Choosing to Avoid: Coping with Negatively Emotion-Laden Consumer Decisions

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This article addresses how consumers resolve decisions involving conflict between attributes linked to highly valued goals, such as an automobile purchase decision requiring determination of how much safety one is willing to sacrifice in order to obtain other benefits. One salient goal for these decisions may be coping with or minimizing the negative emotion generated during decision making. The conceptual framework developed in this article predicts that choosing avoidant options (e.g., the option to maintain the status quo) can satisfy coping goals by minimizing explicit confrontation of negative potential decision consequences and difficult trade-offs. Two experiments demonstrate that reported emotion can be altered by manipulating decision attributes, that the opportunity to choose an avoidant option mitigates levels of reported emotion, and that increasingly emotion-laden decision environments are associated with more choice of avoidant options. Mediation analyses indicate that actual choice of an avoidant option results in less retrospective negative emotion (in experiment 1) and that increased initial negative emotion results in increased choice of avoidant options (in experiment 2). Mediation analyses for experiment 2 also indicate that increased response times mediate avoidant choice, in contrast to explanations of the status quo bias and similar choice phenomena that appeal to decision makers' desires to minimize cognitive effort.

Decisions often evoke negative emotions when they require resolution of conflicts between valued goals, as such conflict resolution involves consideration of potential unwanted consequences and threatens one's reputation and self-esteem as a decision maker (see, e.g., Beattie et al. 1994; Festinger 1957; Janis and Mann 1977; Shepard 1964). These negative emotions are an important aspect of consumer choice. For instance, a classic consumer behavior topic is the uncomfortable feeling of perceived risk proposed to result when uncertainty as to which choice option is best is combined with the potential for substantial negative decision consequences (see, e.g., Bettman 1973; Dowling and Staellin 1994). An example is the negative emotion that an impending automobile purchase might generate as a parent considers the trade-off between his or her family's safety and a car's cost.

This article extends prior work on decision making and emotion by investigating how the choice share of an avoidant response option is altered as the content of a consumer decision elicits increased negative emotion. Three types of avoidant responses are considered: choosing to maintain the status quo, choosing an alternative that dominates a second alternative in the decision set, and choosing to prolong search. Although each type of response differs from the others, choosing any of these option types appears to provide coping benefits that can mitigate decision-generated negative emotion. These avoidant options all have objective reasons that recommend them; thus, choosing any one of them may spare the decision maker from consideration of difficult between-attribute trade-offs (e.g., safety vs. purchase price) and may therefore minimize anticipation of and perceived responsibility for unwanted decision consequences. The main hypothesis addressed below is that greater choice share for avoidant options will result when a decision's content has increased potential for eliciting negative emotion. Further, it is predicted that avoidant choice will provide coping benefits, such that the choice of an avoidant option will result in less retrospective negative emotion. The desire to cope with negative emotion is therefore proposed as one reason for decision avoidance, in addition to more cognitive reasons such as rejection of available alternatives or an unwillingness to put forth mental effort. Negative emotion in the context of decision tasks is discussed next.

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CONCEPTUAL FRAMEWORK

Current research addressing how affect influences decision behavior focuses primarily on ambient affect sources, such as moods induced by information that is irrelevant to a decision task (Gardner 1985; Isen 1984; Johnson and Tversky 1983; Kahn and Isen 1993; Lewinsohn and Mano 1993). However, it is important to distinguish between ambient and task-related affect (Yates 1990), as coping behaviors are likely to be unique when emotion is a function of task content (Bodenhausen 1993). This article considers decision-task-related emotion, that is, relatively short-lived affective states directly resulting from and focused on a choice with which one is currently engaged (see Oatley and Jenkins [1992] for a general definition of emotion). Hypotheses regarding such emotion are developed in this section through application of Lazarus's (1991) emotion research to consumer choice domains.

Lazarus's Theory of Emotion Elicitation

Lazarus and his colleagues (see, e.g., Lazarus 1991; Folkman and Lazarus 1988) argue that all emotions (but not all moods) result from primary and secondary cognitive appraisals that are automatically undertaken as one's current situation changes. Primary appraisals assess which of one's goals are relevant to a current situation. The potential for emotion is increased as implicated goals are more numerous or more important to the decision maker, and elicited emotion will be more negative to the degree that these goals are assessed as being threatened or blocked. Secondary appraisals assess one's options and prospects for coping. Given a primary appraisal that important goals are threatened, more optimistic assessments of coping prospects will mitigate the amount of negative emotion experienced.

Lazarus's inclusion of secondary appraisal in his model of emotion elicitation is consistent with arguments that emotions call attention to situations requiring changes in one's action tendencies (Frijda 1988), and that negative emotions in particular signal situations requiring coping (Schwarz 1990). Whether individuals are engaging in prospective secondary appraisals or actually enacting coping strategies, Folkman and Lazarus (1988) propose that there are two primary avenues through which coping can occur: (1) problem-focused coping involves direct actions intended to improve or resolve the situation eliciting emotion, and (2) emotion-focused coping involves indirect actions intended to minimize experienced emotion through changes in (only) the amount or content of thought about the emotion-eliciting situation. Emotion-focused coping behaviors are further classified into those involving avoidance (e.g., removing oneself from a stressful situation) and those involving changing the meaning of a situation (e.g., reappraising a personal failure as someone else's responsibility). For most negatively emotion-laden encounters, both problem-focused and emotion-focused coping are simultaneously undertaken (Carver, Scheier, and Weintraub 1989; Folkman and Lazarus 1980, 1988).

Lazarus's general framework is applied to the specific context of consumer decision making below. Four main hypotheses are developed by considering the influence of decision characteristics on primary and secondary appraisal, and then by considering the likely form of problem-focused and emotion-focused coping behaviors. The hypotheses are developed as follows:

**Decision Framework: Primary Hypotheses**

Emotion Elicitation during Decision Making: Effects on Primary Appraisal. Consumer decisions are often conceptualized in terms of a matrix specifying attributes, alternatives, and values, as illustrated in Table 1. A crucial determinant of the emotional potential of a decision is conflict between attribute values. Although the term “conflict” can be used broadly to indicate feelings of uncertainty regarding which course of action to pursue, an operational definition of decision conflict is the degree of negative correlation between attribute values (Bettman et al. 1993; Einhorn and Hogarth 1981; Payne, Bettman, and Luce 1996). In the example provided in Table 1, the attributes “price” and “safety” are negatively correlated, while “price” and “staging” are positively correlated. Negative correlation between attribute values is generally associated with competing response tendencies, indecision, and decision difficulty (Hogarth 1987; Miller 1944). For example, again considering Table 1, it would be relatively difficult to decide among cars A, B, and C if one’s decision involved only the price and safety information, but it would be relatively easy to decide among these cars if one’s decision involved only price and styling. In the former (price and safety) case, the decision maker would have to decide between a low price and a high level of safety. In the latter (price and styling) case, choosing car A would be a trivially easy choice, as car A dominates the other two, with better values on both relevant attributes.

Reactions to decision conflict are quite varied (Bettman 1979). For instance, Tversky and Shafir (1992) and Dhar (1997) both demonstrate increased preference for prolonging a decision when the set of available alternatives...
is expanded from one to two, presumably because of the between-attribute decision conflict introduced by the second alternative. However, Dhar (1997) also finds that decision avoidance decreases when two alternatives that are identical on important attributes become different on relatively less important attributes; thus, increasing conflict can also reduce decision avoidance. Similarly, considering decision-processing strategies, Einhorn and Hogarth (1981; Hogarth 1987) note that individuals may prefer trade-off-avoidant strategies under increased conflict because conflict confrontation can be cognitively and emotionally difficult. Indeed, Luce, Bettman, and Payne (1997a) find evidence of such trade-off-avoidant strategies for decision scenarios involving emotion-laden attributes (e.g., charitable donations and career choices). However, Bettman et al. (1993) find that decision makers use more trade-off-confronting processing strategies under increased decision conflict for positive, low-stakes monetary gambles, presumably because trade-off-confronting strategies tend to gain in relative accuracy over trade-off-avoidant strategies as conflict between attribute values increases (Einhorn, Kleinmuntz, and Kleinmuntz 1979; Newman 1977). Thus, behavioral decision research demonstrates that conflict may motivate either trade-off avoidance or trade-off confrontation. As is discussed next, one determinant of a decision maker’s reaction to conflict may be the emotional potential of the overall context within which between-attribute conflict exists.

Relative willingness to confront conflict may vary with the decision maker’s emotional appraisal of her situation. For instance, Luce, Payne, and Bettman (1997b) report choice patterns indicating that more weight is given to a quality attribute when that attribute is judged as having the potential to elicit more negative emotion during a direct trade-off. In most decision situations, between-attribute conflict seems to be a necessary condition for the generation of threat or negative emotion, as it is only when conflict is present that the decision maker is required to sacrifice one goal (e.g., safety) in order to obtain another goal (e.g., economy). However, conflict between attribute values is certainly not sufficient for a decision to generate negative emotion; for instance, conflict between two trivial attributes (e.g., floor mats vs. cup holders in an automobile) should be trivial to resolve. Across the experimental conditions reported below, attribute values are held constant with a high degree of negative correlation, and emotional decision content is varied across these high-attribute-conflict situations.

Several variables, such as the relative level of alternative quality or the degree to which a decision is public, should influence the primary appraisals associated with a high-conflict decision. This article will focus on the identity of the attributes on which decision conflict is defined as a determinant of primary appraisal. Tetlock (1991; Tetlock, Peterson, and Lerner 1997) postulates that acknowledging conflict between highly important core or terminal values is both cognitively and emotion costly, and that publicly making trade-offs between attributes with links to such values is considered both distressing and embarrassing. Similarly, Baron and Spranca (1997) note that attributes with implications for moral rules of behavior (e.g., attributes involving noncommodity outcomes such as health or honesty) are protected, meaning that decision makers are particularly resistant to trade-offs involving those attributes. They further postulate that the mere suggestion of trade-offs involving protected attributes often elicits negative emotional reactions (see also Beattie and Barlas 1993). Alternatively, trading off some attributes, such as the small, positive monetary values associated with Bettman et al.’s (1993) studies cited above, should elicit little emotion.

