend on at least two conditions. First, the choice problem should be simple enough to allow for an exhaustive analysis of all reasons that potentially can be used to support the considered alternatives. Second, the decision maker should have difficulty determining preference based on attribute weights and values alone. Further, the available reasons should not represent a simple mapping of the perceived utilities of alternatives. For example, the choice of a particular bread because it tastes good can be explained either by pointing to the higher utility associated with a good-tasting bread or by observing that selection of a tasty bread is easier to justify. In that case, the explanation of choice based on reasons is tautological and does not add any insight to the simpler utility-based explanation. In many cases, however, potential reasons do not merely mirror the perceived utilities of alternatives. In particular, relations among alternatives in a choice set are irrelevant according to most choice models, including random utility models (Luce 1977; Luce and Suppes 1965). Yet, relations among alternatives, such as asymmetric dominance, might be used as justifications for preferring one alternative over others.

As suggested previously, the attraction effect appears suitable for testing the ability of reasons to explain choice behavior because the choice sets used to test the effect are quite simple. In addition, these sets include an asymmetric dominance relationship that might provide a reason in support of the dominating

**FIGURE A**  
THE ATTRACTION EFFECT



brand, even though the addition of a dominated alternative should not influence choice probabilities according to most choice models.

## THE ATTRACTION AND COMPROMISE EFFECTS

### Previous Research on the Attraction Effect

The attraction effect was introduced into the literature by Huber et al. (1982) and Huber and Puto (1983), and was further investigated by Ratneshwar et al. (1987). Huber et al. found that adding to an existing core set of two alternatives (such as Brands A and B in Figure A) a third alternative (C) that is dominated by one of the original alternatives (B) but not by the other (A) increases the attractiveness and choice probability of the now asymmetrically dominating alternative (Brand B). This finding violates the principle of regularity, which is fundamental to most choice models (Luce 1977) and which asserts that one cannot increase the probability of choosing an item by adding items to the set. Huber and Puto extended this finding to include the addition of nondominated alternatives that are relatively inferior compared to one of the two alternatives in the core set (in Figure A, in the set that includes A, B, and E, Brand E is relatively inferior compared to B).

As argued by Bettman (1986), these findings provide important new constraints that viable choice models must meet. Several possible explanations for the attraction effect have been offered, relating to potential influences of the added inferior alternative on

the perception of attributes and alternatives and on the decision rules used (see review in Ratneshwar et al. 1987). However, Huber and Puto and Ratneshwar et al. conclude that such explanations do not appear to account for the attraction effect. An interpretation of the effect proposed by Ratneshwar et al. suggests that the attraction effect is a result of the lack of meaningfulness of the stimulus materials (mainly the attribute values) and subjects' lack of familiarity with the product categories used in the Huber et al. studies. They showed that the effect is moderated, though not eliminated, with elaborated explanations of attribute values.

More recent research has demonstrated the attraction effect using choice sets of gambles (Payne, Bettman, and Simonson in progress; Tversky 1988), paper towels and other products (Simonson and Tversky 1989), and job candidates (Sattath 1989). With gambles, for example, the attribute values are cash values and the attributes are probabilities, both of which are likely to be familiar and meaningful to subjects. In addition, in the Payne et al. and Tversky studies, subjects actually played one of the gambles they selected, receiving payment according to the outcome of that gamble. Thus, subjects had a clear motivation to choose the option with the highest utility. Both studies found a statistically significant attraction effect. That is, gambles were more likely to be selected when they dominated another gamble in the set than when they did not. This further supports the proposition that the attraction effect is real, rather than an artifact of any particular experimental stimuli or manipulation. An explanation of the attraction effect that focuses on the reasons supporting each alternative is proposed in this article.

### Reasons for Choice in the Attraction Effect

Consider the choice set in Figure A that includes only Brands A, B, and C. Selection of either Brand A or B can be justified in two ways. First, a consumer can argue that the attribute on which the chosen alternative is best is more important. Alternatively, the consumer might reason that a trade-off analysis based on both attribute weights and values favors one of the two brands. Both of these potential arguments may or may not lead to a clear preference. Specifically, the consumer may have difficulty reaching a decision if there is uncertainty about the attribute weights or values, or if both attributes are perceived as about equally important, or if a trade-off analysis does not provide strong support for either of the brands.

Next consider the role of the asymmetrically dominated Brand C, which can provide an additional reason or justification for selecting the dominating Brand B. That is, the consumer can point to the dominated brand, noting that it is clearly inferior compared to the dominating brand. That reason associ-

ated with the dominance relationship might help the consumer break a tie in favor of the dominating brand, B.

When consumers expect their choices to be evaluated by others, such as their superiors, spouses, or friends, the situation becomes more complex. This is because, in most cases, the uncertainty about the preferences of others is greater than the uncertainty about one's own preferences. Thus, justifying a choice to others based on attribute weights or a trade-off analysis can be a risky strategy if the consumer is uncertain about the evaluators' perceptions of these weights and trade-offs (Tetlock 1985). Instead, decision makers are likely to seek reasons that are most likely to be effective in convincing those who will evaluate the decision and are robust over differences in weights and values. For example, logical statements that appear as facts tend to be effective justifications to others (Reike and Sillars 1975; Stein and Miller forthcoming). In the context of the attraction effect, an asymmetric dominance relationship might loom large among the reasons for choice if consumers are concerned about others' evaluation of their decisions. This is because the superiority of the dominating brand relative to the dominated brand is a fact that does not depend on subjective tastes or evaluators' unknown preferences.

Furthermore, people often judge decisions made by others without knowing or attending to the reasons that guided the decision. Thus, if the tastes and opinions of the evaluators are unknown, a decision maker might try to anticipate what aspects of the choice problem are likely to influence others' evaluations. Specifically, the salience (Taylor and Fiske 1978) of the dominance relationship in the set might lead a consumer to believe that this aspect will dominate the judgments of others who will evaluate that choice set.

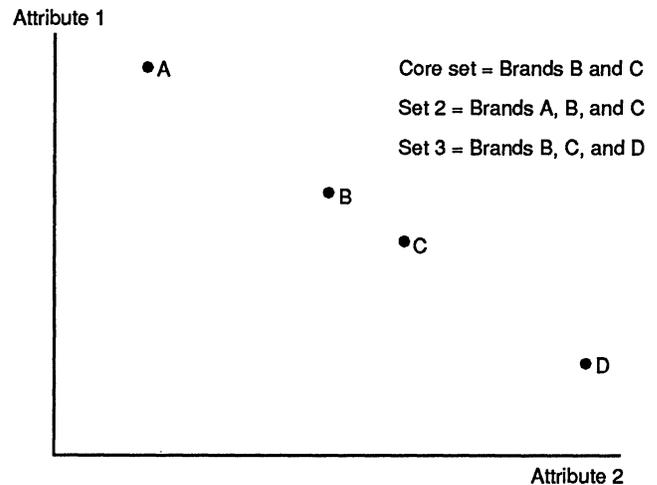
In sum, the attraction effect is expected to hold both in private and public choices. However, the magnitude of the attraction effect is predicted to be stronger among consumers concerned about the evaluations of their decisions by others whose preferences are unknown.

