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Effects of Framing on Evaluation of Comparable and Noncomparable Alternatives by Expert and Novice Consumers

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The study finds that framing, i.e., priming different decision criteria, influences evaluation outcomes for both expert and novice consumers when the alternatives are noncomparable and influences evaluation outcomes for novices when the alternatives are comparable. The ready availability of a decision criterion, as opposed to the lack of one, also alters consumers' cognitive responses for noncomparable sets to make these responses appear more like cognitive responses typical of comparable sets. One fundamental distinction between sets of noncomparable and comparable alternatives may be the ready availability of decision criteria versus the need to construct them, rather than any inherent differences in category types.

Before consumers can decide how much they like a product, they must determine what criteria to use to make this judgment. Relatively little research has considered this initial "problem framing" part of a consumer's choice and evaluation processes (cf. Howard 1977; MacKenzie 1986; Wright and Rip 1980). One reason for this may be the type of choice and evaluation problems generally studied. Consumer choice research has concentrated almost exclusively on choice or evaluation of a particular brand from a group of highly similar or comparable alternatives from within a product category, such as selecting among several brands of microwave ovens (see Johnson 1984, 1986 for notable exceptions). For comparable alternatives, the judgment criteria are likely to be well established, at least for consumers who have prior experience with the product class. However, consumers make many different types of choices. In some situations, a consumer may choose between highly dissimilar or noncomparable alternatives from different product categories. For example, a consumer may be faced with deciding between divergent forms of entertainment for a special evening (e.g., a play or an expensive dinner), between different purchases for a new home (e.g., deluxe kitchen appliances or quality hardwood floors), between different options on which to spend one's summer earnings (e.g., a vacation or a stereo system), or between alternatives from different product categories when buying a gift. For these noncomparable alternatives, the judgment criteria may be less obvious. For example, what evaluation criteria does one apply to decide between a weekend vacation and a new coat? Thus, for noncomparable alternatives, understanding how evaluation criteria are formed and how this evaluation process can be influenced might be particularly important.

AVAILABILITY OF DECISION CRITERIA AND EVALUATION PROCESSES

One way in which marketing communication strategies can be effective is by influencing the decision criteria consumers use to make judgments (Wright and Barbour 1975). One of the few studies (Wright and Rip 1980) that explored whether "framing" the problem for consumers would affect decision making examined the decision processes of first-time decision makers in a product category (i.e., high school students judging col-

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lege preferences). Possibly the choice of problem—examining neophyte decision makers—was guided by an implicit assumption that it is easier to influence consumers when decision criteria are not well formulated. The purpose of this article is to examine yet another type of choice scenario in which decision criteria are likely to be unavailable to some consumers—consumer choice between noncomparable alternatives (Johnson 1984, 1986).

Johnson (1984) defined comparability as the degree to which alternatives are described or represented by the same attributes. Noncomparable alternatives are those that have few attributes in common and thus are generally alternatives from different product categories. In consumer decision making, choice between noncomparable alternatives may arise quite frequently, as noted earlier. For example, in making purchases for a new home, a consumer might be considering alternatives from different product categories (e.g., deluxe appliances or quality drapes). Further, since the set of options is often idiosyncratic and generated specifically for the situation, the decision criteria on which to evaluate the set of options might need to be created at that time. Given this constructive process of generating the decision criteria, making different decision criteria salient to the consumer can have a large influence on how the consumer thinks about or frames the problem for choice among noncomparable alternatives. Thus, framing the noncomparable choice problem in different ways by providing different decision criteria is likely to change what criteria are considered important; therefore, what alternatives are preferred may also be affected. Framing can hence affect basic consumer resource allocation decisions.

One important point to note is that because the set of noncomparable alternatives is often unique and newly formed, even if consumers are familiar with the individual alternatives comprising the noncomparable set, they are still likely to be unfamiliar with the particular combination of alternatives. Therefore, the criteria for evaluating the unique *set* of alternatives are still likely to be poorly established.[1] That is, even if the expert knows a good deal about all of the individual options in each noncomparable category, s/he may not be accomplished at choosing among that particular combination of items if the set of options is recently formed. Thus, all consumers, regardless of their levels of expertise with the individual options, are unlikely to have well-formed criteria for initial choices among noncomparable alternatives.

However, knowledge of decision criteria can vary greatly for comparable alternatives. Over time, some consumers may develop a great deal of expertise within a product category. One aspect of expertise is likely to be knowledge of criteria useful for judging alternatives in that category (Howard 1977). Thus, for expert consumers, decision criteria are likely to be readily available from memory. In choice situations in which these decision criteria are applicable, these criteria are likely to be directly applied to make the choice (Feldman and Lynch 1987). Thus, making different decision criteria salient is likely to have little influence on evaluation processes for comparable alternatives for experts. For these "expert" consumers, the influence of decision criterion salience is likely to be limited to judgment processes for noncomparable alternatives. However, consumers who are less knowledgeable about a product category may need to construct a decision criterion at the time of choice even for comparable alternatives. When choice processes are constructive, making different decision criteria salient is likely to influence how the problem is framed (cf. Feldman and Lynch 1987). Thus, for novice consumers, decision criterion salience is likely to influence judgments for both comparable alternatives and noncomparable comparison sets. Together these arguments suggest that attempts to manipulate the salience or availability of decision criteria and frame the problem are likely to have greater effects when a decision criterion is not well developed. This is likely to be the case for both comparable and noncomparable alternative sets for novice consumers, but only for noncomparable alternative sets for expert consumers.

Framing relates to the attributes that consumers focus on and consider important, and therefore, the alternatives that they prefer (Wright and Rip 1980). In particular, framing often refers to making certain criteria more salient or available. Thus, the effects of framing should be apparent by an increased focus on those attributes relevant to the most available decision criteria in evaluation processes, higher importance scores for these attributes, and/or an increased preference for alternatives possessing such attributes. Based on this, the following hypotheses are forwarded.

H1: The relative availability of different decision criteria will influence expert consumers for noncomparable alternatives but not for comparable alternatives, and will influence novice consumers for both comparable and noncomparable alternatives on the following aspects:

(a) the amount of decision criterion-relevant thoughts,

(b) importance scores of decision criterion-relevant attributes,

(c) evaluation of alternatives possessing decision criterion-relevant attributes, and

(d) choice of alternatives possessing decision criterion-relevant attributes.

[1]As consumers accumulate experience with a particular choice among noncomparable alternatives (e.g., what to do on Friday night), knowledge of decision criteria may become well developed.