More generally, attributes define potential decision consequences, thereby influencing primary appraisal and resultant negative emotion. For instance, in an automobile purchase situation, the attribute “safety” is likely associated with more threatening potential consequences (e.g., family members being killed in an accident), and more resultant negative emotion, than is the attribute “styling” (e.g., family members being embarrassed by a car’s ugliness). In experiments 1 and 2 below, attribute identities are manipulated in order to alter the potential for decision tasks to elicit negative emotion. Attributes with implications for more highly valued goals will be defined as higher in “trade-off difficulty,” as decision makers should be more reluctant to accept losses on (i.e., to trade off) these attributes. High versus low trade-off difficulty attributes were identified through a pretest directly assessing subjects’ average degrees of reluctance to accept losses on particular attributes. Since it is necessary to distinguish between importance and trade-off difficulty, these trade-off difficulty manipulations hold constant either dispersion in attribute importance weights (in experiment 2) or average importance weights themselves (in experiment 1; see the Appendix). In experiment 2, an additional manipulation helps validate the proposed link between attribute identities and primary appraisal. Conditions encouraging the decision maker to consider more carefully the links from decision attributes to valued goals should exacerbate the potential of trade-off difficulty to elicit negative emotion through primary appraisal. One such condition is the presence of imagery (vs. objective) processing instructions. Imagery processing instructions appear to increase problem elaboration, likely through the vividness with which problem characteristics are imagined (Keller and Block 1996; McGill and Anand 1989). Increased elaboration or vi-
idness should encourage the decision maker to consider
a greater number of goals, leading to a primary appraisal
that the decision is of increased significance.

In summary, when negative correlation between attrib-
ute values requires that one attribute be sacrificed in
order for others to be maximized, the identity of the rele-
vant attributes should determine the specific goals ap-
praised as being threatened. Thus, increased negative
emotion is expected to follow from a substitution of attrib-
utes with links to increasingly important goals into the
decision matrix (high trade-off difficulty) as well as from
conditions encouraging decision makers to explore more
fully links between attributes and goals (imagery pro-
cessing instructions).

**H1:** Higher trade-off difficulty attributes will elicit
higher levels of negative emotion, and this ef-
fect will be greater with imagery instructions.

Hypothesis 1 addresses primary appraisal; however, sec-
ondary appraisals of likely coping mechanisms are also
expected to influence negative emotion, as is discussed next.

**Emotion Elicitation during Decision Making: Second-
ary Appraisal.** Secondary appraisal essentially involves
anticipation of one's coping strategies and results. There
are many idiosyncratic ways to cope with a decision, from
simple avoidance, to increasing one's effort, to seek-
ing the advice of another. Recall that Folkman and Laza-
rus (1988) classify all coping behaviors into three
groups: problem-focused coping, emotion-focused coping
through avoidance, and emotion-focused coping through
changing the meaning of a situation. In a decision domain,
engaging in problem-focused coping seems likely to in-
volve attempts to increase decision accuracy (Luce et al.
1997a); potential accuracy-maximizing behaviors have
often been studied in the context of effort-accuracy trade-
offs in choice (see, e.g., Payne, Bettman, and Johnson
1993). Conversely, attempts to engage in emotion-focu-
sed coping by changing the meaning of a decision situ-
ation seem likely to be idiosyncratic to particular decision
maker—decision task combinations. This article therefore
focuses on emotion-focused coping through avoidance,
which is proposed to be a major, yet relatively over-
looked, source of influence on emotion-laden decision
tasks. Although the other two forms of coping are consid-
ered during hypothesis development below, the primary
contribution of this article is intended to be a greater
understanding of emotion-focused coping through avoid-
ance in consumer decision domains.

As is argued in greater detail under the heading "Emo-
tion-Focused Coping" below, one very effective way to
cope with decision-attribute-elicited emotion is to provide
a response that essentially avoids resolution of difficult,
between-attribute trade-offs (see Janis and Mann [1977]
on procrastination and passing the buck). Thus, whether
or not an avoidant option is present is an important dimen-
sion on which potentially threatening decision situations
vary. For instance, potential automobile purchasers who

own a functioning car can avoid trading off safety and
purchase price for new cars by simply choosing to main-
tain the status quo. These individuals should complete
more favorable secondary appraisals, and feel less nega-
tive emotion, than do potential automobile purchasers
who do not own a functioning car and therefore cannot
avoid difficult trade-offs by maintaining the status quo.
That is, decision situations that include avoidant response
options should be associated with more optimistic second-
ary appraisals, lessening the amount of negative emotion
elicited by a primary appraisal identifying threats to im-
portant goals. Factors that influence secondary appraisals
(such as avoidant options) seem likely to interact with
factors influencing primary appraisal (such as trade-off
difficulty), as optimistic secondary appraisals will essen-
tially neutralize threats identified through primary ap-
praisal. Because secondary appraisal involves anticipation
of likely coping behaviors and results, the mere presence
of an avoidant option is expected to lessen the tendency
of trade-off difficulty and imagery to generate negative
emotion in experiments 1 and 2.

**H2:** An opportunity to chose an avoidant option will
reduce the impact of trade-off difficulty and
imagery instructions on negative emotion.

**Problem-Focused Coping.** Negative emotion aroused
difficult-to-trade-off attributes or imagery pro-
cessing instructions should motivate the decision maker
to engage in problem-focused coping. In a consumer deci-
sion situation, the primary problem is the possibility of
making a suboptimal choice, leading to negative out-
comes, regret, and blame. Motivations to cope by solving
this problem should encourage the decision maker to in-
crease the effort expended on her task in order to identify
the alternative that best meets her goals. Luce et al.
(1997a) demonstrate that decision makers in more nega-
tively emotion-laden high trade-off difficulty situations
process more extensively, presumably because of this in-
creased willingness to work toward a more favorable deci-
sion resolution. Thus, decisions associated with more neg-
ative primary appraisals are expected to be associated
with longer deliberation, replicating previous research.

**H3:** Decision times will be longer for tasks involv-
higher levels of trade-off difficulty, and this ef-
fect will be greater with imagery instructions.

**Emotion-Focused Coping.** Decision makers have
been presumed to cope with anticipated or experienced
decision conflicts by choosing particular alternatives that
minimize the likelihood of regret (Bell 1982; Loomes
and Sugden 1982; Simonson 1992), that delay the resolu-
tion of decision conflict (Dhar 1997; Tversky and Shafir
1992), that protect one's self-esteem (Larrick 1993), or
that maximize one's sense of security (Schneider and
Lopes 1986). More generally, one way to cope with deci-
sion-generated negative emotion is to choose an alterna-
tive on the basis of an objective reason or label independent of explicit trade-off resolution. Such a choice should clearly facilitate emotion-focused coping by allowing the decision maker to avoid emotionally demanding trade-off operations. Such choices are also perceived as easy to justify, potentially minimizing one’s perceived responsibility for decision outcomes (Simonson 1989) and therefore potentially changing the subjective meaning of a decision such that the decision maker is not perceived to be responsible for potential negative outcomes. For example, decision makers described as maintaining the status quo are generally judged by others to be less blameworthy, less responsible for negative outcomes, and as feeling fewer negative emotions such as regret and guilt (Baron 1992; Ritov and Baron 1992).

The experiments reported below manipulate whether subjects are provided with an opportunity to engage in emotion-focused coping by choosing an avoidant option. In both experiments 1 and 2, some subjects are given the opportunity to choose a car associated with a previously chosen, or status quo, label. In experiment 1, the range of avoidant options is broadened by providing other decision makers the opportunity to postpone their decision or to choose an alternative that dominates one other alternative in a decision set. The three types of avoidant options all provide the decision maker with reasons or labels independent of difficult between-attribute trade-offs; the decision maker can focus on these labels during deliberation and in later justification (to oneself or others). The emotion-focused coping benefits of avoidant options should be increasingly valued as primary appraisals indicate a higher degree of threat. Thus, choice of avoidant options should increase for more potentially threatening decisions.

**H4:** The probability of choosing an avoidant option will increase for tasks involving higher levels of trade-off difficulty, and this effect will be greater with imagery instructions.

Note that the rationale behind Hypothesis 4 is unique to task-related, versus ambient, sources of emotion; coping can be implemented directly through the choice of a particular alternative only when the decision is itself the source of the negative emotion.

**Summary of Primary Hypotheses.** Hypotheses 1 and 2 specify components of a consumer decision task that are expected to influence primary appraisal (trade-off difficulty, imagery) and secondary appraisal (availability of an avoidant option), respectively. Hypotheses 3 and 4 further specify problem-focused coping (increased response times) and emotion-focused coping (increased avoidant choice) behaviors expected to result from primary appraisals of increased threat. Note that reaction times and avoidant choices are expected to increase simultaneously under decision threat, which is consistent with the general empirical finding that problem-focused and emotion-focused coping behaviors are simultaneously brought to bear on stressful situations (Carver et al. 1989; Folkman and Lazarus 1980). Thus, an analysis of both problem-focused and emotion-focused coping leads to the somewhat paradoxical hypothesis that normatively irrelevant alternative characteristics (e.g., an alternative’s status quo label) will have an increased effect on choice for groups of decision makers who also engage in more deliberation. The proposed links among these decision characteristics and outcome behaviors imply several mediation relationships; these relationships are put into explicit hypothesis form below. The first mediation hypothesis involves the impact of avoidant choice on final, retrospective levels of negative emotion measured during experiment 1 (in the context of high vs. low trade-off difficulty). Then, two additional hypotheses address initial, in-process levels of negative emotion measured during experiment 2 (in the context of both trade-off difficulty and imagery). Finally, the relationship between response times, also measured during experiment 2, and avoidant choice is discussed.

**Mediation Hypotheses**

**Avoidant Choice and Retrospective Negative Emotion.** Hypothesis 2 predicts that the presence of an avoidant option will provide a salient opportunity for emotion-focused coping, thereby mitigating the impact of other decision characteristics on negative emotion. **Actual choice of the avoidant option is the mechanism through which emotion-focused coping is proposed to ultimately take place, and the presence of an avoidant option should mitigate negative emotion during choice primarily because the decision maker imagines or anticipates choosing that option. Of course, not every decision maker who entertains the possibility of making an avoidant choice will ultimately do so. For instance, an individual may decide during deliberation that his specific status quo alternative has an attribute value that makes it unacceptable. Thus, when retrospective or postchoice negative emotion is considered, the emotion-mitigating effects of an avoidant option should be particularly visible for subjects who have actually carried out emotion-focused coping by choosing that avoidant option.**

**HS:** Actual choice of an avoidant option will mediate the proposed interaction between trade-off difficulty and the availability of an avoidant option in determining levels of retrospective negative emotion.