### The Compromise Effect

The preceding explanation for the attraction effect focused on the dominance relationship. However, in the Huber and Puto and Ratneshwar et al. studies the choice sets included a relative superiority rather than a dominance relationship. Such a relationship could provide a reason for preferring the relatively superior alternative. Yet, that reason is likely to be a weaker justification because it is not clearly true that one alternative is superior to the other. Interestingly, Huber and Puto (1983, p. 38) report that in the debriefing session following their study, "Subjects expressed the feeling that Item 1 (the relatively superior) was the 'safe,' 'compromise' alternative."

FIGURE B

A COMPROMISE EFFECT BY ADDING A DISTANT COMPETITOR



This suggests that the addition of an alternative (E in Figure A) that is inferior relative to one of the core brands (B) adds two justifications for selecting the relatively superior alternative. The first is based on the relative superiority relationship, and tends to favor the superior alternative. The second reason is based on the fact that following the addition of the relatively inferior alternative (E), the superior brand (B) can be seen as a compromise choice in terms of its attribute values between the existing competitor (A) and the added inferior alternative. If a decision maker is uncertain which of the two attributes is more important, a selection of a compromise alternative that can be seen as combining both attributes might be easiest to justify (Stein and Miller forthcoming). The strength of relative superiority versus compromise as a justification is likely to depend on the particular position of the inferior alternative. The closer and more inferior the added alternative is relative to the superior alternative, the more powerful the relative superiority argument would be relative to the compromise argument, and vice versa.

If this analysis is correct, then it should be possible to show that an alternative's choice probability increases when it becomes a compromise or middle alternative, even if there is no superiority relationship. For example, in Figure B, adding to a core set that includes Brands B and C a third brand, D, which is not inferior to C in any obvious way, should tend to increase the market share of C, which can now be seen as a compromise choice.

While being a compromise is expected to increase choice probability, adding an adjacent, nondominated alternative should decrease the share of the compromise alternative per the substitution effect (Huber and Puto 1983). Thus, it is not clear whether

the overall effect of adding an adjacent, nondominated alternative would be to increase or decrease the market share of the middle alternative. However, the compromise argument does lead to the prediction that the middle alternative would gain share relative to the other existing alternative (e.g., in Figure B, the addition of Brand D to the core set will increase the share of C relative to B). This is contrary to the similarity effect, which indicates that a new competitor would draw more share from the more similar alternative.

When a consumer expects to be evaluated by others, the compromise aspect might play a somewhat different role. First, if one is uncertain about the preferences of others, then a reasonable solution is to select the middle alternative, which is likely to be the safest choice with the smallest maximum error. Second, being a compromise alternative influences the ability to justify a choice of that alternative. On the one hand, the decision maker can argue that the middle alternative combines both attributes. On the other hand, a compromise alternative is not the best on any attribute, and could thus be more difficult to justify. Overall though, given that selection of a compromise alternative is clearly the safest when the evaluators' preferences are unknown, it is predicted that decision makers who expect to be evaluated by others will be more likely to show the compromise effect (i.e., when an alternative becomes a compromise, its share will increase more among those who expect to be evaluated by others.)

## HYPOTHESES

The discussion of the attraction and compromise effects and the circumstances in which these effects are likely to occur leads to the following hypotheses. Regarding the attraction effect:

- H1a:** The choice probability of an alternative will increase when it asymmetrically dominates another alternative in the choice set (a replication of the attraction effect).
- H1b:** The attraction effect will be stronger among consumers who expect to be evaluated by others.
- H1c:** A dominating alternative will be perceived as easier to justify and less likely to be criticized.
- H1d:** Decision processes leading to selection of a dominating alternative would tend to be more elaborate and associated with more difficult decisions.

Regarding the compromise effect:

- H2a:** An alternative's choice probability will increase when it becomes a compromise in

the choice set. (If an alternative becomes a compromise following the introduction of a new adjacent brand, its share will increase relative to the other existing alternative.)

- H2b:** The compromise effect will be stronger among consumers who expect to be evaluated by others.
- H2c:** A choice of a compromise alternative will be perceived as easier to justify and less likely to be criticized.
- H2d:** Decision processes leading to selection of a compromise alternative would tend to be more elaborate and associated with more difficult decisions.

Four studies designed to test the hypotheses were run. In two studies, relating to Hypotheses 1a, 1b, 2a, and 2b, subjects performed a choice task, similar in many respects to previous studies dealing with the attraction effect. A third study, designed to test Hypotheses 1c and 2c, investigated the influence of dominance and compromise relationships on decision makers' perceptions of how others will evaluate particular choices. Finally, a study using think-aloud protocols was used to test Hypotheses 1d and 2d and to provide greater insights into the mechanisms underlying the attraction and compromise effects.

## PILOT STUDY

The primary objective of the pilot study was to provide a preliminary test for the existence of the predicted compromise effect and of the hypothesized differences between those who expect to be evaluated by others and those who do not. A secondary objective was to check the methodology developed for this research.

The subjects were 147 college students enrolled in a marketing management class. In the main part of the study, subjects made choices from sets, most of which contained either dominance or compromise relationships. There were two conditions, high and low. In the high condition, subjects were told that their choices would be evaluated individually in class and that they might be asked to justify their decisions. In the low condition, subjects were assured of total confidentiality.

The results were consistent with all hypotheses tested. A strong compromise effect was found ( $t = 4.27, p < 0.001$ ), reflecting the greater choice probability of alternatives when they become compromise choices in the set. As predicted, the effect was statistically significant in both conditions, but significantly stronger in the high condition ( $t = 2.19, p < 0.05$ ). Also, as predicted, the attraction effect was statistically significantly stronger in the high condition ( $t$

= 2.46,  $p < 0.01$ ). The pilot study also suggested that a complete test of the hypotheses would require three different choice sets per category. These methodological changes were implemented in Study 1, which is described next.

## STUDY 1

### Method

*Procedure.* The subjects were 372 students enrolled in marketing courses at three Southeastern universities. The study, conducted during regular class meetings, consisted of a task with three parts. In the first part, subjects rated the importance of two attributes in several product categories and indicated their familiarity with the different product categories. Importance weights were measured to allow an assessment of the added explanatory power of dominance and compromise relationships after accounting for the effect of subjects' tastes. The measurement of product familiarity served primarily as a filler task between the importance weights' measurement and the choice task. The attribute importance ratings were on a 0 (not at all important) to 10 (very important) scale (Jaccard, Brinberg, and Ackerman 1986). Product class familiarity was measured using an operationalization developed by Park (1976), in which subjects enter one of three levels of familiarity with each category.