In addition to influencing the outcomes of comparison processes, whether or not a decision criterion is readily available may also influence the comparison process itself for comparable and noncomparable alternatives. Johnson (1984, 1986) suggested two strategies or processes that consumers might use to solve the noncomparability problem. The first is an "abstraction" strategy in which consumers abstract a higher order attribute on which the noncomparable alternatives can be directly compared. The second strategy is to make greater use of across-attribute processing on concrete attributes.

To consider the implications of the abstraction strategy, the notion of abstractness of attributes must first be addressed. Abstractness is typically defined as the inverse of how directly an attribute denotes particular objects or events (cf. Johnson 1984). Conversely, concrete attributes are those that are inherent in the stimulus object (Slovic 1972). Thus, the abstract attributes of an object need to be inferred or computed from concrete attribute information, whereas concrete attributes are directly associated with the object. The abstract-concrete distinction is similar to the superordinate-basic level distinction drawn in the categorization literature (Mervis and Rosch 1981; Rosch et al. 1976). Basic level attributes are those that are naturally associated with the stimulus object (e.g., taste and carbonation for soft drinks), whereas superordinate attributes are more general or inclusive attributes that subsume the basic level attribute (e.g., fun, enjoyment). The abstraction strategy suggests that consumers make comparisons on more abstract attributes. Thus, for example, restaurants and ball games become more "comparable" when one forms an abstract attribute such as enjoyment, and the attributes of both of these alternatives can be related to this criterion—albeit in different ways. Based on this, Johnson (1984, 1986) predicted that consumers will increase the use of abstract criteria to evaluate alternatives as noncomparability increases.

The second strategy that Johnson (1984, 1986) suggested consumers can use to solve the noncomparability problem is an across-attribute strategy. In this strategy, each alternative is evaluated separately by combining across its concrete attributes, and then the overall evaluations are directly compared. Thus, the two strategies—the abstraction strategy and the across-attribute strategy—make competing predictions about the use of abstract versus concrete attributes in evaluation processes for noncomparable alternatives. Abstraction predicts the use of abstract attributes and across-attribute predicts the use of concrete attributes. Johnson (1986) used a cost-benefit approach (Einhorn and Hogarth 1981; Klein 1983; Payne 1982; Russo 1981) to predict the type of processing that would occur by considering the effort and the possibility of error associated with each strategy.

In the current study, we attempt to further clarify the use of abstract versus concrete attributes in noncomparable and comparable choices. Our fundamental postulate is that knowledge is an important determinant of whether concrete or abstract attributes will be used in choice involving both noncomparable and comparable alternatives.

Johnson (1984) used products for which all consumers were likely to have some degree of knowledge (e.g., televisions, refrigerators). However, for some relatively more sophisticated products (e.g., 35mm cameras, computers), novices may know very little. For consumers who are less knowledgeable about such a sophisticated product category, the use of concrete attributes may be limited even for choices among comparable alternatives. Some support for this comes from previous research. Bettman and Park (1980) found that subjects with low knowledge and experience regarding microwave ovens spent little effort processing available information, possibly because they were overwhelmed by the detailed information provided (e.g., information on concrete attributes such as number of cooking levels, capacity in cubic feet, method of microwave distribution, and so on). It is hypothesized here that some of this difficulty in processing concrete information derives from the lack of a well-formulated decision criterion (or criteria) against which the concrete attributes can be assessed. For example, a consumer might find it difficult to judge whether s/he would prefer a microwave oven with several cooking levels or one with a compact design without a more general decision criterion such as "versatility" or "ease of use." When such decision criteria are not readily available, consumers might attempt to construct them to help evaluate the specific attribute information.

One important point to note about abstract attributes is that given their inclusive or superordinate nature, they approach the status of general decision criteria (Howard 1977). Because abstract attributes are common across product categories, novices might find it relatively easy to construct and use these decision criteria based upon their knowledge of products in general. Although the expert/novice literature suggests that abstraction increases with expertise (e.g., Alba and Hutchinson 1987), recent empirical evidence supports the contention that novices may also use abstract decision criteria. For example, Walker, Celsi, and Olson (1987) found that in free elicitation tasks in which subjects were asked to compare and contrast food categories (e.g., eggs, cheese, and peanut butter), experts and novices differed more in their knowledge of concrete attributes than in their knowledge of abstract attributes. Hence, novice consumers might use abstract attributes even in decision processes involving comparable alternatives.

These arguments suggest that when no decision criterion is provided externally and consumers do not have previously formed decision criteria on which to rely, more abstract attributes and fewer concrete ones will be used in choice processes. This suggests that expert

consumers may use abstract attributes in comparisons involving noncomparable alternatives and concrete attributes in comparisons involving comparable alternatives; however, novice consumers may use abstract attributes in decision processes involving both comparable and noncomparable alternatives. What guides this prediction is the ready availability of a decision criterion versus the need to construct one, rather than the difference between comparable versus noncomparable alternatives. Thus, the following hypothesis is proposed.

H2a: When a decision criterion is not provided, more abstract attributes and fewer concrete attributes will be used by expert consumers when judging noncomparable alternatives but not when judging comparable alternatives, and by novice consumers when judging both comparable and noncomparable alternatives.

An extension of the argument that abstract attributes are used when knowledge of a decision criterion is lacking suggests one contingency where Johnson's (1984, 1986) across-attribute strategy based on concrete attributes may be used: when a decision criterion is readily available. Theoretical and empirical support for this comes from Johnson's (1984) work. Johnson suggested that one way of generating abstract attributes on which to make judgments was by constructing them from concrete attributes (e.g., plush seats lead to pleasure for cars). However, the reverse—constructing or focusing on certain concrete attributes given an abstract attribute—might also be true. That is, if an abstract attribute or decision criterion such as "maximize family pleasure" was made available and consumers were choosing between two noncomparable alternatives such as a vacation and a car, consumers might focus on the concrete attributes of the alternatives (e.g., attractions, family dining for the vacation; plush seats, rapid acceleration for the car) to determine which alternative comes closer to the ideal of maximizing family pleasure. Empirical support for the idea that consumers can use concrete attributes in making noncomparable choices also comes from Johnson's (1984) work, as noted earlier. Johnson found that subjects also used an across-attribute strategy in which noncomparable alternatives were evaluated by across-attribute processing on their concrete attributes. Consumers then attempted to compare the overall evaluations of the alternatives (see particularly Experiment 2 in Johnson 1984). In this case, the implicit decision criterion was to maximize overall evaluation. Thus, when a decision criterion is made available to structure the noncomparable alternative set and against which the concrete attributes can be assessed, there might be a focus on concrete attributes, much as in the case for comparable alternatives for which decision criteria are available. Therefore, we predict that when a decision criterion is provided, the greater use of abstract attributes and reduced use of concrete attributes postulated for the noncomparable versus comparable conditions will no longer hold. Further, since the availability of a decision criterion is hypothesized to be a major factor separating experts from novices, once a decision criterion is externally provided no differences are expected between the two groups for both comparable and noncomparable choices. Hence, the following hypothesis is forwarded.