**Initial Levels of Negative Emotion and Coping Behavior.** Increases in avoidant choice are proposed to be motivated by a desire to use emotion-focused coping to deal with a decision’s increasingly threatening goal content. However, it is difficult to independently measure this increased threat, because anticipation of emotion-focused coping may neutralize it (see Hypothesis 2). For instance, an individual who is particularly prone to dis-
tress because of the goal content of a particular choice may experience very little negative emotion if she tentatively commits to an avoidant option in the initial stages of decision deliberation. In order to isolate these potential effects, experiment 2 will measure in-process emotional reactions to decisions associated with varying trade-off difficulty and imagery conditions before subjects are made aware that an avoidant option is available to them. This will allow for a test of the effects of trade-off difficulty and imagery on negative emotion (Hypothesis 1) independent of the potentially mitigating effects of the presence of an avoidant option (Hypothesis 2). These initial, in-process reactions to trade-off difficulty and imagery are expected to mediate effects of the manipulations on coping behaviors, that is, on later avoidant choices and on increased response times.

H6: In-process negative emotion initially aroused by trade-off difficulty and imagery will mediate the effects of these manipulations on the tendency to choose an avoidant option.

H7: In-process negative emotion initially aroused by trade-off difficulty and imagery will mediate the effects of these manipulations on the tendency to process more extensively.

Is Avoidant Choice Merely an Effort-Saving Heuristic?

Like increased negative emotion, increased response times are predicted to follow from primary appraisal indicating increasing levels of threat. Thus, response times should also mediate eventual effects on avoidant choice.

H8: Increased response times will mediate the effects of the trade-off difficulty and imagery manipulations on the tendency to choose an avoidant option.

As noted above, the hypothesis that response times will increase in higher trade-off difficulty conditions has received prior support (Luce et al. 1997a). Thus, measures of response time are taken in experiment 2 primarily to test Hypothesis 8. Note that this hypothesis is inconsistent with the common explanation of some forms of avoidant choice (e.g., preference for the status quo) as resulting from the desire to minimize cognitive effort. A cognitive effort explanation of the status quo effect predicts avoidant choice will be characterized by lower response times.

Summary

Decision characteristics (trade-off difficulty, imagery) are expected to generate negative emotion through primary appraisal, particularly in the absence of salient emotion-focused coping opportunities (e.g., avoidant choice options) that influence secondary appraisal. This negative emotion is expected to motivate coping behaviors, particularly increased response times and more avoidant choices. If coping is successfully completed through choice of an avoidant alternative, the decision maker’s final, retrospective assessments of emotion are expected to reflect this; therefore, the influence of decision characteristics on retrospective emotion should be weakened or eliminated for decision makers who have chosen an avoidant option.

One important distinction above is that between “retrospective” and “in-process” negative emotion, measured in experiments 1 and 2, respectively. As emotion is expected to evolve over the decision process and with coping behavior, different patterns of effects are expected for in-process versus retrospective emotion measures. This divergence is most apparent when one considers predictions regarding decision makers who choose an avoidant option versus those who do not, given that an avoidant option is available to them. As increased initial threat should motivate more coping behavior, subjects who experience higher levels of in-process negative emotion before the availability of an avoidant option are expected to be more likely to choose that avoidant option once it is made available. However, given that subjects who ultimately choose an avoidant option are likely to have accomplished emotion-focused coping through this choice, these subjects are expected to experience lower levels of retrospective negative emotion.

EXPERIMENT 1

Subjects participating in experiment 1 were randomly assigned to one of eight groups involving either high or low trade-off difficulty and one of four possible response options (a control group with no avoidant option and three groups for which an avoidant option was made available). Subjects across all groups made an automobile purchase decision and then reported their retrospective negative emotion. Hypothesis 1 is addressed by the effect of trade-off difficulty on emotion in the control response option group, while Hypothesis 2 is addressed by comparing the effects of trade-off difficulty on emotion in the control group versus the avoidant option groups. Experiment 1 also tests the hypothesis that higher trade-off difficulty will increase avoidant choice (Hypothesis 4), and that this avoidant choice is the mechanism through which the presence of an avoidant option mitigates the effect of trade-off difficulty on retrospective emotion (Hypothesis 5). Experiment 1 does not involve a manipulation of imagery processing instructions, nor does it involve measurements of in-process negative emotion or response times.

Methods

Subjects and Procedure. Two-hundred thirty-five subjects (between 28 and 30 per cell) completed a five-page survey as part of a course requirement. Survey pages 1 and 2 introduced an automobile purchase task and described the four attributes relevant to the subject’s trade-off difficulty condition, including descriptions of the best
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and worst possible value for each attribute. Page 3 contained choice information in a matrix format, with alternatives (cars) representing rows in the matrix and attributes (e.g., styling, sound system) representing columns (see Table 2). Note that abstract attribute scales were used in order to eliminate the possibility that differential comparability of attribute values across the high versus low trade-off difficulty conditions would influence decision behavior (Stone and Schkade 1994). The fourth and fifth pages contained dependent measures assessing final, retrospective negative emotion and then assessing attribute importance weights.

Trade-Off Difficulty Manipulation. Trade-off difficulty was manipulated between subjects through attribute labels. The intuitive rationale for the trade-off difficulty manipulation is that some attributes (e.g., a car’s safety level) are associated with higher-level goals and therefore are more threatening to trade off than are others (e.g., a car’s styling). Attribute-level loss aversion was used as a metric for trade-off difficulty, because trade-offs by definition require that losses be accepted on at least one of the attributes being traded off. So that decision alternatives would have comparable utilities across trade-off difficulty conditions, experiment 1 holds attribute importance weights constant across the high versus low trade-off difficulty attribute profiles. Attribute importance weights and loss-aversion levels were estimated on the basis of the pretest reported in the Appendix. Attribute descriptions, including descriptions of the best and worst possible value for each attribute, were implemented in exactly the same manner for the pretest and for the experiment. On the basis of pretest results, two high trade-off difficulty attributes (Occasionally Survival and Pollution Caused) are matched with two low trade-off difficulty attributes of equal average importance but of lower average loss aversion (Routine Handling and Sound System, respectively). Note that the high trade-off difficulty attributes involve more potentially catastrophic outcomes (e.g., personal injury in an accident, one’s own or others’ illness associated with pollution) that are likely to involve sacred or terminal values, but that are also only probabilistically relevant to the decision maker. Perhaps it is this probabilistic relevance that accounts for the finding that higher loss aversion does not lead to higher importance scores for the high (vs. the low) trade-off difficulty attributes. In addition to the two high or low trade-off difficulty attributes, alternatives were described in terms of Styling and Price for both trade-off difficulty conditions so that decisions would be relatively complex.

Response Option Manipulation. All subjects were asked to report the action they would take (e.g., “Buy car A”) in a decision situation involving five available cars. Four response option groups were created by altering the nature of the decision maker’s available options. The control response option group simply chose a car. On the basis of pretesting, attribute values for the five cars were constructed such that car A and car B would be more preferred on average. This minimized the possibility of floor effects on avoidant choice by ensuring that the cars associated with avoidant option labels (car A in one condition and car B in another condition) would be considered acceptable by most subjects.

Three avoidant option conditions (a status quo condition, an asymmetrically dominating condition, and a prolong search condition) were constructed by altering the control group task. Each of these three avoidant options provides the decision maker with a reason for choice to which he or she can appeal in order to avoid explicitly calculating emotion-laden trade-offs and/or to avoid taking direct responsibility for potential decision outcomes.

In the status quo group, subjects were instructed to imagine they had tentatively chosen a car, but that four alternative cars had recently become available. Thus, subjects could choose to go through with the purchase of their already-chosen car or they could choose to purchase one of four new options. Car A from the control group was associated with the status quo label in the status quo group. Because only one car occupied the status quo position, this experiment has the limitation that an increased tendency to choose the status quo alternative un-

### Table 2

**Choice Task Presented to Subjects During Experiment 1**

<table>
<thead>
<tr>
<th>Car</th>
<th>Price/price</th>
<th>Occasional survival/routine handling</th>
<th>Styling/styling</th>
<th>Pollution caused/sound system</th>
</tr>
</thead>
<tbody>
<tr>
<td>Car A</td>
<td>Very poor</td>
<td>Very good</td>
<td>Average</td>
<td>Very good</td>
</tr>
<tr>
<td>Car B</td>
<td>Average</td>
<td>Average</td>
<td>Best</td>
<td>Poor</td>
</tr>
<tr>
<td>Car C</td>
<td>Best</td>
<td>Worst</td>
<td>Very poor</td>
<td>Average</td>
</tr>
<tr>
<td>Car D</td>
<td>Worst</td>
<td>Best</td>
<td>Poor</td>
<td>Worst</td>
</tr>
<tr>
<td>Car E</td>
<td>Poor</td>
<td>Very poor</td>
<td>Good</td>
<td>Best</td>
</tr>
</tbody>
</table>

**Note.**—Car A was associated with the status quo in the relevant condition. Car B was associated with asymmetric dominance, and the values of car C were altered so that it was dominated by car B, in the relevant condition. Thus, car C’s attribute values were: poor, poor, very good, and very poor in the relevant condition.
Consider higher trade-off difficulty could be attributable to characteristics associated with the particular attribute values of car A.

In the asymmetrically dominating group, the attribute values for car C were altered so it was dominated by car B, but not by the other cars in the decision set (see Table 2 for attribute values). Simonson (1989) finds that the choice of an alternative that dominates a second alternative in a decision set is perceived to be easily justifiable, as the dominance relationship provides an objective reason for one's choice. The presence of such a justification may give the decision maker more license to choose without extensive consideration of the trade-offs or consequences associated with various potential alternatives. Thus, an asymmetrically dominating alternative may allow emotion-focused coping through avoidance (of difficult trade-offs) and/or by changing the meaning of a decision (to one where the decision maker is not responsible for potential outcomes). Only car B was associated with asymmetric dominance. Thus, there is variance in the identity of the alternative associated with avoidant choice across, but not within, the status quo and asymmetrically dominating conditions.