Upon completion of the first part, subjects started the second and were asked to make choices and rate the overall attractiveness (on a 0–10 scale) of the alternatives in 12 choice sets. The cover story that introduced this part related the task to a class discussion on consumer decision making. Subjects were told that this topic would be further discussed later in the course. To prepare for that discussion, the students were asked to assume they were shopping for themselves and make choices in several categories. Subjects were assigned randomly to one of two conditions with different levels of concerns about choice justification.

Following the choice task, subjects filled out two personality scales: the self-consciousness scale (Fenigstein, Scheier, and Buss 1975) and the updated version of the self-monitoring scale (Snyder and Gangsted 1986). These scales were included to provide information about the personal dispositions of subjects that might influence their choice behavior. The results, however, included few significant findings regarding the effects of self-consciousness and self-monitoring on choice and, therefore, will not be discussed further. Finally, subjects responded to two items used as a manipulation check for the justification manipulation, which is described next.

*Manipulation.* As indicated, in the choice task there were two conditions differing in level of con-

### EXHIBIT SAMPLE CHOICE PROBLEM

Calculators: Common attributes are 10-digit LCD display, battery included, vinyl wallet, price \$12.			
	Brand A	Brand B	Brand C
Number of functions (Range: 6–98 functions)	16	24	32
Probability of need for repair in first two years (Range: 0.5–15%)	3%	5%	7%
Please check your first choice	_____	_____	_____
Rate the overall attractiveness of each brand using a 0 to 10 scale where 0 = very unattractive and 10 = very attractive.			
Brand A _____	Brand B _____	Brand C _____	

cerns about others' evaluations. The manipulation used was similar to that of previous research on the effect of having to justify decisions and judgments (e.g., Adelberg and Batson 1978; Rozelle and Baxter 1981; Tetlock and Kim 1987). In the low need for justification condition, the last paragraph of the instructions introducing the choice task informed subjects that their choices would remain totally confidential. They were instructed not to put their name on the questionnaire. Subjects in the high condition, conversely, were told that a booklet would be prepared that would include their choices ordered alphabetically by last name. They were informed that their decisions would be evaluated by the class and that they might be asked to justify their decisions. Finally, subjects in the high condition were asked to print their names on the questionnaire and initial each page of the choice part.

Within each of the two conditions, there were three versions of the questionnaire, as needed for testing the hypotheses (between subjects) in each condition. That is, each version of the questionnaire included one of three different choice sets in each product category. More detail follows.

*Choice Sets.* As seen from the example in the Exhibit, each alternative was described on two attributes. Subjects were told to assume that the alternatives were similar on all other attributes, and some of the common attributes were listed. For each attribute, the range of values across all brands on the market was given in parentheses. This is consistent with the conclusion (Assar and Chakravarti 1984, p. 66) that attribute range knowledge allows subjects "to better comprehend the evaluative implications of the given brand-attribute information." The information should help subjects comprehend the meaning of attri-

**TABLE 1**  
CHOICE SETS USED IN STUDY 1

Product category	Set configuration	Attribute 1	Attribute 2	Choice sets		
				1	2	3
Beer	Figure A	Six-pack price	Quality rating			
Brand A		\$1.90	65	×	×	×
Brand B		\$2.80	75	×	×	×
Brand C		\$3.10	75		×	
Brand D		\$2.20	65			×
Car	Figure A	Ride quality	Miles per gallon			
Brand A		83	24	×	×	×
Brand B		73	33	×	×	×
Brand C		70	33			×
Brand D		80	24		×	
Color TV	Figure B	Price	Picture quality			
Brand A		\$503	100		×	
Brand B		\$350	85	×	×	×
Brand C		\$299	80	×	×	×
Brand D		\$146	65			×
Apartment	Figure B	Distance	General condition			
Brand B		11 miles	90	×	×	
Brand C		6 miles	75	×	×	
Brand D (unavailable)		1 mile	60		×	
Calculator	Figure C	No. of Functions	Probability of repair in first 2 years			
Brand A		8	1%	×		
Brand B		16	3%	×	×	
Brand C		24	5%	×	×	×
Brand D		32	7%		×	×
Brand E		40	9%			×
Mouthwash	Figure C	Fresh breath effectiveness	Germ-killing effectiveness			
Brand A		60	80	×		
Brand B		70	70	×	×	
Brand C		80	60	×	×	×
Brand D		90	50		×	×
Brand E		100	40			×
Calculator battery	Figure B	Expected life	Probability of corrosion			
Brand A (unavailable)		10 hours	0%			×
Brand B		12 hours	2%	×	×	×
Brand C		14 hours	4%	×	×	×
Brand D (unavailable)		16 hours	6%		×	

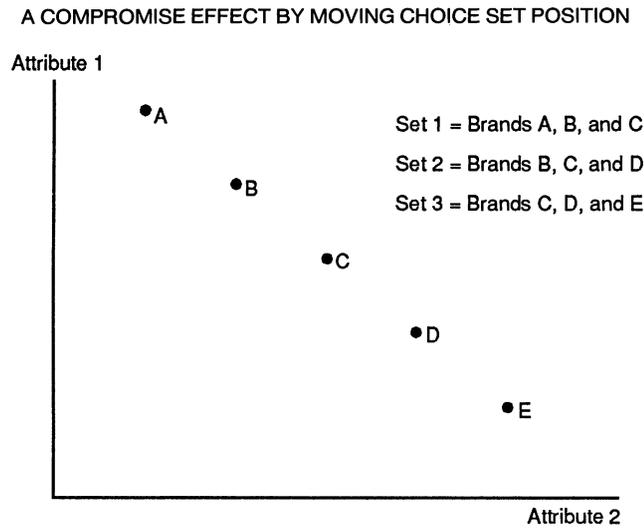
bute values without having to rely on the particular alternatives in the set, thus facilitating meaningful trade-off processes. No elaborate explanations of attribute values were used, however, so that all subjects would encode the same attribute values, with the dominance and compromise relationships easy to detect. In addition to providing attribute ranges, an effort was made to include only product categories relevant and familiar to student subjects (following Ratneshwar et al.'s recommendation).

Table 1 presents the choice sets used. Hypotheses 1a and 1b relating to the attraction effect were tested in the beer and car categories, with three different choice sets in each category (illustrated in Figure A). Each category contained a core set of two nondominated alternatives.

In the other sets, a third alternative dominated by one of the two alternatives in the core set was added. The choice sets in two additional categories, supermarkets and sport shoes, contained a dominance relationship, but these sets were primarily designed to test a different effect (Simonson 1987).

Figures B and C illustrate the design of choice sets relating to the compromise effect, which was tested in two ways. In Figure B, representing the sets used in the television, calculator battery, and apartment categories, there is a core set of two alternatives. In the other two sets, an alternative lying on a straight line in terms of its attribute values relative to the core set was added. To minimize the substitution effect relative to the hypothesized com-

FIGURE C



promise effect, the added alternative in the TV and apartment categories was positioned at some distance from the core set. Per Hypothesis 2a, the adjacent existing alternative is expected to gain share relative to the more remote existing competitor following the addition of the third alternative.