H2b: When a decision criterion is provided, there will be more concrete attributes and fewer abstract attributes used by both expert and novice consumers when judging both comparable and noncomparable alternatives.

Note that the notion that drives all of these hypotheses is the difference between the ready availability of decision criteria versus the need to construct them. Noncomparable choices may appear more like choices among comparable alternatives when decision criteria are provided. Similarly, comparable choices may appear more like choices among noncomparable alternatives when decision criteria are lacking, as for novice consumers. Thus, in our view the fundamental distinction between comparable and noncomparable sets of alternatives is the ready availability of decision criteria, not some inherent differences among the alternatives themselves.

METHOD

Overview of Experiment

An experiment was designed to examine how consumers judge alternatives that are comparable versus those that are noncomparable. Subjects first engaged in a processing task that primed either one of two decision criteria relevant to the judgment task that followed or no relevant decision criterion. Hence, there were three different decision criterion groups (Criterion 1 was primed, Criterion 2 was primed, or no criterion was primed). Half of the subjects then received descriptions of two products from the same product category, i.e., comparable alternatives (35mm cameras). The remaining half of the subjects received descriptions of two products from different product categories, i.e., noncomparable alternatives (a 35mm camera and a home computer). The descriptions were in the form of simulated print ads. Subjects were asked to read the descriptions and to judge each product so as to make a choice between them. Subjects proceeded through the questionnaire sequentially and completed one measure before turning to the next. After reading the descriptions, subjects first listed their reactions (cognitive responses) to the task. They then evaluated each product and indicated their choice. Subjects then rated the at-

tributes of each product on importance. Finally, they filled out an expertise scale that classified them as expert or novice with respect to the category from which the comparable alternatives were drawn. Thus, a 3 (one of two relevant criteria/no criterion) × 2 (comparable/noncomparable comparison set) × 2 (expert/novice consumer) between-subjects design with several dependent measures was used.

Subjects

Subjects were undergraduate and graduate business students at a major Eastern university. Announcements were made in classes asking for volunteers for a one-hour study on advertising. As an incentive, a lottery with prizes of $75, $50, and $25 was offered. Ninety-one percent of those who volunteered kept their appointment. A total of 192 students participated in the experiment.

Procedure

Subjects were run in groups of approximately 20 in large classrooms. All experimental conditions were conducted in any one session. Two envelopes marked "Study 1" and "Study 2" were laid out on each desk. When all subjects were seated, an experimenter introduced herself and explained that subjects would be participating in two studies that would take less than 45 minutes to complete. She stated that the first study is "a pretest for a word perception test I am trying to develop." She also stated that when subjects were finished with Study 1, they should wait for instructions before starting Study 2, since a different experimenter was conducting the second study. Subjects then completed the word list task (described further below) as Study 1, which was designed to prime one of the three decision criteria.

A second experimenter entered the room while subjects were completing the priming task. The two-experimenter guise to separate the priming task from the rest of the experiment has been frequently used in previous research examining the effects of accessibility of different concepts (e.g., Srull and Wyer 1979; Trzebinski et al. 1985). The second experimenter waited until all subjects had finished Study 1 and then announced that she was conducting Study 2. She explained that "the purpose of the study is to examine how consumers form impressions of products. Suppose you received an unexpected sum of money. Your task is to form an impression of each of the two products presented and make a choice between the two. Make your choice based on the information provided." Subjects then completed the questionnaire marked "Study 2," which contained descriptions of either two comparable products (two 35mm cameras) or two noncomparable products (a 35mm camera and a home computer), the dependent measures, and expertise scale. After completing the questionnaire, subjects waited until the entire group had finished. The Study 1 and Study 2 questionnaires were then collected. A short questionnaire was administered to test for any suspicions subjects might have regarding the purpose and hypotheses of the two studies. Subjects were then debriefed. Six of the 192 subjects expressed suspicion that the two studies were related. The subjects were scattered across conditions and sessions. These subjects' questionnaires were discarded, leaving a total of 186 usable questionnaires. The entire procedure took about 40 minutes to administer.

Independent Variables

Decision Criterion Availability. "Study 1" contained the decision criterion priming manipulations. Three decision criteria were manipulated. The processing task given to subjects at the start of the experimental session primed either a "creativity" criterion, a "reliability" criterion, or no criterion relevant to comparing two cameras (the product category used in the comparable condition) or comparing a camera with a home computer (the product categories used in the noncomparable condition). Pretests were conducted with 15 camera experts and 15 novices. These determined that ease of being creative with the product and reliability of the product were fairly important criteria for both cameras (importance rating for ease of creativity criterion = 2.8; for reliability criterion = 2.0 on a seven-point scale where "1" is important and "7" is not important) and home computers (importance rating for ease of creativity criterion = 2.4; for reliability criterion = 1.8). Further, there were no significant differences between camera experts and novices in their importance ratings for either the creativity criterion for cameras (experts = 2.6; novices = 3.0; $t < 1$, n.s.) or the reliability criterion for cameras (experts = 2.1; novices = 1.9; $t < 1$, n.s.).

The criteria were primed using a levels of processing type task (Craik and Tulving 1975). Three word lists were constructed consisting of 10 words each. One list contained creativity words (e.g., imaginative, flexible, inventive), a second contained reliability words (e.g., secure, lasting, durable), and the third list had neutral words (e.g., liquid, crunchy, instant) that primed no specific concept. Subjects first read words from the two word lists not relevant to the criterion condition they were in. For these words, subjects performed a structural processing task, in which they were asked to determine whether the word listed contained the letter "e." Subjects then processed words from the word list relevant to their criterion condition. For these words, subjects engaged in a semantic processing task, in which they were asked to think of a product described by the word. Thus, all subjects processed all words, and the relevant criterion was primed by having subjects process the cri-

terion-relevant words at a "deep" level and the criterion-irrelevant words at a "shallow" level.