Finally, in the prolong search group, subjects were presented with the five available cars, but they were also allowed to indicate that they would prefer to keep looking. Prolonging search or otherwise postponing a decision is a very direct way to engage in decision avoidance (Dhar 1997; Janis and Mann 1977; Tversky and Shafir 1992). The decision to prolong search may also be easy to justify, as this is less of an identifiable action on the part of the decision maker than is choosing a particular alternative, and individuals are typically judged as more responsible for overt actions than for normatively equivalent failures to act (Kahneman and Miller 1986; Ritov and Baron 1992).

**Emotion Measure.** Immediately after indicating a choice, subjects were asked to assign each of a set of adjective terms a value between 1 and 5 reflecting how well (from "not well at all" to "extremely well") and/or by changing the meaning of a decision (to one where the decision maker is not responsible for potential outcomes). Only car B was associated with asymmetric dominance. Thus, there is variance in the identity of the alternative associated with avoidant choice across, but not within, the status quo and asymmetrically dominating conditions.

Finally, in the prolong search group, subjects were presented with the five available cars, but they were also allowed to indicate that they would prefer to keep looking. Prolonging search or otherwise postponing a decision is a very direct way to engage in decision avoidance (Dhar 1997; Janis and Mann 1977; Tversky and Shafir 1992). The decision to prolong search may also be easy to justify, as this is less of an identifiable action on the part of the decision maker than is choosing a particular alternative, and individuals are typically judged as more responsible for overt actions than for normatively equivalent failures to act (Kahneman and Miller 1986; Ritov and Baron 1992).

The emotion question was therefore intended to be independent of subjects' in-process or prechoice emotion, without introducing demand effects by making subjects focus directly on their (potentially avoidant) choice. Subjects who had effectively coped with their negative emotion by choosing an avoidant option were expected to answer that their decision task would be relatively low in negative emotion if they were to repeat it. The adjective checklist includes the adjectives from Watson, Clark, and Tellegen's (1988) PANAS scale, which has been successfully used in studies involving the influence of affect on decision processing (e.g., Lewinsohn and Mano 1993). The set of PANAS scale adjectives was augmented with several adjectives that seemed particularly relevant to decisions (e.g., "worried," "troubled," "uneasy"). Scores assigned to the 21 negatively valenced adjective terms on the list were averaged to comprise a summary index of final negative emotion with a coefficient alpha of .91.

**Importance Measures.** A set of four questions assessed whether high and low trade-off difficulty attributes were matched on importance, as intended. Each subject was asked to rate the four attributes relevant to his or her trade-off difficulty condition on a nine-point scale anchored by "not important" and "extremely important."

**Results**

**Importance Manipulation Checks.** The Occupant Survival attribute (rated by high trade-off difficulty groups) and the Routine Handling attribute (rated by low trade-off difficulty groups) were given identical average importance weights ($F(1, 227) = 7.24$, $X_{	ext{high}} = 7.15$, $X_{	ext{low}} = 5.30$, $X_{	ext{control}} = 5.18$). Thus, as intended, the two trade-off difficulty conditions involved attributes with equivalent importance profiles.

**Effects on Negative Emotion.** Hypothesis 1 predicts that trade-off difficulty will elicit greater negative emotion; however, Hypothesis 2 specifies that this effect will be mitigated by the presence of an avoidant option. Thus, Hypotheses 1 and 2 jointly specify that trade-off difficulty and response option will interact to determine final levels of negative emotion.

Both trade-off difficulty ($F(1, 227) = 12.23$, $p < .0006$; $X_{\text{high}} = 1.95$ vs. $X_{\text{low}} = 1.71$) and response option ($F(3, 227) = 9.81$, $p < .0001$; $X_{\text{avoided}} = 2.16$, $X_{\text{prob}} = 1.75$, $X_{\text{average}} = 1.72$, $X_{\text{control}} = 1.69$) have significant main effects on retrospective emotion. Within the response option effect, a contrast indicates that the control group is associated with significantly more negative emotion than the average of the three avoidant option groups ($F(1, 227) = 27.78$, $p < .0001$). The remaining 2 df of the contrast is not significant ($F < 1$), which indicates that the elevated level of final negative emotion in the control group is the only source of the response option main effect.

Consistent with Hypotheses 1 and 2, there is a significant interaction between trade-off difficulty and response option ($F(3, 227) = 6.59$, $p < .003$; see Table 3 for means). More important, a contrast comparing the difference between the two trade-off difficulty groups within the control response option to the average of the differences between trade-off difficulty groups for the remaining three response options is significant ($F(1, 227) = 7.24$, $p < .0006$; $X_{\text{high}} = 7.15$, $X_{\text{low}} = 5.30$, $X_{\text{control}} = 5.18$). Thus, as intended, the two trade-off difficulty conditions involved attributes with equivalent importance profiles.
NEGATIVELY EMOTION-LADEN DECISIONS

TABLE 3
MEANS (STANDARD DEVIATIONS) OF NEGATIVE EMOTION
BY COMPOSITE TRADE-OFF DIFFICULTY AND
RESPONSE OPTION: EXPERIMENT 1

<table>
<thead>
<tr>
<th></th>
<th>Low trade-off difficulty group</th>
<th>High trade-off difficulty group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control group</td>
<td>1.76 (.43)</td>
<td>2.53 (.60)</td>
</tr>
<tr>
<td>Status quo group</td>
<td>1.71 (.51)</td>
<td>1.79 (.62)</td>
</tr>
<tr>
<td>Asymmetrically dominating group</td>
<td>1.68 (.50)</td>
<td>1.77 (.52)</td>
</tr>
<tr>
<td>Prolong search group</td>
<td>1.68 (.64)</td>
<td>1.69 (.40)</td>
</tr>
</tbody>
</table>

NOTE.—Emotion scores represent the average score assigned to the negative emotion terms from an adjective checklist (scale: 1-5). Higher numbers indicate more negative emotion.

= 19.55, p < .0001), which indicates that trade-off difficulty has a much stronger effect within the control group than within the three avoidant option groups. The interaction variance not accounted for by the contrast is not significantly different from zero (F < 1). Consistent with the contrast results and with Hypothesis 1, the simple main effect of trade-off difficulty is significant within the control response group (F(1, 227) = 30.52, p < .01). However, consistent with Hypothesis 2, the trade-off difficulty effect is not significant for data pooled across the three avoidant option groups (F < 1). Thus, trade-off difficulty influences subjects' retrospective emotion assessments in the absence of the opportunity to engage in emotion-focused coping through avoidant choice, but not in the presence of such an opportunity. Finally, note that there is virtually no mean variance across response options within the low trade-off difficulty conditions. This is somewhat surprising, given that there was likely some potential for negative emotion in the low trade-off difficulty groups. This null result may simply follow from a lack of power to detect avoidant option effects under low trade-off difficulty.

Avoidant Option Choice. Choice proportions for each car by experimental condition are presented in Table 4. Because subjects in the control group were simply asked to choose one of the five alternatives, this group’s preferences provide a baseline against which to compare preferences in the status quo and asymmetrically dominating groups. Thus, choice data can be classified into three "subexperiments," each testing the hypothesis that higher trade-off difficulty environments will be associated with increased preference for avoidant options (Hypothesis 4). One subexperiment involves comparison of the choice probability of car A when it is associated with the status quo (within the status quo response option) to the choice probability of car A when it is not associated with the status quo (within the control response option). The second subexperiment involves comparison of the choice probability of car B when it is asymmetrically dominating to that alternative’s baseline probability from the control group. The third subexperiment simply assesses preference for prolonging search.

A logit analysis of choice of car A shows no main effect for trade-off difficulty (χ²(1) = 1.70, p > .19), nor does it show a main effect for control versus status quo response option (χ² < 1). There is a significant interaction between trade-off difficulty and response option (χ²(1) = 3.81, p < .05). As expected, there is a substantially increased preference for car A when it is associated with the status quo within the high trade-off difficulty environment, but not within the low trade-off difficulty environment. When the control group’s baseline preferences are disregarded, a one-factor logit analysis indicates a significant main effect of trade-off difficulty on the purchase probability of car A (χ²(1) = 6.47, p < .01) within the status quo response option groups.

For the asymmetrically dominating versus control groups, a logit analysis shows no main effect of trade-off difficulty on the tendency to choose car B (χ² < 1), nor is there a main effect for response option (χ² < 1). The expected interaction of response option and trade-off difficulty is also not significant (χ²(1) = 2.39, p > .12), although the means are in the expected direction. Further, if the control group data are disregarded, a one-factor logit analysis indicates a significant increase in the tendency to choose the asymmetrically dominating alternative under higher trade-off difficulty, as expected (χ²(1) = 5.12, p < .05).

Finally, in the prolong search group, subjects were given the option to indicate that they would continue looking, instead of indicating which of the five available cars they would choose. As there are no control group data with which to compare these responses, only a one-way logit analysis was performed. This analysis indicates that the tendency to prolong search is enhanced under higher trade-off difficulty (χ²(1) = 9.52, p < .002), as expected. Thus, all three forms of avoidant options are relatively more preferred under high, compared with low, trade-off difficulty, which supports Hypothesis 4.

Mediation of Negative Emotion by Avoidant Choice. Hypothesis 5 predicts that actual choice of an avoidant option will mediate the trade-off difficulty by response option interaction for retrospective negative emotion. In testing this hypothesis, the mediator variable of interest is avoidant choice, in general, as all three types of avoidant options are expected to satisfy similar, emotion-minimizing functions. Thus, in order to test Hypothesis 5, choice data were recoded to indicate (only) presence or absence of an avoidant choice. For each of the three avoidant option groups, the avoidant choice variable was coded as 1 if a subject chose the relevant avoidant option (e.g., car A in the status quo group) and coded as 0 otherwise. Because subjects in the control group were not given the opportunity to choose an avoidant option, avoidant choice was coded as 0 across all control group observations.

Before Hypothesis 5 was tested, the newly constructed
avoidant choice measure was analyzed for data pooled across the three avoidant response option groups, but excluding the control group. There are main effects on avoidant choice for trade-off difficulty ($\chi^2(1) = 20.81, p < .001$; $X_{\text{high}} = .73$ vs. $X_{\text{low}} = .40$) and response option ($\chi^2(1) = 20.35, p < .0001$; $X_{\text{symd}} = .71$, $X_{\text{avoidant}} = .67$, $X_{\text{prolong}} = .33$). However, trade-off difficulty and response option do not interact ($\chi^2(1) = 1.56, p > .17$), which indicates that preference for each of the three avoidant options increases by roughly the same magnitude with high (vs. low) trade-off difficulty. Thus, it seems reasonable to pool across the three avoidant option groups and consider avoidant choice, in general, as a mediator of retrospective negative emotion.