Figure C, relating to the sets in the calculator and mouthwash categories, presents a second way in which the compromise effect was tested. Each set included three alternatives—A, B, and C; B, C, and D; or C, D, and E. Alternatives B, C, and D were each a compromise alternative in only one set, and they were extreme alternatives in one or two of the other sets. Per Hypothesis 2a, it is expected that alternatives' choice probabilities will be greater when they are the compromise choice.

In the calculator battery and apartment categories, a slightly different type of choice set was used. These sets include an alternative that was described but that was not available for choice. The instructions preceding these sets related the choices to situations in which consumers evaluate alternatives in a certain category while aware of alternatives that are not available when they have to make a purchase (Farquhar and Pratkanis 1987). The advantage of this type of choice set is that it avoids any confounding with the substitution effect, since one cannot switch to or from an unavailable alternative.

## Results

*Manipulation Checks.* At the end of their task subjects responded on a 0–10 scale to two questions used as a manipulation check. On the first item, subjects in the high condition were more likely than subjects in the low condition to anticipate being asked to justify their choices to the class (4.20 versus 2.19;  $p$

TABLE 2

STUDY 1: IMPACT OF THE JUSTIFICATION CONDITION ON THE MAGNITUDE OF THE ATTRACTION EFFECT<sup>a</sup>

Product category	Justification condition	Share in core set	Share when dominating	Share when other brand dominating
Beer	\$1.90 brand/ quality = 65	Low	36%	26%
		High	27%	11%
		Combined	31%	19%
\$2.80 brand/ quality = 75		Low	64%	57%
		High	73%	53%
		Combined	69%	55%
Car	24 mpg/ride quality = 83	Low	33%	29%
		High	44%	17%
		Combined	39%	23%
33 mpg/ride quality = 73		Low	67%	31%
		High	56%	34%
		Combined	61%	33%

<sup>a</sup> Subjects were 372 business administration students.

<sup>b</sup> The difference between the high and low conditions in terms of the increase in share when a brand is dominating (compared to when the other brand is dominating) is statistically significant at the 0.05 level.

<sup>c</sup> The difference between the high and low conditions in terms of the increase in share when a brand is dominating (compared to when the other brand is dominating) is statistically significant at the 0.10 level.

< 0.001). With respect to the likelihood that their choices would be evaluated individually in class, the average rating of subjects in the high condition was 3.47, compared to 2.19 in the low condition ( $p < 0.001$ ).

As an additional manipulation check, the total time taken to complete the questionnaire was expected to be correlated positively with concerns about justification and was recorded. The average time in the high condition was 25.7 minutes, compared to 23.0 minutes in the low condition ( $p < 0.001$ ).<sup>1</sup>

*The Attraction Effect.* As can be seen in Table 2, by comparing the shares of brands when they are dominating versus when they are not, the results in both the beer and car categories support Hypotheses 1a and 1b. Consistent with previous studies, brands in both categories tend to gain market share when they are asymmetrically dominating. For example, the market share of the \$1.90 beer is 31 percent when there is no dominated brand in the set; it goes up to 43 percent when a third brand that is dominated by

<sup>1</sup>A closer examination of the manipulation checks' results revealed that differences between the two conditions in terms of average ratings on the two items and the time to complete the task were marginally significantly greater in the experimenter's own university than among subjects from other universities. In those other universities, the manipulation checks were only marginally significant.

the \$1.90 brand is introduced; and it is only 19 percent when a third brand that is dominated by the \$2.80 brand is included. Further, for all four brands involved, the increase in market shares when they are asymmetrically dominating compared to when the other brand is dominating was, on average, 17 percent greater in the high need for justification condition. Although changes in the market shares of brands within a category are not independent, they do illustrate that regardless of which brand is considered, the direction of the results is consistent with Hypothesis 1b.

Table 2 also indicates that the differences in the market shares of dominating brands between the high and low conditions depend on the particular attribute values of these brands. For example, in the beer category, the difference in the share of the dominating brand between the high and low conditions is 20 percent when the higher quality brand is dominating, but only 2 percent when the lower quality beer is dominating. Apparently, many subjects in the high condition felt they would be evaluated more favorably if they selected the higher quality beer.

To summarize the results, multinomial logit analyses (McFadden 1973) were run, with each choice of each subject serving as one observation (see Simonson, Huber, and Payne 1988 for a description of the procedure). Different models were estimated. In one run, only three independent variables were included. The first is the utility (U) of each alternative, estimated by standardizing the attribute values of the alternatives and the importance weights of the attributes as rated by the subjects and by using a linear weighted additive model to derive U. The second independent variable was a 0–1 dummy variable, DOM, which received a value of 1 if the alternative was dominating in the set, and 0 otherwise.<sup>2</sup> Finally, the third variable, HDOM, represents the interaction between DOM and a 0–1 dummy condition variable, where 1 represents the high condition.

The estimated coefficients were as follows (standard errors in parentheses):

$$0.82 U + 1.17 DOM + 0.44 HDOM \quad (\chi^2 = 223)$$

(0.18)    (0.13)    (0.19)

As would be expected, the coefficient of the estimated utility variable is positive and statistically significant ( $t = 4.6, p < 0.001$ ). The coefficient of DOM is also positive and significant ( $t = 9.0, p < 0.001$ ). This shows a strong attraction effect, indicating that alter-

<sup>2</sup>The strict conditional logit model assumes that the utility of an item in its set is a function only of its characteristics, not a function of the characteristics of the set. If utility is a function of the set or the choice context, the tenants of random utility models are violated (Luce and Suppes 1965). Thus, by including in the logit model a term that reflects the set, the magnitude of the deviation from the

**TABLE 3**  
STUDY 1: THE COMPROMISE EFFECT<sup>a</sup>

Product category	Share when not compromise	Share when compromise	Difference between conditions in effect magnitude <sup>b</sup>
Apartment 6 miles/75	50%	66% <sup>c</sup>	+5%
Calculator 32 fn/7%	29%	40% <sup>c</sup>	+3%
24 fn/5%	36/47% <sup>e</sup>	45%	+3%
16 fn/3%	26%	48% <sup>c</sup>	-2%
Calculator battery 12 hrs/2%	40%	66% <sup>c</sup>	0%
14 hrs/4%	34%	60% <sup>c</sup>	0%
Mouthwash 90/50	36%	38%	+24%
80/60	11/52% <sup>e</sup>	47% <sup>c</sup>	+15%
70/70	17%	42% <sup>c</sup>	-5%
Television \$299/80	23%	48% <sup>c</sup>	-7%
\$350/85	43%	51% <sup>d</sup>	-7%

<sup>a</sup> Subjects were 372 business administration students.