Subjects were then instructed to recall as many words as they could. The recall task was included for two reasons. First, it provided a logical end to Study 1; second, it was felt that it might strengthen the criterion manipulation effects. On average, subjects recalled 8.2 words, with 6.3 of these words coming from the list that was processed at a "deep" rather than a "shallow" level. There were no differences across conditions.

Comparability of the Set of Alternatives. "Study 2" contained the manipulation of comparability, measurement of expertise, and the dependent measures. Two levels of comparability were manipulated. The focal alternative—a 35mm SLR camera—was paired with another 35mm SLR camera in the comparable condition and with a home computer in the noncomparable condition. Each alternative was described on four attributes. The description of the focal alternative was constructed to be consistent with the creativity criterion. Two of the four attributes were relevant to making the camera easy to use creatively, and the other two attributes were neutral with respect to the criteria manipulated. The description of the comparison alternative, in both the comparable and the noncomparable conditions, was constructed to be consistent with the reliability criterion. Two of the four attributes of the comparison alternative were relevant to making the alternative appear reliable and the other two attributes were neutral. Thus, in all conditions the comparison set consisted of a creative alternative (the focal camera) and a reliable alternative (the comparison camera or home computer).

Rating checks included in the questionnaires established that the attribute-to-criterion links were clearly understood by both expert and novice groups. The expert and novice groups were not significantly different in their rating of any of the attributes. The creativity attributes for the focal camera were rated to be high on "makes creativity easy" by both experts and novices and low on "increases reliability" by both experts and novices. Similarly, the reliability attributes for the comparison camera and home computer were rated to be high on "increases reliability" by both experts and novices and low on "makes creativity easy" by both experts and novices. The neutral attributes for all three alternatives were rated to be low on both "makes creativity easy" and "reliability" by both groups.

Expertise. Expertise was defined in terms of the comparable alternatives, i.e., cameras. A 15-question objective knowledge scale on photography and cameras was used to measure expertise (Sujan 1985). Subjects were divided into expert and novice groups based on a median split. Subjects scoring nine and above on the knowledge scale were classified as experts and subjects scoring eight and below were classified as novices. Based on this split, the cell sizes varied from 15 to 18 and are reported at the bottom of Table 1.

Dependent Variables

Cognitive Responses. The cognitive responses to the evaluation task were collected immediately after subjects read the product descriptions and before the evaluation measures (cf. Wright 1980). Subjects were asked to list all thoughts that went through their mind while reading the two product descriptions. Subjects listed each thought on a new line. No time limit was imposed on the task, though observation of the subjects indicated that they completed the task within 2 to 10 minutes.

Subjects' responses were separated into individual thoughts and coded by two independent judges. The interjudge reliability was 89 percent. Disagreements were resolved by discussion, so that all thoughts were coded. Four broad categories of thoughts were identified. These were: (1) mentions of abstract product attributes, (2) mentions of concrete product attributes, (3) mentions of overall product evaluations/impressions, and (4) other thoughts. The two main categories of thoughts analyzed in this study, i.e., mentions of abstract attributes and mentions of concrete attributes, accounted for 73 percent of the total responses. Both abstract and concrete thoughts were further coded as mentions of creativity attributes, reliability attributes, and other attributes. The coding scheme, with examples, is given in the Appendix.[2]

Cognitive response measures potentially provide some insights into processing and the contents of memory related to the task. However, such responses are not detailed process-tracing measures. Hence, one limitation of this study is the lack of detailed process measures to determine the microprocessing strategies underlying the observed effects. Data of the type collected by other research in this area (e.g., eye movements or concurrent protocols, as in Johnson 1984) might help to further specify the evaluation processes involved in judging comparable versus noncomparable alternative sets.

Product Evaluations and Choice. After listing their thoughts, subjects rated both the focal alternative and the comparison alternative on a seven-point semantic differential scale, where "1" was very good and "7" was very bad. They also indicated their choice between the two products.

Attribute Importance. Subjects rated the four attributes of each of the products on a seven-point scale where "1" was maximum agreement with the statement

[2]Since an overall judgment or statement of liking can also be thought of as an abstract attribute mention, the analyses were also run with such overall judgments reclassified as mentions of abstract attributes. This did not change the results.

"this feature is important for cameras (home computers)." Thus, all subjects rated the attributes of the focal alternative. In addition, subjects in the comparable condition also rated the attributes of the comparison camera, and subjects in the noncomparable condition rated the attributes of the home computer.

RESULTS

All dependent measures were analyzed in a 3 (creativity criterion/reliability criterion/no criterion) × 2 (comparable/noncomparable alternative set) × 2 (expert/novice) between-subjects analysis of variance design. Since a priori hypotheses were made, these were directly tested with complex contrasts using the mean square error from the overall analysis of variance table. The degrees of freedom for the t-statistic of the contrasts are 1 and 174 except where otherwise reported.

Hypothesis 1

Hypothesis 1 concerns the extent to which it was possible to frame the problem by making different decision criteria salient. This hypothesis was tested by focusing on subjects who were "primed" with either a decision criterion of creativity or one of reliability. The effects of this manipulation were examined on the multiple dependent measures outlined in the hypothesis. These were: (a) the difference between the proportion of creativity related thoughts and the proportion of reliability related thoughts in each subject's cognitive response protocol,[3] (b) the difference between each subject's ratings of the importance of the two creativity related attributes and the two reliability related attributes, (c) the difference between each subject's overall evaluation of the alternative described in terms of creativity (the focal alternative) and that of the alternative described in terms of reliability (the comparison alternative), and (d) each subject's choice of the alternative described in terms of creativity versus the one described in terms of reliability.

Hypothesis 1 suggested that the Criterion Primed (creativity versus reliability) would influence all four of these dependent variables for three of the four groups considered in the study, i.e., (1) experts given noncomparable alternatives, (2) novices given comparable alternatives, and (3) novices given noncomparable alternatives. However, the priming manipulation was hypothesized to have no effects on (4) experts given comparable alternatives, because the latter could retrieve well-established criteria for making such choices.

To test this hypothesis, a set of complex interaction contrasts was computed for each of the four dependent variables (a–d); Keppel 1982; Rosenthal and Rosnow 1985). Formally, the first contrast tested whether the simple main effect of the Criterion Primed was greater for groups 1, 2, and 3 (pooled) than for group 4. If this proved significant for a given dependent variable, a test of the simple main effect of the Criterion Primed was conducted for the pooled groups 1, 2, and 3. This was hypothesized to be significant. A test of the simple main effect of the Criterion Primed for group 4 was also conducted, which was hypothesized not to be significant. Finally, contrasts were done testing the assertion that the simple effect of the Criterion Primed would be the same for all groups (1, 2, and 3) that were pooled in the analysis above.