Mediation is said to exist when three criteria are met (Baron and Kenny 1986): (1) the independent variables (here, trade-off difficulty and response option) influence the potential mediator (avoidant choice), (2) the potential mediator influences the dependent variable (negative emotion), and (3) the relationship between the independent and dependent variables is weakened when the mediator is used as a covariate. These criteria assume that there is a significant effect to be mediated; that is, they assume that the independent variables influence the dependent variable.

The significant interaction between trade-off difficulty and response option for negative emotion ($F(3, 227) = 6.59, p < .003$; interaction sum of squares [SS] = 5.64) reported under the above heading Effects on Negative Emotion is the effect that was expected to be mediated by avoidant choice. The first criterion for mediation is supported by an interaction between trade-off difficulty and response option for the avoidant choice variable when analyzed across all four response option groups ($F(3, 234) = 3.03, p < .03$). Note, however, that this interaction is largely an artifact of the experimental design, which constrained avoidant choice to 0 in the control response option group. Negative emotion was assessed as a function of avoidant choice, trade-off difficulty, and response option in order to test the second and third criteria for mediation (see Table 5 for means). The second criterion for mediation is supported by a significant main effect of avoidant choice on negative emotion ($F(1, 221) = 59.72, p < .0001$); subjects who make an avoidant choice report lower retrospective levels of negative emotion ($X_{\text{avoidant choice}} = 1.95$ vs. $X_{\text{symd}} = 1.55$). Trade-off difficulty continues to have a significant main effect ($F(1, 221) = 35.18, p < .0001$), as does response option ($F(3, 221) = 4.67, p < .0001$). However, the interaction between trade-off difficulty and response option is no longer significant once the avoidant choice variable is included in the model ($F(3, 221) = 1.81, p > .15$; interaction SS = 1.28). Thus, the third criterion for mediation is met and Hypothesis 5 is supported.

Although the trade-off difficulty by response option effect is eliminated, trade-off difficulty does interact with avoidant choice ($F(1, 221) = 10.30, p < .002$) in this new model. Consistent with the hypothesis that avoidant choice mitigates the influence of trade-off difficulty on emotion, the effect of trade-off difficulty on negative emotion is stronger for subjects who did not make an avoidant choice. In fact, there is a significant simple main effect of trade-off difficulty for subjects who did not choose an avoidant option ($F(1, 221) = 46.38, p < .0001$; $X_{\text{high}} = 2.21$ vs. $X_{\text{low}} = 1.83$), but not for subjects who did choose an avoidant option ($F(1, 221) = 1.33, p > .25$; $X_{\text{high}} = 1.47$ vs. $X_{\text{low}} = 1.59$). Neither the interaction between avoidant choice and response option ($F < 1$) nor the three-way interaction ($F(2, 221) = 2.02, p < .18$) is significant. Overall, then, the actual choice of an avoidant option appears to be the mechanism through which the presence of such an option mitigates the effect of trade-off difficulty on retrospective negative emotion.

### Table 4

<table>
<thead>
<tr>
<th>Group and trade-off difficulty</th>
<th>Car A</th>
<th>Car B</th>
<th>Car C</th>
<th>Car D</th>
<th>Car E</th>
<th>Prolong*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control:</td>
<td>.43</td>
<td>.46</td>
<td>.04</td>
<td>0</td>
<td>.07</td>
<td>NA</td>
</tr>
<tr>
<td>Low (n = 28)</td>
<td>.43</td>
<td>.53</td>
<td>0</td>
<td>0</td>
<td>.03</td>
<td>NA</td>
</tr>
<tr>
<td>High (n = 30)</td>
<td>.55</td>
<td>.41</td>
<td>0</td>
<td>0</td>
<td>.03</td>
<td>NA</td>
</tr>
<tr>
<td>Status quo:</td>
<td>.87</td>
<td>.13</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>NA</td>
</tr>
<tr>
<td>Asymmetrically dominating:</td>
<td>.47</td>
<td>.53</td>
<td>0</td>
<td>0</td>
<td>.03</td>
<td>NA</td>
</tr>
<tr>
<td>Low (n = 30)</td>
<td>.18</td>
<td>.82</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>NA</td>
</tr>
<tr>
<td>High (n = 28)</td>
<td>.27</td>
<td>.57</td>
<td>0</td>
<td>0</td>
<td>.13</td>
<td>NA</td>
</tr>
<tr>
<td>Prolong search:</td>
<td>.10</td>
<td>.30</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>NA</td>
</tr>
</tbody>
</table>

Note.—NA = not applicable.

*Prolong = the prolong search alternative.

Alternatives representing avoidant choices.

Additional information or analysis not included in the provided text.
TABLE 5
MEANS (STANDARD DEVIATIONS) OF NEGATIVE EMOTION COMPOSITE MEASURE
BY EXPERIMENTAL CONDITION AND FINAL CHOICE: EXPERIMENT 2

<table>
<thead>
<tr>
<th></th>
<th>Control</th>
<th>Status quo</th>
<th>Asymmetrically dominating</th>
<th>Prolong search</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Low trade-off difficulty:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emotion score</td>
<td>1.76</td>
<td>1.90</td>
<td>1.54</td>
<td>1.91</td>
</tr>
<tr>
<td>(0.43)</td>
<td>(0.52)</td>
<td>(0.45)</td>
<td>(0.49)</td>
<td>(0.43)</td>
</tr>
<tr>
<td>n</td>
<td>28</td>
<td>13</td>
<td>16</td>
<td>14</td>
</tr>
<tr>
<td>High trade-off difficulty:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emotion score</td>
<td>2.53</td>
<td>2.82</td>
<td>1.64</td>
<td>2.33</td>
</tr>
<tr>
<td>(0.60)</td>
<td>(0.22)</td>
<td>(0.40)</td>
<td>(0.64)</td>
<td>(0.42)</td>
</tr>
<tr>
<td>n</td>
<td>30</td>
<td>4</td>
<td>26</td>
<td>5</td>
</tr>
</tbody>
</table>

Note.—Emotion scores represent the average score assigned to the negative emotion terms from an adjective checklist (scale: 1-5). Higher numbers indicate more negative emotion. The column heads labeled “No” and “Yes” indicate the absence or presence of an avoidant choice.

Discussion of Experiment 1

Experiment 1 demonstrates that decision makers are more likely to choose each of three different types of avoidant options in the more threatening high trade-off difficulty environment (supporting Hypothesis 4). It also demonstrates a significant effect of trade-off difficulty on retrospective negative emotion in the control group (Hypothesis 1). This effect is virtually eliminated when an easily available coping mechanism (an avoidant option) is provided (Hypothesis 2), and the mechanism for this elimination appears to be actual choice of the avoidant option (Hypothesis 5). One notable aspect of these results is that three very different types of avoidant options seem to share a common, emotion-focused coping function. These results are similar to recent findings by Dhar and Simonson (1996) that adding the opportunity to delay choice results in a disproportionate decrease in preference for a “compromise” alternative (i.e., an alternative with attribute values falling between the values for other available alternatives), because both a delay and a compromise alternative may be considered avoidant options.

Experiment 2 extends experiment 1 in two primary ways. First, experiment 2 uses a procedure that allows for observation of emotional reactions to trade-off difficulty before subjects learn that an avoidant option is available. This allows testing of Hypotheses 6 and 7, regarding initial, in-process negative emotion as a mediator of later coping efforts. Second, response times are measured during experiment 2. These measures are useful primarily to assess the plausibility of an alternative explanation for avoidant option choice that is based on cognitive effort minimization.

Experiment 2 also addresses two methodological weaknesses of experiment 1. First, given that the particular attributes used to manipulate trade-off difficulty in experiment 1 may differ in terms of uncontrolled characteristics in addition to loss aversion, a different set of high versus low trade-off difficulty attributes was used in experiment 2. Thus, the robustness of trade-off difficulty effects across differing specific attributes is addressed. Experiment 2 also crosses an imagery manipulation with trade-off difficulty, in an attempt to alter negative emotion using a method that is totally independent of the decision matrix (i.e., independent of attribute labels, as well as attribute values). Second, instead of having just one car associated with a status quo label, as was the case for experiment 1, two differing cars will be associated with the status quo in experiment 2. This should help rule out the possibility that status quo effects are attributable to idiosyncratic aspects of a particular status quo alternative. However, because all three avoidant options demonstrated similar results in experiment 1, experiment 2 involves only status quo choice.

EXPERIMENT 2

Experiment 2 tests whether trade-off difficulty and imagery lead to coping behavior in the form of increased decision response times (Hypothesis 3) or more avoidant choice (Hypothesis 4). The decision task for experiment 2 is completed in two phases; phase 1 addresses the effect of trade-off difficulty and imagery on in-process negative emotion (Hypothesis 1), while phase 2 addresses the potential mitigating effect of the presence of an avoidant option on in-process negative emotion (Hypothesis 2). The measures of negative emotion taken during phase 1 are used as mediator variables predicting increases in decision response times (Hypothesis 7) and later increases in avoidant choice (Hypothesis 6). Finally, the relationship between increased time and avoidant choice is addressed (Hypothesis 8).

Methods

Subjects and Experimental Design. One hundred twenty-three undergraduate students were paid $10.00 for
participation in a one-hour experiment and were each randomly assigned to one of 16 cells. Decision tasks were created according to a completely between-subjects, 2 (high vs. low trade-off difficulty) x 2 (objective vs. imagery processing instructions) x 2 (presence or absence of a status quo label for one alternative) x 2 (identity of the option in the status quo position) design. Choices involved purchasing a car and were presented in matrix format via the Mouselab computer program (Payne et al. 1993). Available cars were given a score of 0-100 on each of four attributes, with 100 indicating the best possible score. Each decision task followed a series of unrelated decisions (involving monetary gambles or apartments), also presented via Mouselab.