<sup>b</sup> The difference between the high and low conditions in terms of the magnitude of increase in market share when alternatives are compromises.

<sup>c</sup> The increase in share when the brand becomes a compromise is statistically significant at the 0.05 level.

<sup>d</sup> The increase in share when the brand becomes a compromise is statistically significant at the 0.10 level.

<sup>e</sup> The share figures correspond to the two choice sets in which the brand appeared but was not a compromise.

natives' attractiveness and choice probability tend to increase when they are asymmetrically dominating. Finally, consistent with the results in Table 2, the coefficient of HDOM is positive and statistically significant ( $t = 2.3, p < 0.05$ ). This supports Hypothesis 1b, that the attraction effect would be stronger in the high need for justification condition.

Another model that was run included, in addition to U, DOM, and HDOM, a dummy variable for one of the two product categories, and all possible interactions among the four variables. This latter model was also run with dummy brand variables to account for unique effects of particular brands. The results of these and other runs indicate that the coefficients of U, DOM, and HDOM are not sensitive to the particular model specification.

*The Compromise Effect.* As shown in Table 3, and consistent with Hypothesis 2a, the market shares of alternatives in the TV, apartment, calculator, mouthwash, and calculator battery categories were, on average, 17.5 percent larger when they were compromise brands than when they were not. In nine of 11 cases, these differences in shares are statistically significant.

available alternative that made the adjacent apartment a compromise choice increased the share of the latter. For both brands in the TV category, the introduction of a distant competitor increased the share of the adjacent existing brand at the expense of the nonadjacent brand.

Similarly, in the mouthwash and calculator categories, the shares of the different brands were in most cases greater when they were compromise alternatives. The calculator battery choice sets illustrate that the effect still holds if an unavailable alternative is used to determine which alternative has the status of a compromise. With respect to Hypothesis 2b, the results in the last column of Table 3 do not support the prediction that the compromise effect will be stronger in the high condition. The difference between the high and low conditions in terms of the magnitude of increase in the share of alternatives when they become a compromise was, on average, only 2.6 percent.

To summarize the results, multinomial logit analyses were run. One model included only three independent variables: utility (U); COMP, which received a value of 1 if the alternative was a compromise in the set, 0 otherwise; and HCOMP, which represents the interaction between COMP and a 0–1 dummy condition variable (where 1 is the high condition). The estimated coefficients were as follows (standard errors in parentheses):

$$1.40 U + 0.63 COMP + 0.05 HCOMP \quad (\chi^2 = 361)$$

(0.09)      (0.08)      (0.11)

Consistent with Hypothesis 2a, the effect of COMP is positive and statistically significant ( $t = 7.9$ ,  $p < 0.001$ ). Thus, alternatives' attractiveness and choice probability significantly increase when they are a compromise choice. With respect to the interaction between the compromise effect and the justification condition (HCOMP), the coefficient has the predicted sign but is not statistically significant.<sup>3</sup>

Other models were estimated that included product categories and brands' dummy variables as well as interaction terms among the variables. The results indicate that the coefficients of U, COMP, and HCOMP are not sensitive to the particular model specification.

## STUDY 2

Both the pilot study and Study 1 support the hypothesis that the attraction effect will be stronger if subjects expect to be evaluated by others. The corresponding prediction for the compromise effect was

<sup>3</sup>The inconsistency between this finding and the significant difference between conditions in the pilot study might be related to the weaker manipulation in two out of three universities, as reported previously (see Footnote 1). If the subjects in the experimenter's own university are analyzed separately, the coefficient of HCOMP is statistically significant ( $p < 0.01$ ).

supported in the pilot study but was not statistically significant in Study 1. In both studies, the attraction and compromise effects were investigated by examining subjects' choice behavior. The purpose of Study 2, per Hypotheses 1c and 2c, was to provide a more direct test of the effect of dominance and compromise relationships on the evaluation of decisions to choose dominating and compromise alternatives. A difficulty arises in assessing the net impact of dominance and compromise relationships because each alternative's evaluation is likely to be influenced also by the particular attribute values of that alternative. To disentangle the two effects, each alternative was evaluated both in its original set (from Study 1) and in a reduced set with the dominance or compromise relationship removed. The methodology employed in this study is similar in some respects to projective techniques often used in marketing research (Kassarjian 1974).

## Method

The subjects in this study were 100 college students enrolled in a psychology course. Previous experience indicates that many of these students later take the marketing management course. Participation was part of a course requirement. In the first of a three-part task, subjects were informed that students enrolled in marketing management courses had been asked to make choices in different product categories and that their choices would be later discussed and evaluated in class. The task of subjects in Study 2 was defined as trying to predict how specific choice decisions would be evaluated in class and how difficult they would be to justify.

There were three versions of the questionnaire, such that the choice sets in each version were identical to those in the corresponding questionnaire of Study 1. Each alternative was rated on a 0–10 scale regarding (1) the perceived likelihood of criticism if that alternative is chosen, and (2) the difficulty of justifying to the class a choice of that alternative. These two items correspond to the earlier distinction between justifying and being evaluated without justifying. The two items were derived from a pilot study in which a number of additional items were tested.

The second part of the questionnaire was designed to assess the expected evaluation by others of choosing specific alternatives based on their attribute values alone, without the effect of a dominance or a compromise relationship. As argued earlier, the ratings of alternatives in terms of the likelihood of criticism and ease of justifying (collected in the first part of the task) are likely to be influenced by both the attribute values and the dominance/compromise relationship. Thus, assessment of the impact of the attribute values alone would allow a later estimate of the net effect of the dominance/compromise relationship.

Choice sets with two alternatives each were derived from the sets evaluated in the first part of the task by dropping one alternative from the original sets. For example, in sets with a dominance relationship, the dominated alternative was dropped, leaving a core set of two nondominated alternatives. Evaluation of alternatives in sets without a dominance or compromise relationship is likely to be based primarily on attribute values. For each set, subjects were asked to predict which of the two alternatives would most likely be chosen by a student who is very concerned about criticism from the class and about being able to justify his/her decisions. They were also asked to assess the probability that this student will choose each brand by dividing 100 points between the two alternatives. This alternative method of measuring justifiability employed in the second part of the questionnaire was designed to minimize the effect of subjects' previous ratings of these alternatives in the first part.

The last task of subjects was designed specifically to assess the perceived advantages and disadvantages of selecting a compromise alternative. Subjects were asked whether the marketing students and they themselves would be more likely to criticize a student who tends to select middle alternatives or one who tends not to choose middle alternatives. Finally, there were two open-ended questions regarding (1) the reasons for criticism of the student they indicated and (2) the advantages and disadvantages of choosing a middle alternative.