Proportion of Decision Criterion-Relevant Thoughts. Hypothesis 1a was tested by computing for each subject the difference between the proportion of creativity related thoughts and the proportion of reliability related thoughts listed in the cognitive response protocols. Interest focused on the effects of the Criterion Primed (creativity versus reliability) on these different scores. The simple main effect of Criterion Primed was significantly less for experts given comparable alternatives than it was for the average of the other three groups (experts/noncomparable, novice/comparable, and novice/noncomparable) ($t = 4.5$, $p < 0.01$). The latter three groups were strongly influenced by the Criterion Primed ($t = 9.6$, $p < 0.01$), with 24.7 percent more creativity related than reliability related thoughts when creativity was primed, and 26.7 percent more reliability related than creativity related thoughts when reliability was primed. Also as hypothesized, there was no significant simple main effect of Criterion Primed for experts given comparable alternatives ($t = 1.1$, $p < 0.25$). When creativity was primed, these subjects used 1 percent more creativity related than reliability related attributes, and when reliability was primed, they used only 10 percent more reliability related than creativity related attributes. Finally, the differences among the simple effects of Criterion Primed for the three pooled groups approached significance ($F(2,174) = 2.5$, $p < 0.10$), primarily because the manipulation had the strongest effect in the novice/comparable group (33 percent more creativity related than reliability related thoughts when creativity

[3]There were significant differences in the number of cognitive responses across conditions. Several effects were significant. There was a main effect for expertise ($F(1,174) = 4.9$, $p < 0.05$). Experts produced more thoughts than novices (5.9 vs. 5.1). There was also a main effect for goal ($F(1,174) = 11.9$, $p < 0.01$). The fewest number of thoughts was produced when no goal was primed (no goal condition = 4.4, creativity goal condition = 6.4, reliability goal condition = 5.8). There was also a goal × comparability interaction ($F(1,174) = 7.7$, $p < 0.01$). There were fewer thoughts produced in the noncomparable compared to the comparable condition when no goal was primed (3.6 vs. 5.2, $t = 2.6$, $p < 0.05$).

In the creativity and reliability goal conditions, there were actually more thoughts produced in the noncomparable compared to the comparable conditions (creativity goal condition = 7.0 vs. 5.9, $t = 1.8$, $p < 0.05$; reliability goal condition = 6.4 vs. 5.2, $t = 2.0$, $p < 0.05$). Therefore, all analyses are based on the proportion of thoughts to total thoughts. The total number of thoughts produced in each condition and the proportion of thoughts of each type are reported in Table 1.

TABLE 1

MEANS FOR DECISION CRITERION-RELEVANT THOUGHTS

	Comparable			Noncomparable		
	Creativity criterion	Reliability criterion	No criterion	Creativity criterion	Reliability criterion	No criterion
Experts						
Number of thoughts	6.2	5.0	6.9	7.2	6.8	3.7
Proportion creative thoughts	21	15	28	33	14	3
Proportion reliable thoughts	20	25	20	15	38	5
Proportion (creative − reliable) thoughts	+1	−10	+8	+18	−24	−2
Number of subjects	16	14	15	14	15	16
Novices						
Number of thoughts	5.6	5.3	3.8	6.8	6.0	3.6
Proportion creative thoughts	39	9	10	32	10	7
Proportion reliable thoughts	6	44	9	9	31	6
Proportion (creative − reliable) thoughts	+33	−35	+1	+23	−21	+1
Number of subjects	15	15	18	16	16	16

TABLE 2

MEANS FOR ATTRIBUTE IMPORTANCE

	Comparable			Noncomparable		
	Creativity criterion	Reliability criterion	No criterion	Creativity criterion	Reliability criterion	No criterion
Experts						
Average importance creativity attributes[a]	2.8	2.6	2.6	1.6	3.0	2.1
Average importance reliability attributes[a]	2.6	2.3	2.6	2.2	1.7	2.2
Importance (creativity − reliability) attributes	+0.2	+0.3	0.0	−0.6	+1.3	−0.1
Novices						
Average importance creativity attributes[a]	1.9	3.2	2.9	1.7	3.0	2.3
Average importance reliability attributes[a]	2.5	1.6	2.3	2.3	1.8	2.2
Importance (creativity − reliability) attributes	−0.6	+1.6	+0.3	−0.6	+1.2	+0.1

[a] 1 = most important.

was primed, and 35 percent more reliability related than creativity related thoughts when reliability was primed; $t = 7.6$; $p < 0.01$). However, the effects of Criterion Primed were in the right direction and significant also for the two other groups, i.e., the novice/noncomparable group (23 percent more creativity related thoughts when creativity was primed, and 21 percent more reliability related thoughts when reliability was primed; $t = 4.9$; $p < 0.01$), and the expert/noncomparable group (18 percent more creativity related thoughts when creativity was primed, and 24 percent more reliability related thoughts when reliability was primed; $t = 4.6$; $p < 0.01$). Thus, Hypothesis 1a was supported. The cell means are given in Table 1.

Attribute Importance Scores. To test Hypothesis 1b, an analysis plan similar to the one that tested Hypothesis 1a was used to examine ratings of the importance of the two specific attributes related to creativity and the two related to reliability. For each subject, the difference between the average importance of the two creativity attributes and the average importance of the two reliability attributes was computed. Because the importance scale assigned higher numbers to less important attributes (1 = most important, 7 = least important), a positive difference score shows that the reliability attributes were rated as more important than the creativity attributes, and a negative difference score shows the reverse. Again, interest focused on the effects of Criterion Primed (creativity versus reliability) on these difference scores. These means are shown in Table 2.