Trade-Off Difficulty Manipulation. The pretest data reported in the Appendix were used to construct two sets of attributes with different levels of loss aversion. Attribute importance weights were not held constant between the high and low trade-off difficulty decisions, in order to increase the potential strength of the trade-off difficulty manipulation. However, since the dispersion of attribute importance weights is a task variable that interacts with conflict to influence decision behavior (Bettman et al. 1993), the variance in importance weights was held constant. The high trade-off difficulty attributes are Occupant Survival, Breakdown Frequency, Accident Avoidance, and Maintenance Costs, and the low trade-off difficulty attributes are Styling, Interior Roominess, Acceleration, and Sound System. Note that the high trade-off difficulty attributes are associated with relatively rare events that tend to have high emotional impact (e.g., automobile accidents and mechanical failures), while the low trade-off difficulty attributes appear to be associated with more mundane events and goals (e.g., one’s day-to-day image and comfort).

Processing Instructions Manipulation. Instructions presented immediately before the experimental task encouraged subjects either to “use your imagination to help you visualize the purchase situation” (imagery instructions) or to “avoid letting your imagination get the better of you and instead try to objectively understand the purchase situation” (objective instructions). Imagery processing instructions were expected to increase problem elaboration, thereby increasing the ability of the trade-off difficulty manipulation to elicit negative emotion (Keller and Block 1996; McGill and Anand 1989).

Experimental Procedure, Status Quo Manipulation, and Fourth Alternative Identity Replication Factor. The experimental procedure was designed to test whether stronger initial emotional reactions to trade-off difficulty and imagery would be associated with increased exploitation of opportunities to engage in emotion-focused coping through avoidant choice. Subjects were required to continually report their affective state during decision processing by using a mouse to move a pointer back and forth along a scale. The scale was presented directly under the matrix of (open) boxes containing decision information. Subjects were instructed to use the scale to summarize and report the emotions they were feeling during decision processing; the continuous scale was anchored only by the labels “very bad,” “neutral,” and “very good.” The negative end of the scale is assigned a value of 10, and the positive end is assigned a value of 0, so that higher numbers indicate more negative emotion. The Mouselab program continually recorded scale movements and the times at which these movements occurred; scale positions were weighted by response times to create a measure of average emotion during processing. A measure reflecting the most negative position of the cursor on the emotion scale was also analyzed, but this variable is not reported, as the “average” emotion measure and the “most negative” emotion measure result in identical mean and significance patterns. Subjects were trained on the emotion-elicitation procedure over three practice decisions.

Decision processing was divided into two phases. The trade-off difficulty and imagery manipulations were implemented before the first phase of processing, and the status quo manipulation was implemented between the first and second phases of processing. Across all conditions, subjects were initially (before phase 1 of processing) instructed to imagine that they had previously identified a car to purchase, but that this previously chosen car was no longer available. Subjects were further asked to imagine that they had to choose from among three remaining cars in their price range. Subjects then engaged in phase 1 of decision processing, in which they considered three cars, moving the pointer on their emotion scale during processing, and indicated when they were ready to make their decision. Thus, the phase 1 emotion measure reflects initial, in-process reactions to the trade-off difficulty and imagery manipulations.

Once a subject indicated she was ready to report which of the three cars she would buy, a screen appeared that indicated that the dealer had received additional stock of cars. Thus, in addition to the three cars the subject had been considering, a fourth car was now available. That is, the choice set was unexpectedly expanded from three to four options between decision-phases 1 and 2. In the status quo groups, subjects were informed that the fourth (the additional) car was identical to the car they had decided to purchase before phase 1 of decision processing (i.e., the dealer had received additional stock of the subject’s initially preferred car). No-status-quo groups were provided with an alternative defined by the same attribute values as the fourth car in the status quo groups, but the car was not identified as the previously chosen alternative. All subjects were then asked to reconsider their decision, which now involved a matrix describing four cars, and to again use the emotion scale to report how they were feeling. Because the status quo manipulation is executed between phase 1 and phase 2 of processing, the phase 2 emotion measure reflects the potential emotion-mitigating effect of this manipulation. When subjects indicated they had made a decision from among the four cars, a screen appeared to record their choice. Choices were coded to indicate whether the fourth alternative was chosen.
NEGATIVELY EMOTION-LADEN DECISIONS

A final manipulation was implemented in order to ensure that any effects of the status quo manipulation were independent of idiosyncratic aspects of a particular status quo alternative. All experimental subjects considered the same four cars during phase 2 of processing; however, the identity of the car presented in the fourth (the potentially status quo) position was counterbalanced between subjects. This is simply a replication factor, and no meaningful interactions involving this factor were expected or found. Figure 1 illustrates the procedure for experiment 2.

Response Times. The Mouselab program recorded subjects' decision latencies during both phases of processing to an accuracy of one-sixtieth of a second. The phase 1 response-time measure is used primarily to assess the effects of trade-off difficulty and imagery instructions on decision effort. The phase 2 response-time measure is used primarily to assess whether subjects exploit the availability of a status quo alternative in order to minimize cognitive effort.

Mouselab Scale Questions. Immediately following decision phase 2, subjects answered several seven-point scale questions, which included a manipulation check of the imagery manipulation. Specifically, subjects were asked to indicate how easily the decision situation was pictured or imagined (1 = not at all easily, 7 = very easily; adapted from Keller and Block [1996] and McGill and Anand [1989]).

Paper-and-Pencil Manipulation Checks. After the Mouselab program, subjects completed a questionnaire containing several seven-point scale questions assessing aspects of the four attributes associated with their trade-off difficulty condition. First, subjects rated attribute importance on seven-point scales. Eight remaining scales (coefficient alpha = 0.91) constitute an index of the potential threat associated with each attribute (e.g., levels of negative emotion).
Manipulation Check Results

For the imagery-manipulation check, the main effect of processing instructions is significant, and the imagery condition is rated as more easily pictured or imagined \((F(1, 107) = 14.72, p < .0002; \bar{X}_{\text{imagery}} = 4.80 \text{ vs. } \bar{X}_{\text{objective}} = 3.78).\) There is also an uninterpretable, marginally significant three-way interaction between imagery, trade-off difficulty, and fourth alternative identity \((F(1, 107) = 3.51, p < .06).\)

As desired, variance in attribute importance ratings does not differ significantly across trade-off difficulty groups \((F(1, 121) = 1.12, p > .29; \bar{X}_{\text{high}} = 1.12 \text{ vs. } \bar{X}_{\text{low}} = 1.28).\) The main effect of imagery processing instructions on attribute importance was also assessed within each trade-off difficulty group, in order to ensure that (subjective) attribute importance weights were held constant across imagery versus objective processing instructions. Effects of imagery are nonsignificant across the eight decision attributes. Next, a composite threat measure was developed by averaging across the scales assessing the emotional potential of each attribute. When the threat measure is summed across the four attributes considered by each subject, the high trade-off difficulty attributes are assessed as more threatening on average \((F(1, 121) = 135.54, p < .0001; \bar{X}_{\text{high}} = 20.79 \text{ vs. } \bar{X}_{\text{low}} = 15.45).\)

Finally, conditions where the fourth alternative is not associated with a status quo label can be used to assess baseline preferences for alternatives, as reported in Table 6. Within the no-status-quo groups, there are no significant effects on any car’s choice proportion for imagery instructions or trade-off difficulty. The two target alternatives (car A and car D) differ somewhat from one another in terms of their baseline choice proportion, but fourth alternative identity does not interact with trade-off difficulty, imagery, or status quo.

Tests of Primary Hypotheses

Because the status quo manipulation was implemented after phase 1, analyses of phase 1 versus phase 2 measures involve different statistical models and are reported separately below. Phase 1 measures are used to test the hypotheses that higher trade-off difficulty and imagery lead to increased negative emotion (Hypothesis 1) and increased response times (Hypothesis 3). The phase 2 emotion score is used to test the hypothesis that the presence of an avoidant option mitigates negative emotion (Hypothesis 2). Of course, subjects’ ultimate choices are used to test the hypothesis that trade-off difficulty and imagery instructions are associated with greater relative preference for a particular alternative when that alternative is associated with the status quo (Hypothesis 4).

Phase 1: Emotion and Response Times. Trade-off difficulty was expected to lead to more phase 1 negative emotion, and this emotion was expected to be exacerbated by imagery processing instructions (Hypothesis 1). As expected, there is a significant main effect of trade-off difficulty on phase 1 emotion, with the higher trade-off difficulty groups reporting that they feel more negative emotion \((F(1, 115) = 18.85, p < .0001; \bar{X}_{\text{high}} = 6.23 \text{ vs. } \bar{X}_{\text{low}} = 5.09).\) Imagery does not interact with trade-off difficulty \((F < 1);\) however, imagery instructions are associated with more negative phase 1 emotion \((F(1, 115) = 8.38, p < .005; \bar{X}_{\text{imagery}} = 6.05 \text{ vs. } \bar{X}_{\text{objective}} = 5.27).\) Thus, although the expected trade-off difficulty by imagery interaction is not found, imagery (vs. objective) processing instructions are associated with increased negative emotion across both the high and the low trade-off difficulty conditions (see Table 7 for means). This is consistent with the reasoning behind Hypothesis 1, be-

<table>
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<tr>
<th>Attribute values</th>
<th>Attribute 1</th>
<th>Attribute 2</th>
<th>Attribute 3</th>
<th>Attribute 4</th>
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<tr>
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<td>Car A fourth</td>
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<td>.10</td>
<td>.19</td>
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</table>

Note.—All subjects chose from among the above four cars. Car D and car A were each presented in the fourth, additional alternative, position for half the trials. This additional alternative was given a status quo label in the “Fourth car status quo” conditions. In the high trade-off difficulty conditions, attributes 1–4 were: Occupant Survival, Breakdown Frequency, Accident Avoidance, and Maintenance Costs. In the low trade-off difficulty conditions, the attributes were Styling, Interior Roominess, Acceleration, and Sound System.