## Results

Hypothesis 1c suggests that the choice of a dominating alternative will be perceived as easier to justify and less likely to be criticized by others. It was known which alternative was asymmetrically dominating in each set. Accordingly, a dummy independent variable, DOM, was defined and received a value of 1 if the alternative was dominating, 0 otherwise. A second independent variable was the evaluation of each alternative based on its attribute values alone. Specifically, the indicated likelihood (on a 0–100 scale) that a student very concerned about the evaluation of his/her choices would select each of the two brands was used as a measure of that brand's attribute based evaluation (ATE). The dependent measures were the evaluation of alternatives in the original sets (with a dominance or compromise relationship) in terms of ease of justification and likelihood of criticism.

Using multiple regression, when the likelihood of criticism is the dependent variable, the effects of both DOM and ATE were negative and statistically significant ( $t = -5.03$ ,  $p < 0.001$ , and  $t = -7.93$ ,  $p < 0.001$ , respectively). Similarly, if the perceived ease of justification is used as the dependent variable, the coefficients of DOM and ATE are both positive and statistically significant ( $t = 3.15$ ,  $p < 0.01$ , and  $t$

$= 6.36$ ,  $p < 0.001$ , respectively). These results support Hypothesis 1c and indicate that the fact that an alternative is asymmetrically dominating decreases both the perceived likelihood of criticism and the difficulty of justifying a choice of that alternative.

A similar regression analysis was run to test the corresponding prediction for the compromise effect (Hypothesis 2c). The independent variables were ATE, as described previously, and COMP, which received a value of 1 if the brand was a compromise in the set, 0 otherwise. The results of the two regression runs suggest that being a compromise has different effects on the perceived likelihood of criticism and ease of justification. A compromise choice significantly reduces the perceived likelihood of criticism ( $t = -4.0$ ,  $p < 0.001$ ), but the effect of COMP on the ease of justification was not statistically significant ( $p > 0.20$ ). That is, a choice of a compromise alternative is seen as less likely to be criticized but not easier to justify. This perhaps reflects the fact that a compromise brand does not stand out and is not the best on any attribute.

In the third part of the study, 65 out of 100 subjects indicated that they would be more likely to criticize a subject who tends not to select middle alternatives, whereas 35 were more likely to criticize the student who tends to select middle alternatives. The most often cited advantages of selecting middle brands is that it is safe, less likely to be criticized, and it shows that the decision maker has considered both attributes. On the negative side, subjects who tend to choose middle alternatives were described as "wishy washy," "too concerned about pleasing," "not choosing based on personally preferred attribute," and as "settling for mediocrity." In sum, Study 2 supported Hypothesis 1c and provided partial support for Hypothesis 2c. Further, it supports the notion that the ease of justifying to others and the expected favorableness of others' evaluations represent somewhat different components and are not simply mirror images of each other.

## STUDY 3

The pilot study and Studies 1 and 2 demonstrated attraction and compromise effects, which were generally stronger among subjects who expected their decisions to be evaluated by others. These studies, however, do not allow direct observation of the decision processes leading to these effects. Thus, Study 3 was designed to examine the mechanisms underlying the attraction and compromise effects and the assumption that dominance and compromise relationships are most likely to influence choice when consumers are uncertain about their preferences. Specifically, Hypotheses 1d and 2d propose that selection of dominating and compromise alternatives would be associated with more difficult and elaborate decision processes. Think-aloud protocols (Ericsson and Simon 1980) appear suitable for testing these hypotheses.

## Method

The subjects were 23 first-year graduate students enrolled in a marketing management course. Two subjects who repeatedly failed to think aloud were dropped from the sample. The study was conducted at the behavioral laboratory of a business school, and subjects were paid \$5 for their participation.

The task was similar to that in Study 1, but these subjects were asked to think aloud as they made their choices. All subjects received the same choice sets, including four sets with an asymmetric dominance relationship (categories: car, beer, supermarket, and sport shoes) and three sets with a compromise alternative (categories: calculator, mouthwash, and color TV).

Hypotheses 1d and 2d were tested by examining how elaborate and difficult the decisions were. One straightforward measure of elaborateness is the length of the protocol. Length was measured based on the number of words included in the protocol of each choice (prepositions and sounds such as “umm” were counted as words). The elaborateness and thoroughness of decisions was also measured by examining whether the subject considered explicitly both the advantages and the disadvantages of the selected alternative. The difficulty of the decision was estimated by examining whether the subject explicitly indicated that the decision was difficult and/or that both attributes were important. A second measure of decision difficulty in sets designed to test the attraction effect was based on whether the final choice was consistent with the importance weights indicated by the subject prior to the choice task (i.e., whether the subject selected the brand that was superior on the more important attribute). The assumption was that decisions consistent with the prior attribute weights would be easier to make than those inconsistent with the prior weights. Finally, though not a direct test of a hypothesis, the explanations actually provided by subjects for their choices were examined.

The protocols were analyzed by two independent judges who had only general knowledge about the purpose of the research. The overall interjudge reliability was 90 percent, and was greater than 83 percent for all coded items. Disagreements were resolved by discussion.

## Results

*Choice Sets with Asymmetric Dominance.* As argued previously, selection of a dominating alternative is likely to be influenced by both its attribute values and the dominance relationship. Subjects who consider the attribute on which the dominating brand is superior as much more important are likely to select that alternative regardless of whether it dominates another alternative. Other subjects might be less confi-

dent about the relative weights of the attributes. As proposed earlier, this latter group is expected to be most susceptible to the attraction effect. It is thus desirable to distinguish between (1) decisions in which preference for the dominating brand was due mainly to the relative weights of attributes and (2) decisions in which the relative attribute weights did not lead to a clear preference. The think-aloud protocols can be used for an approximate classification of decisions into these two types. Specifically, 27 protocols starting with a statement that one attribute is more important than the other were classified as lexicographic (i.e., based on attribute weights), and all other choices leading to selection of the dominating brand (41 protocols) were classified as nonlexicographic. Thus, one can compare these two types of decisions, as well as contrast decisions resulting in selection of a dominating brand with decisions that led to selection of a non-dominating brand. Only 14 of the 82 decisions analyzed resulted in selection of a nondominating brand, and nine of those began with a statement that one attribute is more important.

The results provided strong support for Hypothesis 1d, indicating that nonlexicographic choices of dominating alternatives tend to be more difficult and elaborate. First, the protocols of nonlexicographic choices of dominating brands tended to be significantly longer: 69 percent of these protocols took longer than the median protocol length, compared to 29 percent of the protocols involving lexicographic choices of dominating brands ( $p < 0.05$ ) and 18 percent of protocols of nondominating selections ( $p < 0.05$ ). Similarly, protocols of nonlexicographic selections of dominating alternatives were significantly more likely than the two other decision types to include a reference to the difficulty of the decision ( $p < 0.05$ ) and to consider both the advantages and the disadvantages of the selected brand ( $p < 0.05$ ). Finally, only 39 percent of the nonlexicographic choices of dominating brands were consistent with the prior importance weights, compared with 82 percent and 86 percent for the two other decision types ( $p < 0.05$ ).