The simple main effect of Criterion Primed was again significantly less for experts given comparable alternatives than for the average of the other three groups (experts/noncomparable, novices/comparable, and novices/noncomparable) ($t = 3.0$, $p < 0.05$). As hypothesized, the latter three groups were significantly influenced by the Criterion Primed ($t = 2.7$, $p < 0.05$), with creativity related attributes rated 0.6 of a scale point more important than reliability related attributes when creativity was primed, and reliability related attributes rated 1.4 scale points more important when reliability was primed. Also as hypothesized, the importance ratings of experts given comparable alternatives were not significantly influenced by Criterion Primed ($t < 1$, n.s.). Reliability attributes were rated to be slightly more important than creativity attributes re-

TABLE 3

MEANS FOR EVALUATION AND CHOICE MEASURES

	Comparable			Noncomparable		
	Creativity criterion	Reliability criterion	No criterion	Creativity criterion	Reliability criterion	No criterion
Experts						
Evaluation creative alternative[a]	3.3	3.1	3.2	2.0	3.5	2.7
Evaluation reliable alternative[a]	3.1	3.2	3.5	3.3	2.7	3.2
Evaluation (creative − reliable) alternative	+0.2	−0.1	−0.3	−1.3	+0.8	−0.5
Proportion choosing creative alternative	69	78	67	85	53	62
Novices						
Evaluation creative alternative[a]	1.7	3.5	3.2	2.6	3.6	3.6
Evaluation reliable alternative[a]	3.2	2.5	3.2	3.4	2.9	3.8
Evaluation (creative − reliable) alternative	−1.5	+1.0	0.0	−0.8	+0.7	−0.2
Proportion choosing creative alternative	67	47	50	63	44	50

[a] 1 = best.

gardless of whether creativity was primed or reliability was primed (by 0.2 and 0.3 scale points, respectively). Finally, the simple main effect of Criterion Primed did not differ among the three groups pooled in the analyses above ($F(2,174) = 1.0$, n.s.). In sum, strong support for Hypothesis 1b was found.

Evaluation of Alternatives. A preference score was computed for each subject by taking the difference between the evaluation of the focal alternative (1 = very good, 7 = very bad), which was described in terms of creativity, and the comparison alternative, which was described in terms of reliability. Hence, positive scores denote a preference for the more "reliable" option, and negative scores indicate a preference for the more "creative" option. The data are shown in Table 3. Again, interest centers on the effects of Criterion Primed on preferences.

Results showed that the simple main effect of Criterion Primed was significantly less for experts given comparable alternatives than for the average of the other three groups ($t = 2.9$, $p < 0.05$). The latter three groups were strongly influenced by the Criterion Primed ($t = 5.6$, $p < 0.01$), with the focal (creative) option preferred to the comparison (reliable) option by 1.2 scale points when creativity was primed, and the comparison (reliable) option preferred by 0.8 scale points when reliability was primed. As hypothesized, Criterion Primed had no significant simple main effect on experts given comparable alternatives ($t < 1$, n.s.), with subjects showing a mild preference for the reliable option (by 0.2 points) when creativity was primed, and for the creative option (by 0.1 points) when reliability was primed. Again, the simple main effect of Criterion Primed did not differ among the three groups pooled in the analyses above ($F(2,174) = 1.1$, n.s.).

Choice of Alternatives. Analyses of variance and logit analyses were conducted on the dichotomous (1 = chose focal "creative" option, 0 = chose "reliable" option). After verifying that the ANOVA results were no different from the results of the logit analyses, the ANOVA data were used to conduct the planned contrasts. These showed that the choice data followed the same general pattern as the other dependent measures, but the effects were not as strong. Specifically, the simple main effect of Criterion Primed was only marginally less for experts given comparable alternatives than it was for the average of the other three groups ($t = 1.6$, $p < 0.10$). However, as hypothesized, the latter three groups were significantly more likely ($t = 2.1$, $p < 0.05$) to choose the creative alternative when creativity was primed (72 percent) than when reliability was primed (48 percent). As hypothesized, for experts given comparable alternatives, there was no significant simple effect of Criterion Primed ($t < 1$, n.s.). Experts given a choice between comparable alternatives were no more likely to choose the creative alternative when creativity was primed (69 percent) than when reliability was primed (78 percent). The simple effect did not differ among the three pooled groups ($F(2,174) < 1$, n.s.). Thus, the choice data lent some support to Hypothesis 1d. The proportion choosing the focal (creative) alternative is given in Table 3.

Reanalysis for the Expertise Variable. In the above analyses, expertise was defined with respect to the comparable set of alternatives. The "expert" group was expert only with respect to cameras—one of the two alternatives that comprised the noncomparable set. The rationale was that even though consumers are knowledgeable about each of the individual alternatives, they would still need to construct the criteria required to evaluate these alternatives in the context of a noncomparable choice set. Therefore, consumers who are expert in one, or all, of the alternatives comprising the noncomparable category would still be novices with respect to the unique combination of alternatives constituting the ad hoc category.

To determine whether expert subjects would behave similar to novices despite expertise in both of the categories from which the noncomparable alternatives were drawn, additional analyses were conducted. Subjects who were expert in both cameras and computers were identified. Though an objective 15-question scale was used to measure expertise for cameras, self-rated subjective measures on seven-point scales of "familiarity" and "expertise" were used to identify experts for computers (the intercorrelation between the two items was 0.83). There was a significant positive correlation ($r = 0.72$) between the objective and subjective measures of familiarity for cameras, providing some support for using self-rated measures to identify computer experts. There was a small positive correlation ($r = 0.18$) between subjective measures of familiarity for cameras and computers, indicating that expertise in the two categories was related but only weakly so. Fifty-three subjects were expert in both categories. The modal number of subjects in each cell was 9, though this number varied between 5 and 12 across the comparability × decision criterion conditions.

Analyses on the important dependent measures confirmed the earlier findings. Subjects who were expert in both cameras and computers were also influenced by decision criterion salience. Experts in both categories tended to be influenced in a direction consistent with the priming manipulation for the proportion of decision criterion relevant thoughts ($t(47) = 3.9, p < 0.05$), with 20 percent more creativity related than reliability related thoughts when creativity was primed, and 23 percent more reliability related than creativity related thoughts when reliability was primed. Experts were also influenced in ratings of attribute importance ($t(47) = 3.0, p < 0.05$) and preference ($t(47) = 2.2, p < 0.05$). Experts rated creativity related attributes 0.7 of a scale point higher and preferred the creative option by 1.3 scale points when creativity was primed, and rated reliability related attributes 1.4 scale points higher and preferred the reliable option by 0.5 scale points when reliability was primed. The choice data were directionally (though not significantly) consistent ($t(47) = 1.1$, n.s.). More experts (87 percent) chose the creative option when creativity was primed, and fewer (62 percent) chose the creative option when reliability was primed. This suggests that expertise in the individual categories is not sufficient to allow consumers to behave as experts for the noncomparable choice, and that familiarity with and possibly knowledge of decision criteria idiosyncratic to the unique set of alternatives is an important aspect of expert levels of performance for noncomparable alternative sets.[4]

[4]Expert levels of performance for noncomparable sets would be shown by little or no effect of Criterion Primed on performance, because the experts would have well-developed goals.