*Alternatives representing avoidant choices.
NEGATIVELY EMOTION-LADEN DECISIONS

TABLE 7
DEPENDENT VARIABLES BY IMAGERY, TRADE-OFF DIFFICULTY, AND STATUS QUO MANIPULATIONS; EXPERIMENT 2

<table>
<thead>
<tr>
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<th>High Imagery</th>
<th>Low Imagery</th>
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</thead>
<tbody>
<tr>
<td></td>
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<td>Status quo</td>
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<td>Phase 2 emotion</td>
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<tr>
<td>Phase 2 time</td>
<td></td>
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<tr>
<td>Choice proportion</td>
<td>.19</td>
<td>.67</td>
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</tbody>
</table>

NOTE.—Emotion variables represent average scale values during decision processing; higher numbers indicate more negative emotion. Response times are in seconds. The fourth alternative is associated with the status quo in the relevant conditions.

cause both the high and low trade-off difficulty tasks could have involved some emotional potential that was exacerbated by imagery instructions. The only other significant effect for phase 1 emotion is an interpretable three-way interaction between trade-off difficulty, imagery, and fourth alternative identity (F(1, 115) = 4.66, p < .03).

Hypothesis 3 predicts that higher trade-off difficulty and imagery processing instructions will be associated with increased response times. Within phase 1, trade-off difficulty increases the extent of decision processing (F(1, 115) = 14.34, p < .0002; Xhigh = 47.47 vs. Xlow = 32.47), as expected. Consistent with the main effect of imagery on phase 1 emotion, imagery instructions lead to increased processing time (F(1, 115) = 7.00, p < .01; Ximagery = 44.96 vs. Xobjective = 35.11); again, there is no trade-off difficulty by imagery interaction (F < 1). There are no significant effects involving fourth alternative identity. Overall, across phase 1, there is clear evidence that both the trade-off difficulty and imagery manipulations cause decisions to be appraised as increasingly threatening, leading to increased self-reported negative emotion and longer response times.

Phase 2: Emotion. Hypothesis 2 is based on the argument that the presence of an avoidant option (here, presence of a status quo label for the fourth alternative) will weaken the link between other decision characteristics (trade-off difficulty and imagery) and negative emotion by encouraging more optimistic secondary appraisals. Subjects report less phase 2 negative emotion when their fourth alternative is associated with a status quo label than when it is not (F(1, 107) = 70.54, p < .0001; Xno status quo = 6.27 vs. Xthree quo = 3.71). Trade-off difficulty continues to have a main effect on negative emotion during phase 2 (F(1, 107) = 8.41, p < .005; Xhigh = 4.42 vs. Xlow = 3.67), although the imagery effect is no longer significant (F < 1; Ximagery = 5.14 vs. Xobjective = 4.86).

Finally, there is a significant interaction between trade-off difficulty and status quo (F(1, 107) = 3.95, p < .05). The simple main effect of trade-off difficulty on phase 2 emotion is significant when the fourth alternative does not have a status quo label (F(1, 107) = 11.54, p < .0001; Xhigh = 6.96 vs. Xlow = 5.53), but not when the fourth alternative has this label (F < 1; Xhigh = 3.83 vs. Xlow = 3.58). While the interaction of status quo and imagery is not significant (F(1, 107) = 1.29, p < .25), note that imagery instructions directionally increase phase 2 emotion in the no-status-quo groups (Ximagery = 6.57 vs. Xobjective = 5.96) but not in the status quo groups (Ximagery = 3.66 vs. Xobjective = 3.75). There are no additional effects. In summary, attaching the status quo label to the fourth alternative mitigates self-reported negative emotion across all trade-off difficulty and imagery conditions. Further, and consistent with Hypothesis 2, trade-off difficulty has a stronger statistical impact on phase 2 emotion in the no-status-quo conditions than in the status quo conditions, and the effects regarding imagery are directionally similar to those regarding trade-off difficulty. Effects on avoidant choice are considered next, and discussion of phase 2 response time is deferred until assessment of Hypothesis 8 (involving time as a potential mediator of choice avoidance), for ease of exposition.

Choice Measures. Hypothesis 4 predicts that the emotion manipulations will exacerbate subjects' tendencies to prefer the fourth alternative when that alternative is associated with the status quo. A logit analysis predicting choice of the fourth alternative shows main effects of trade-off difficulty (X^2(1) = 4.26, p < .04; Xhigh = .46 vs. Xlow = .30) and imagery (X^2(1) = 4.12, p < .04; Ximagery = .46 vs. Xobjective = .30). There is also a main effect of the status quo manipulation, indicating that the fourth alternative is generally more preferred when it is associated with a status quo label (X^2(1) = 14.06, p < .0002; Xno status quo = .21 vs. Xstatus quo = .56).

An interaction between trade-off difficulty and status quo availability is also found (X^2(1) = 7.32, p < .007).
the increase in preference for the fourth alternative when it is associated with a status quo label is stronger under high trade-off difficulty (\(X_{\text{high status quo}} = .19\) vs. \(X_{\text{status quo}} = .37\)) than under low trade-off difficulty (\(X_{\text{low status quo}} = .23\) vs. \(X_{\text{status quo}} = .37\)). In fact, when separate logit analyses are conducted for the high and low trade-off difficulty groups, there is a statistically significant status quo effect for the high trade-off difficulty group (\(\chi^2(1) = 15.13, p < .0001\)), but not for the low trade-off difficulty group (\(\chi^2 < 1\)).

An analogous interaction between imagery and status quo availability is also found (\(\chi^2(1) = 4.65, p < .03\)); separate logit analyses indicate that there is a significant status quo effect under imagery processing instructions (\(\chi^2(1) = 12.72, p < .0001; X_{\text{high status quo}} = .22\) vs. \(X_{\text{status quo}} = .37\)), but not under objective processing instructions (\(\chi^2(1) = 2.23, p > .14; X_{\text{high status quo}} = .20\) vs. \(X_{\text{status quo}} = .40\)). While there is no three-way interaction involving trade-off difficulty, imagery, and status quo availability (\(\chi^2 < 1\)), the interactions between trade-off difficulty and status quo and between imagery and status quo are consistent with the basic reasoning behind Hypothesis 4. There are no other significant effects.

### Mediation Hypotheses

The analyses presented below involve both phases of processing. First, phase 1 negative emotion is used as a mediator of the effects of trade-off difficulty on avoidant choice (Hypothesis 6) and on phase 1 response times (Hypothesis 7). Then, the relationship between phase 2 response time and avoidant choice is addressed (Hypothesis 8). Finally, the emotion and time data are reanalyzed by choice, primarily to illustrate the divergence of the in-process emotion results from the current experiment with the retrospective emotion results from experiment 1.

**Initial Negative Emotion as a Mediator of Coping Behavior.** Hypothesis 6 states that initial negative emotion will mediate the effects of trade-off difficulty and imagery on increased preference for the status quo alternative. This hypothesis is only relevant to experimental conditions where the fourth alternative is associated with the status quo, and therefore where one would expect decision makers to satisfy emotion-focused coping goals by choosing that alternative. That is, Hypothesis 6 is relevant to the status quo groups only, not the no-status-quo groups. Because it is dichotomous, the status quo choice variable was previously analyzed using a logit model. However, in order to assess the potential shared influence of phase 1 emotion and the manipulations, the choice variable was reanalyzed using a general linear model with hierarchical sums of squares. The analysis of avoidant choice within the status quo groups indicates significant effects for trade-off difficulty (\(F(1, 53) = 10.28, p < .002; \text{effect SS} = 2.15\)) and for imagery (\(F(1, 53) = 7.88, p < .007; \text{effect SS} = 1.65\)). Thus, there are two significant effects for which to assess mediation.

Within the status quo groups, phase 1 emotion is significantly influenced by both trade-off difficulty (\(F(1, 53) = 7.39, p < .009; X_{\text{high}} = 6.21\) vs. \(X_{\text{low}} = 5.14\)) and imagery (\(F(1, 53) = 9.03, p < .004; \bar{X}_{\text{imagery}} = 6.23\) vs. \(X_{\text{objective}} = 5.11\)), consistent with the above analysis of emotion in the overall data set and satisfying the first criterion for mediation. The second criterion for mediation is met, as higher phase 1 emotion is associated with significantly more status quo choice (\(F(1, 52) = 36.31, p < .0001\)). Finally, the third criterion for mediation is also satisfied. Once the emotion covariate is included in the model, the effect of trade-off difficulty becomes marginally significant (\(F(1, 52) = 3.43, p < .07\); effect SS = 0.54) and the effect of imagery becomes nonsignificant (\(F(1, 52) = 2.01, p < .16\); effect SS = 0.32). Thus, the increased tendency to choose the status quo alternative with higher trade-off difficulty and with imagery processing instructions is mediated by the effects of these manipulations on in-process negative emotion, and Hypothesis 6 is supported.

Hypothesis 7 links Hypotheses 1 and 3 by specifying that increased negative emotion will mediate increased response times. The analysis of phase 1 response times above indicates that there are main effects of trade-off difficulty (\(F(1, 115) = 14.34, p < .0002\); effect SS = 6.921.15) and imagery (\(F(1, 115) = 7.00, p < .01\); effect SS = 3.377.21) to be investigated for potential mediation by negative emotion. The trade-off difficulty and imagery effects on phase 1 negative emotion, reported earlier, satisfy the first criterion for mediation. The second criterion for mediation is satisfied by a significant effect of phase 1 negative emotion on response time (\(F(1, 114) = 49.37, p < .0001\)). The third criterion is also met, as the presence of this emotion covariate causes the main effect of trade-off difficulty to be substantially reduced (\(F(1, 114) = 3.54, p < .06\); effect SS = 1.385.72) and causes the main effect of imagery instructions to be eliminated (\(F(1, 114) = 1.93, p > .17\); effect SS = 754.29). Overall, Hypothesis 7 is supported and the trade-off difficulty and imagery manipulations appear to increase phase 1 response time through their influence on phase 1 negative emotion.

**Response Time as a Mediator of Choice Effects.** Hypothesis 8 states that increased response times will mediate the effects of decision characteristics on choice of the avoidant alternative. As discussed in the context of Hypothesis 6 above, Hypothesis 8 is only relevant to experimental conditions where subjects had the opportunity to cope with trade-off difficulty and imagery by choosing a status quo alternative. Hypothesis 8 is of interest primarily because of the potential alternative hypothesis that statusquo choice is motivated by a desire to minimize cognitive effort. Phase 2, rather than phase 1, response time provides the better test of this alternative hypothesis, because subjects were only aware of the potentially effort-saving status quo option during the second
phase of processing. Thus, phase 2 response time is considered below.