The explanations given by subjects for their decisions were divided into three categories: (1) choice based on the relative importance of the two attributes, (2) choice explicitly based on the dominance relationship, and (3) choice based on the “overall attractiveness” of the alternative, which usually indicated that the dominating alternative possessed a middle level of one attribute and was the best on the other attribute. While not explicitly pointing to the dominance relationship as the reason for the decision, an explanation based on overall attractiveness of the dominating brand tended to be based implicitly on the asymmetric dominance relationship.

The following are two examples of explanations provided for the selection of an asymmetrically domi-

nating alternative, one categorized as dominance-based and the other as an overall attractiveness explanation. The first protocol relates to choice of a supermarket, where Supermarket A is the closest but has the least variety, and C, which dominates B, is farther away but has the most variety. "Variety is somewhat important but not extremely important. Distance is very important. 2 miles—very significant; so I would choose A. Now, in terms of ratings, Supermarket A will be a 7; C is better than B—it's got more items and it's half a mile closer; so I will change my decision and choose C. I'll give C an 8, I'll drop A to 6, and B—4." (Before the choice task, this subject had rated the importance of distance and variety as 10 and 4, respectively).

The second protocol relates to the car choice set in which Brand A has the best ride quality, B and C are tied for the best gas mileage, and C has a better ride quality than B. "I like sporty cars. Brand A has the highest ride quality. Gas mileage is also important. Brands B and C are pretty similar. Between B and C I would choose C." Overall, 65 percent of nonlexicographic choices of dominating brands were explained based on overall attractiveness or the dominance relationship, compared with just 23 percent of the other decision types (most of which were explained based on the relative importance of the attributes).

*Choice Sets with a Compromise Alternative.* With sets that include a compromise alternative, there is no need to distinguish between lexicographic and nonlexicographic decisions because, almost by definition, decisions to select a compromise alternative are unlikely to use a lexicographic rule.

The results of the protocol analysis supported Hypothesis 2d. Choice protocols leading to selection of a compromise alternative were significantly longer than those leading to selection of a noncompromise alternative. In the former group, 71 percent of the protocols were longer than the median protocol length, compared with just 32 percent in the latter group ( $p < 0.05$ ). Similarly, protocols resulting in the selection of a compromise were more likely to mention the difficulty of the decision ( $p < 0.05$ ) and to consider both the advantages and disadvantages of the selected alternative ( $p < 0.05$ ). With respect to the explanations given, the most significant finding is that most subjects who select the compromise explicitly justify their decisions based on the alternative's compromise position. They use such reasons as, "I'll take the middle alternative," "because it is a compromise," "the one that is a combination of the two," or "I'll settle for B."

## DISCUSSION

When making choices, consumers often have difficulty determining the precise utilities of alterna-

tives, and are therefore uncertain about their preferences. Building on previous research (e.g., Montgomery 1983; Slovic et al. 1982), this article has proposed that choice under preference uncertainty may be easier to explain in some situations by assuming that decision makers select the alternative that is supported by the "best" reasons. According to this approach, the effect of an aspect of an alternative on its choice probability is a function of how compelling an argument it provides for or against selecting that alternative. The emphasis on the ability of attributes to provide effective reasons may lead to different predictions than those derived by focusing exclusively on the impact of attributes on expected utility. Slovic, Fischhoff, and Lichtenstein (1976) suggested that people sometimes view decisions based on shallow but nice-sounding rationales (clichés, universal truths, adages) as better than decisions based on complex, thorough, decision-analytic techniques. Slovic (1975) argued that reliance on easily justifiable aspects to the neglect of other important factors could lead one to reject alternatives whose overall utility (assessed outside of the choice context) is superior to that of the chosen alternative. For example, a dominance relationship known with certainty may offer a "better" reason and thus override such considerations as importance weights or attribute values, which often are uncertain.

More generally, relations among alternatives in choice sets may influence choice by providing reasons for preferring certain alternatives over others. The present research has focused on two such relations: asymmetric dominance and compromise. The presented studies examined the ability of a "choice based on reasons" approach to account for the effect of these relations on preferences by (1) testing predictions regarding differences in choice behavior between those who expect to justify to others and those who do not, (2) testing a reasons-based compromise effect, and (3) utilizing think-aloud protocols to gain greater insights into decision processes leading to the attraction and compromise effects. The results of these studies are summarized in the following section.

## Summary of Findings and Their Implications

*The Attraction Effect.* Given that the attraction effect has already been demonstrated, this research focused on the impact of an expectation to justify decisions on the magnitude of the effect. It was argued that in the choice sets used for testing the attraction effect, the asymmetric dominance relationship provides the only reason for choice that does not depend on knowledge of the evaluators' preferences. Therefore, the weight of asymmetric dominance relative to other reasons for preference, such as attribute weights or a trade-off analysis, should be greater when buyers

expect to justify their choices to others. Consistent with this reasoning, both the pilot study and Study 1 supported the hypothesis that the attraction effect would be stronger among those who expect to be evaluated by others. Furthermore, Study 2 showed that following the addition of a dominated alternative, a choice of an asymmetrically dominating alternative is seen as easier to justify and less likely to be criticized.

This does not necessarily imply that consumers who expect to justify their choices to others will always be more likely to select dominating alternatives. In many cases, the buyer knows the preferences of those who will evaluate the choice (e.g., one's spouse), and this knowledge is likely to override the impact of a dominance relationship. Also, even if the evaluators' preferences are unknown, the stimuli might provide cues as to the likely reactions of others, which can diminish the impact of a dominance relationship on choice. For example, subjects in Study 1 who expected to be evaluated were not more likely to choose a low cost beer even when it was dominating. Apparently, they believed that selection of a high quality beer would be judged more favorably. This also illustrates the difficulty that may arise in predicting a priori all the reasons that decision makers might use to support their choices.

The findings indicate that the attraction effect still exists when subjects are assured of total confidentiality. This is consistent with the notion that when decision makers are uncertain which alternative they most prefer, the reason associated with the asymmetric dominance helps them break the tie and reach a decision in favor of the dominating alternative. In other words, when decision makers compare the dominating with the nondominated competitor, they still take into consideration the advantage of the dominating relative to the dominated alternative. In addition, consumers might select alternatives likely to be favorably evaluated by others even when those others are not expected to know about the decision (Schlenker 1980). Such a tendency is most likely when the consumer's own preferences do not lead to a clear choice. Indeed, the results of the protocol analysis indicate that the asymmetric dominance relationship has the most impact on choice when the decision maker has difficulty determining preference.

Finally, this research was not designed to resolve the controversy relating to the real world existence of the attraction effect (Ratneshwar et al. 1987). Dealing with this question effectively would involve testing the attraction effect with real and meaningful stimuli and choices. Some preliminary work in that direction was reported earlier (Payne et al. forthcoming; Simonson and Tversky 1989; Tversky 1988).