Hypotheses 2a and 2b

Hypotheses 2a and 2b specified the extent to which abstract and concrete product attributes would be used in decisions involving comparable versus noncomparable alternatives. Hypothesis 2a concerned the use of abstract versus concrete attributes in decisions for which a decision criterion was not primed. Hypothesis 2b concerned the use of abstract versus concrete attributes in decisions for which a decision criterion was primed.

Hypotheses 2a and 2b were tested together by comparing conditions in which subjects were primed (with either a creativity or a reliability criterion) with the no prime condition. The effect of this manipulation was examined on the difference between the proportion of abstract thoughts and the proportion of concrete thoughts in each subject's cognitive response protocol. The hypotheses together suggested that the priming manipulation (the creativity and reliability primes averaged versus no prime) would influence the proportion of abstract less concrete thoughts for three of the four groups considered in the study, i.e., (1) experts given noncomparable alternatives, (2) novices given comparable alternatives, and (3) novices given noncomparable alternatives. These groups were hypothesized not to have a well-established decision criterion. Hence, when a decision criterion was not primed, they were expected to generate more abstract thoughts and few concrete thoughts. However, given an externally provided decision criterion against which alternatives could be evaluated, these subjects were expected to generate more concrete thoughts and few abstract thoughts. The priming manipulation was hypothesized to have no influence on group four, i.e., experts given comparable alternatives. These subjects were expected to rely on well-established knowledge bases for making decisions in the category and hence generate more concrete thoughts and few abstract thoughts whether a decision criterion was externally provided or not.

Abstract versus Concrete Thoughts. To test these hypotheses, a set of complex interaction contrasts was computed similar to those used to test Hypothesis 1. The first contrast tested whether the priming manipulation (averaging over reliability and creativity versus no prime) was greater for groups 1, 2, and 3 (pooled) than for group 4. The simple main effect of the priming manipulation was significantly less for group 4—experts given comparable alternatives—than it was for the other three groups (experts/noncomparable, novices/comparable, and novices/noncomparable) together ($t = 4.2$, $p < 0.01$). As hypothesized, the latter three groups were strongly influenced by the priming manipulation ($t = 7.3$, $p < 0.01$), with 34 percent more abstract than concrete thoughts when no criterion was primed, and 32 percent more concrete than abstract thoughts on average when either the creativity or reliability criterion was primed. Also as hypothesized, there was no signif-

icant simple main effect of the priming manipulation for experts given comparable alternatives ($t < 1$, n.s.). When either the creativity or reliability criterion was primed, these subjects generated an average of 40 percent more concrete than abstract thoughts; when a criterion was not primed, they generated 56 percent more concrete than abstract thoughts.

Finally, the differences among the simple main effects of priming (creativity or reliability versus no prime) for the three pooled groups approached significance ($F(2,174) = 2.6$, $p < 0.10$) primarily because the priming manipulation was most effective in enhancing concrete relative to abstract thoughts in the expert/noncomparable group (47 percent more concrete than abstract thoughts given the creativity or reliability prime, and 46 percent more abstract than concrete thoughts given no prime, $t = 5.3$, $p < 0.01$). However, the effect of the priming manipulation was also significant in the novice/comparable group (15 percent more concrete thoughts given a prime, and 22 percent more abstract thoughts given no prime, $t = 2.1$, $p < 0.05$), and the novice/noncomparable group (33 percent more concrete thoughts given a prime versus 34 percent more abstract thoughts given no prime, $t = 3.8$, $p < 0.01$). Thus, Hypotheses 2a and 2b were supported. The means for the proportion of abstract and concrete thoughts are given in Table 4.

An analysis on subjects who were expert in both product categories was consistent with these results. Experts in both categories were also sensitive to the criterion primed versus no prime manipulation in the extent to which they generated abstract versus concrete thoughts when comparing noncomparable alternatives ($t(47) = 4.5$, $p < 0.01$). These subjects generated 44 percent more abstract than concrete thoughts when no decision criterion was primed, and 59 percent more concrete than abstract thoughts when a decision criterion was primed.

TABLE 4

MEANS FOR ABSTRACT/CONCRETE THOUGHTS

	Comparable			Noncomparable		
	Creativity criterion	Reliability criterion	No criterion	Creativity criterion	Reliability criterion	No criterion
			Experts			
Proportion abstract thoughts	21	6	7	26	15	61
Proportion concrete thoughts	46	61	63	58	77	15
Proportion (abstract − concrete) thoughts	−25	−55	−56	−32	−62	+46
			Novices			
Proportion abstract thoughts	36	14	42	21	17	55
Proportion concrete thoughts	26	54	20	54	50	21
Proportion (abstract − concrete) thoughts	+10	−40	+22	−33	−33	+34

DISCUSSION

The Role of Decision Criteria in Consumer Judgments

The pattern of data supports the basic contention that the ready availability of a decision criterion versus the lack of one substantially alters judgments involving both noncomparable and comparable alternative sets. When no decision criterion was available, as in the case of noncomparable alternatives and for novices judging sophisticated comparable alternatives (cameras), subjects appeared to construct one. Subjects' protocols contained several mentions of abstract criteria such as "need," "function," and "fun," which approached the stature of higher order decision criteria. However, the ready availability of a decision criterion resulted in subjects directly focusing on concrete or specific attributes, such as "several modes of operation" for cameras and "constructed to operate under all climate conditions" for computers for both decisions involving comparable and noncomparable alternatives. This suggests that rather than any inherent differences between noncomparable and comparable categories, the one fundamental distinction between them may be the ready availability of decision criteria for comparable sets—at least for experts—versus the need to construct them for noncomparable sets.

The notion that the availability of a decision criterion rather than inherent differences in category type drives the results is partially supported by other data. Attribute importance scores and product evaluations were influenced by making different decision criteria salient when the criterion was not likely to be well developed. This was true both for novices making choices between comparable alternatives and for all consumers choosing among noncomparable alternatives. Framing the evaluation problem in different ways did not influence decision making for expert consumers making choices within the category of comparable alternatives in which they were expert. Thus, familiarity with the complete set of alternatives under consideration (and not just each of the individual alternatives), rather than comparability of the sets of alternatives, appeared to determine whether decision criterion salience would influence decision outcomes. Since one aspect of familiarity is knowledge of decision criteria relevant to the choice set, again there is some indication that the ready avail-

ability of a decision criterion—or the lack of one—is associated with the obtained differences in processing.