**The Compromise Effect.** Both the pilot study and Study 1 demonstrated a strong compromise effect; i.e., an alternative's choice probability tends to in-

crease when it becomes a compromise choice in the set. This implies that a similarity- (or substitution) effect is not the only effect of a new competitor on the shares of existing alternatives in a choice set. Similarity is also not the only reason that the assumption of "independence of irrelevant alternatives" (IIA) (McFadden 1973) is violated. However, the violation of the IIA assumption implied by the compromise effect operates in an opposite direction from that of the similarity effect. Specifically, the similarity effect causes similar alternatives to lose proportionally more share than nonsimilar ones. The effect demonstrated in this research illustrates that a new alternative (not necessarily a relatively inferior one; Huber and Puto 1983) might in fact take relatively less share from the more similar (i.e., adjacent) existing alternative. This might have significant managerial implications, suggesting that brands can sometimes benefit from being positioned between two alternatives.

Similar to the attraction effect, the compromise effect was predicted based on the proposition that a search for reasons and a need to be favorably evaluated by others increase the likelihood that decision makers will prefer middle alternatives. A compromise choice reduces the conflict associated with giving up one attribute for another, and can be justified by arguing that it combines both attributes. The think-aloud protocols showed that decision makers do use the compromise rationale to explain the selection of a middle alternative. The compromise effect is also consistent with the notion derived from prospect theory (Kahneman and Tversky 1979) that if the middle alternative is the decision maker's initial reference point, a switch to an extreme brand may be difficult to justify. This is because the negative reason associated with a loss on one attribute will tend to loom larger than the reason associated with the gain on the other attribute. Finally, when a consumer is concerned about evaluations of others whose preferences are unknown, a selection of the compromise is the safest choice, minimizing the maximum potential error.

The results of the pilot study and Studies 1 and 2 provided partial support for the hypothesis that the compromise effect would be stronger among those who expect to justify their choices to others. Specifically, the predicted difference between conditions was found in the pilot study but not in Study 1, where the justification manipulation was weak in some of the classes. The limited support might also be related to the finding that a compromise choice has some negative connotations (e.g., is wishy washy). Further, while choosing a compromise is seen as safer, it is not perceived as easier to justify. This suggests that the effect of concerns about the evaluations of others may be more complex than originally thought. Accountable decision makers (Tetlock 1985) appear to base their choices not only on aspects that they are planning to use as justifications for their decisions. Evalu-

ations of choices are often made without knowledge of or attention to the reasons that guided the decisions. Thus, decision makers might try to anticipate what aspects will influence others' judgments and the likelihood of criticism. For example, a middle alternative might be chosen because it is less likely to be evaluated negatively and not because it is easier to justify.

The finding that the attraction and compromise effects tend to be stronger in the high need for justification condition relates to the debate in the literature regarding the effect of accountability on decision processes. Adelberg and Batson (1978) illustrated a case in which concerns about others' reactions led to sub-optimal decisions. Conversely, Tetlock (1985) has argued that accountability to an audience with unknown views encourages "preemptive self-criticism," leading to more integratively complex and thorough decision making. He found, for example, that accountable subjects were less likely to fall prey to primacy effects, to the fundamental attribution error, and to overconfidence in judgment. The findings of the present research suggest that even when the views of the audience are unknown, accountable decision makers are likely to use available information to anticipate how particular decisions will be evaluated. As a result, the more complex decision processes of accountable decision makers do not necessarily lead to better decisions.

*Alternative Explanations.* The findings of this research, particularly the differences between the high and low conditions, do not appear consistent with any of the explanations for the attraction effect discussed by Huber et al. (1982) or Ratneshwar et al. (1987). Another possible explanation for both the attraction and compromise effects is that the dominance and compromise relationships in the choice set are perceptually salient (Taylor and Fiske 1978), leading to increased likelihood of selecting the dominating/compromise alternative. One might further hypothesize that those who expect to justify their choices are more aroused and thus more susceptible to the salience effect. However, there is evidence indicating that the salience effect is greatly diminished when decision makers are highly involved with a task and are concerned about others' evaluations of their actions (e.g., Borgida and Howard-Pitney 1983). More generally, previous research regarding the effects of accountability on decision processes has shown that accountable decision makers tend to be more thorough and vigilant information processors. Thus, those who expect to justify their choices are expected to be less influenced by superficial aspects such as the salience of a dominance relationship. However, it is possible that accountable decision makers select a dominating alternative because they expect the less

involved evaluators of their decisions to be influenced by the most salient aspects.

Alternatively, the findings can be interpreted using a cost/benefit framework (e.g., Beach and Mitchell 1978; Payne et al. 1988). This approach assumes that decision strategies are the result of a cost/benefit analysis or effort-accuracy trade-offs. The idea is that strategy selection can be viewed as a function of both costs, primarily the cognitive effort to use a rule, and benefits, primarily the ability of a strategy to select the best alternative. Decision makers often reduce effort by using shortcuts and simplified choice rules. This may come at the expense of decision accuracy.

In the context of the attraction and compromise effects, the effort-accuracy framework might suggest that the dominance and compromise relationships are used as indicators that the dominating and compromise alternatives are likely to be acceptable. This saves the need for a thorough processing of all brand-attribute information. This explanation, however, appears inconsistent with the finding that subjects for whom the decision was more important were more likely to select the dominating and compromise alternatives. Prior research indicates that highly involved decision makers and those who expect to explain their opinions to others are less likely to use shortcuts (Chaiken 1980; Petty, Cacioppo, and Goldman 1981). Furthermore, the think-aloud protocols in this research specifically indicate that selections of dominating and compromise alternatives tend to be associated with more elaborate decision processes. Finally, with the simple choice problems used in this research, compensatory processing is rather trivial to perform. However, compensatory processing of all available information does not guarantee a clear preference (March 1978). In fact, the think-aloud protocols in this research suggest that, compared to lexicographic strategies, compensatory processing is often associated with weaker preferences that are more susceptible to context effects. Thus, dominance and compromise relationships do not appear to be used as substitutes for thorough information processing; rather, they are used as a tie-breaking reason after a trade-off analysis fails to lead to a clear preference.

### Limitations and Future Research

This research has two limitations that suggest directions for future research. First, the present research focused on only two specific effects. Much more research is needed to assess the advantages, limitations, and implications of focusing on reasons or justifications supporting each alternative in predicting choice behavior. Additional research is also needed to examine the factors influencing the types of reasons that tend to appear most compelling in particular situations.

A second limitation of this research relates to the task and choice problems used. In this study, choice

sets were limited to two or three alternatives, each defined on two dimensions. Also, verbal and numerical values were used for describing alternatives. It is expected that increasing the complexity and realism of the decision task would make the relationships in a set less transparent and would increase the error in the choices. While these restrictions helped in testing the hypotheses and interpreting the results, future research should test whether the attraction and compromise effects and their explanation still hold in more natural consumer environments.

[Received January 1988. Revised March 1989.]

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