Categorization Approaches

The results can also be interpreted based on recent work in categorization (Barsalou 1982, 1983, 1985). This work has developed the notion of goal-derived categories—categories that are structured around a particular goal, such as things not to eat on a diet or things to buy for a birthday present. One way in which goal-derived categories differ from the natural object categories usually studied is that they often contain a diverse set of items. For example, a goal-derived category such as "things to do on Friday night" might contain different alternatives, such as a restaurant, a theatre, and a ball game. Noncomparable sets of alternatives in consumer decision processes are therefore sometimes examples of goal-derived categories.

Despite the seemingly low similarity among category members, Barsalou (1983) contends that goal-derived categories are perceived as cohesive, well-structured categories, since these categories can be instrumental in achieving goals. Further, empirical work that has investigated goal-derived categories has found that how good an example of the category the alternative is perceived to be is related to ideals—concrete attributes or characteristics that alternatives should have in order to optimally serve a goal associated with the category (Barsalou 1985). This suggests that for goal-derived categories, such as "things to spend summer earnings on," a consumer might perceive a vacation to be a better exemplar of the category if the concrete attributes of the vacation (e.g., attractions, family dining) make the alternative closer to the ideal of being well liked by all family members and hence more relevant to maximizing the goal of family pleasure than the concrete attributes of another option, such as a car (e.g., two-seater, high m.p.g.).

In addition to examining goal-derived categories, Barsalou (1983, 1985) identifies a special case of goal-derived categories—ad hoc categories—in which the goal is recently formed. The fundamental way in which ad hoc categories differ from other goal-derived categories is that the goal-relevant attributes are not readily available in memory and need to be actively constructed. When the goal-to-category links are weak, the context is especially important in cueing goal-relevant attributes (see Barsalou 1982 for a discussion on context-dependent and independent attributes).

The present study is very consistent with this framework. In this study, ad hoc categories were experimentally created. Subjects were asked to choose between a camera and a computer, and this particular set of alternatives was unlikely to be a well-established goal-derived category for the subjects. Therefore, according to Barsalou's framework, making a goal or decision criterion salient is likely to have a large influence in determining what attributes are considered important in the absence of a defined goal. Further, making a goal salient is also likely to increase the use of concrete attributes in order to determine whether these attributes were relevant or irrelevant to the goal. Finally, since the key concept of the framework is that cohesiveness of a category is related to knowledge of a goal, the framework also explains why experts and novices process comparable categories differently. Thus, Barsalou's framework is consistent with the major findings of this research, although categorization processes were not directly studied.

For future research, adopting the categorization approach just discussed is likely to be quite heuristic. The present study examined ad hoc categories—categories of noncomparable alternatives in which the goal is ill-defined. In many situations, consumers are likely to be unfamiliar with the particular combination of noncomparable alternatives encountered. However, in other situations involving choices between noncomparable alternatives (e.g., what to do on Friday night), the goal might be well developed for some consumers who have repeated experience with such choices. Therefore, consideration of goal-derived categories of noncomparable alternatives in which consumers, or at least a group of consumers, are familiar with the particular combination of noncomparable alternatives would be important. Such a study would be particularly useful in further clarifying whether inherent differences in category type or other factors such as familiarity and knowledge of goals account for differences in processing strategies.

Finally, one speculation that can be made based upon the findings of this study concerns "perceptual" versus "cost-benefit" approaches to information processing (Payne 1982). For example, Johnson (1984, 1986) suggested a cost-benefit approach to making noncomparable decisions wherein consumers may deliberately choose to process on abstract attributes to allow ease of comparison. However, the present data suggest that consumers use attributes that occur to them (either based on accessibility of a goal from memory or environmental salience of particular goals). Thus, a perceptual approach wherein consumers process information depending upon how the problem is perceived or framed seems more descriptive of the data than an account based upon any explicit cost-benefit analysis. However, this inference is clearly highly speculative, and much more research is required to establish the contingencies under which such "meta" strategies (perceptual and cost-benefit) guide consumer judgments and choice.

APPENDIX

Coding Scheme for Cognitive Responses

1. *Mentions of Abstract Attributes.* Attributes that do not directly denote a product category were coded

as abstract attributes. These are general or superordinate level attributes that need to be inferred from more concrete product attributes. Attributes such as fun, interesting, or creative are examples of abstract attributes. Statements that compare products on an abstract attribute (e.g., "the computer was more practical than the camera"), relate a single product to an abstract attribute (e.g., "the camera would be fun"), evaluate an abstract attribute (e.g., "I like reliable products"), or request additional information on abstract attributes (e.g., "what are the product's benefits") are examples of thoughts in this category.

1.1 Mentions of abstract attributes related to creativity (e.g., "the camera has more interesting uses")

1.2 Mentions of abstract attributes related to reliability (e.g., "the camera seems very reliable")

1.3 Mentions of other abstract attributes (e.g., "I need the computer")

2. *Mentions of Concrete Attributes.* Attributes that directly denote a product category were coded as concrete attributes. These are more specific level attributes that are inherent in the product. Attributes such as compact design or many lenses are examples of concrete attributes. Statements that compare products on a specific attribute (e.g., "the first camera had better lenses"), relate a single product to a specific attribute (e.g., "the computer's compact design would be an advantage for me"), evaluate a specific attribute (e.g., "a carrying case is not important"), note tradeoffs between specific attributes (e.g., "I'd rather have a motor drive even though mechanical problems may increase"), or request additional information on specific attributes (e.g., "what about a flash") are examples of thoughts in this category. All thoughts relating to attributes mentioned in the descriptions were also coded under this head.

2.1 Mentions of specific attributes related to creativity (e.g., "with four modes I can use the camera both for professional shots and family pictures")

2.2 Mentions of specific attributes related to reliability (e.g., "the camera prevents moisture build up")

2.3 Mentions of other specific attributes (e.g., "I liked the bright display")

3. *Overall Product Evaluations/Impressions.* Thoughts that conveyed an overall judgment or impression of the product without referencing an attribute were coded under this category. Statements of overall judgment (e.g., "I like the camera;" "I prefer Product 1") and overall impressions (e.g., "the camera was for professionals;" "the camera was a standard one") are examples of thoughts in this category.

3.1 Mentions of overall judgments (e.g., "I liked the camera")

3.2 Mentions of overall impressions, excluding impressions related to typicality (e.g., "The camera was for professionals")

3.3 Mentions of overall impressions related to typicality (e.g., "The camera had no new features—it was standard")

4. *Other Thoughts.* Statements related to how the task was performed (e.g., "I skimmed the descriptions") and ad-related statements (e.g., "the description was not clear to me") are examples of thoughts in this category.

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