Before the relevant mediation analysis was conducted, phase 2 response times were analyzed across the entire data set. Higher trade-off difficulty is associated with longer phase 2 response times \((F(1, 107) = 11.88, p < .002; X_{\text{high}} = 15.33 \text{ vs. } X_{\text{low}} = 10.32)\), as are imagery instructions \((F(1, 107) = 5.13, p < .03; X_{\text{imagery}} = 14.54 \text{ vs. } X_{\text{objective}} = 11.15)\). Thus, the results for phase 2 response time mirror the results of phase 1 response time, again supporting Hypothesis 3. There is also a main effect of the status quo manipulation, with subjects deliberating for a longer time during phase 2 if the fourth alternative is associated with a status quo label \((F(1, 107) = 7.45, p < .007; X_{\text{vs status quo}} = 10.91 \text{ vs. } X_{\text{status quo}} = 14.90)\). This status quo effect is interesting in the context of the above finding that the status quo group felt significantly less phase 2 negative emotion. One possible explanation for these joint phase 2 effects is that subjects in the status quo group tended to engage in deliberation regarding the efficacy of the status quo label as a coping mechanism. Such deliberation may have decreased emotion as it increased response time. More generally, it may have taken subjects some time to exploit the emotion-focused coping benefits of the availability of a status quo option. There are no significant interactions for phase 2 response time.

As reported during the mediation analysis relevant to Hypothesis 6, the significant main effects of trade-off difficulty \((F(1, 53) = 10.28, p < .002; \text{effect SS } = 2.15)\) and imagery \((F(1, 53) = 7.88, p < .007; \text{effect SS } = 1.65)\) on avoidant choice in the status quo groups are potential candidates for mediation by phase 2 response time. The first criterion for mediation involves the effects of the trade-off difficulty and imagery manipulations on phase 2 time within the status quo groups. As across the entire data set, phase 2 response time is significantly increased with high trade-off difficulty \((F(1, 53) = 8.46, p < .005; X_{\text{high}} = 18.35 \text{ vs. } X_{\text{low}} = 11.34)\) and with imagery processing instructions \((F(1, 53) = 4.24, p < .04; X_{\text{imagery}} = 17.17 \text{ vs. } X_{\text{objective}} = 12.56)\). Thus, the first criterion for mediation is met. The second criterion for mediation is also met, because the effect of the phase 2 time covariate on choice of the status quo alternative is significant \((F(1, 52) = 73.36, p < .0001)\); choice of the status quo alternative tends to follow longer phase 2 response times. Finally, the third criterion is supported. The effect of trade-off difficulty on choice of the avoidant alternative is much weaker in the presence of the phase 2 time covariate \((F(1, 52) = 1.99, p > .16; \text{effect SS } = 0.23)\), as is the effect of imagery \((F(1, 52) = 3.46, p < .07; \text{effect SS } = 0.40)\). Thus, increased phase 2 response time mediates the effects of the manipulations on avoidant choice.

More generally, subjects who ultimately choose the status quo alternative take relatively longer to do so, ruling out a simple desire to minimize cognitive effort as a theoretical explanation of the status quo bias observed in experiment 2.3

**Emotion and Response Time by Status Quo Choice.** Unlike experiment 1, experiment 2 involves no hypotheses regarding avoidant choice as a mediator variable. However, so that the reader can directly compare the retrospective emotion results from experiment 1 with the in-process emotion results from experiment 2, avoidant choice is considered as an independent variable in this section. In particular, the emotion and time variables are reanalyzed in a model considering only those conditions in which the fourth alternative was given a status quo label and including a factor indicating final choice. As the means in Table 8 indicate, subjects who ultimately choose the status quo alternative report feeling more emotion during phase 1 \((F(1, 45) = 37.86, p < .0001; X_{\text{chosen}} = 6.59 \text{ vs. } X_{\text{not chosen}} = 4.54)\) and during phase 2 \((F(1, 45) = 6.72, p < .01; X_{\text{chosen}} = 4.19 \text{ vs. } X_{\text{not chosen}} = 3.10)\). They also deliberate for a longer time during phase 1 \((F(1, 45) = 28.01, p < .0001; X_{\text{chosen}} = 51.45 \text{ vs. } X_{\text{not chosen}} = 27.98)\) and phase 2 \((F(1, 45) = 68.66, p < .0001; X_{\text{chosen}} = 21.54 \text{ vs. } X_{\text{not chosen}} = 6.55)\). These main effects of avoidant choice substantially account for the mean patterns; the only other effect that continues to reach significance at the .05 level once avoidant choice is introduced to the model is the main effect of imagery on phase 1 time \((F(1, 45) = 8.08, p < .007; X_{\text{imagery}} = 49.71; X_{\text{objective}} = 32.13)\).

Note that, even within the second phase of processing, subjects know that a status quo alternative is available to them, avoidant choice tends to follow increased negative emotion and processing time. In order to interpret these results, recall that choosing the status quo alternative required switching away from the alternative that was tentatively chosen during phase 1 of processing. Subjects within the status quo groups who were more satisfied with their tentative choice from phase 1 may have felt less negative emotion throughout both phases of processing, may have chosen faster, and may have tended not to switch from their tentative choice to the status quo alternative. Overall, these mean patterns demonstrate substantial divergence from the analysis of retrospective negative emotion in experiment 1, which demonstrated that emotion decreased after avoidant choice. This divergence is considered in the general discussion section.

**Discussion of Experiment 2**

Experiment 2 provides support for the four primary hypotheses developed in the conceptual framework. First,
the main effects of both trade-off difficulty and imagery increase negative emotion during phase 1 of processing; this result supports Hypothesis 1, which predicted that the manipulations would alter primary appraisals of goal content, generating negative emotion. Considering phase 2 emotion, where the status quo manipulation is relevant, we find that the presence of a status quo alternative lowers negative emotion across all conditions. Further, there is an interaction between trade-off difficulty and status quo, with the effect of higher trade-off difficulty on negative emotion weakening when a status quo option is present. The analogous interaction between status quo and imagery is not significant, although the results are directionally similar. Thus, Hypothesis 2, which predicts that the availability of an avoidant option will operate through secondary appraisal to mitigate primary appraisals of threat, receives substantial support. Trade-off difficulty and imagery lead to increased response times during both phases of processing, supporting Hypothesis 3 regarding problem-focused coping. Finally, both manipulations lead to increased preference for a status quo alternative, supporting Hypothesis 4 regarding emotion-focused coping through avoidant choice.

Note that two very different manipulations of task characteristics, namely, trade-off difficulty and imagery instructions, had very similar effects on emotion, response times, and choice in experiment 2. The manipulation of imagery processing instructions is independent of the decision matrix; thus, the effects of this manipulation seem less open to alternative interpretations involving cognitive factors such as the difficulty of comparing alternatives to one another. Contrary to expectations, imagery instructions did not interact with trade-off difficulty. However, the main effect of imagery instructions on negative emotion and coping behavior is consistent with the general reasoning presented during hypothesis development, given that both high and low trade-off difficulty scenarios likely contained some potential for negative emotion that was exacerbated by imagery processing instructions.

The overall effect of the status quo manipulation was relatively weak, failing to gain significance in simple effects tests involving either low trade-off difficulty or objective processing instructions. Note, however, that substantial deliberation was undertaken in the absence of knowledge regarding later availability of a status quo option. This was deemed necessary in order to measure (phase 1) in-process emotion to assess whether initial emotional reactions to trade-off difficulty and imagery would mediate later avoidant choice. It seems very likely that the potential power of the status quo manipulation was weakened by this design. For instance, some subjects in the status quo group likely considered their tentatively chosen alternative from phase 1, rather than the fourth (previously chosen) car, as their referent during phase 2 of processing.

Experiment 2 also provides support for three mediation hypotheses. First, phase 1 negative emotion mediates the trade-off difficulty and imagery effects on avoidant choice (Hypothesis 6) and on response time (Hypothesis 7). Thus, as expected, the pathway through which the manipulations increased these proposed coping behaviors appears to be through an increase in negative emotion. Finally, increased phase 2 response times mediate effects on avoidant choice (Hypothesis 8), casting doubt on the applicability of an effort-minimization explanation to the status quo bias found in the current data set. The finding that both initial negative emotion and response times mediate avoidant choice is unsurprising given that phase 1 emotion is significantly correlated with both phase 1 response time ($r = .53$, $p < .0001$, $n = 123$) and phase 2 response time ($r = .45$, $p < .0001$, $n = 123$). It is impossible to determine the direction of any causal relationship linking phase 1 emotion with phase 2 response time, as the two variables are measured simultaneously. We can, however, conclude that the emotion manipulations generated negative emotion and increased processing time, and that the subjects for whom more negative emotion and longer response times were generated

### Table 8

<table>
<thead>
<tr>
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<th>High imagery</th>
<th>Low imagery</th>
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<tr>
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Note. —Emotion variables represent average scale values during decision processing; higher numbers indicate more negative emotion. Response times are in seconds.
were more likely to choose the status quo alternative. Thus, overall, experiment 2 establishes a pathway from the goal content of a decision, to negative emotion and increased processing times, to avoidant choice.

**DISCUSSION**

**Summary**

Both experiments demonstrate that trade-off difficulty increases negative emotion in the absence of an avoidant option (e.g., a status quo option). Further, both experiments demonstrate that choice of a status quo option increases with trade-off difficulty. Experiment 1 further demonstrates that decision makers are more likely to choose an asymmetrically dominating alternative and to prolong search under increased trade-off difficulty. Although all three of these avoidant option phenomena have been documented in previous research, they have not been explicitly linked to emotional experience. Experiment 2 demonstrates that increased negative emotion and status quo choice follow from an imagery processing instruction manipulation intended to make decision consequences more vivid. Finally, experiment 2 demonstrates that the trade-off difficulty and imagery manipulations also increase processing time.

Mediation analyses indicate that avoidant option choice both follows higher levels of initial negative emotion (in experiment 2) and precedes lower levels of retrospective negative emotion (in experiment 1). In experiment 2, mediation analyses involving response time also help to rule out the minimization of cognitive effort as an alternative explanation for increased preference for the status quo. Increases in response time are mediated by negative emotion, and these increases in response time also mediate later avoidant choice. Note the somewhat paradoxical implication that individuals show more decision bias (e.g., increased relative preference for an alternative arbitrarily given a status quo label) in seemingly more important decision situations where these same individuals work harder.

The theoretical framework developed in this article has implications for understanding the goals that individuals attempt to satisfy in choice. It is clear that decision makers often balance effort-minimization goals and accuracy-maximization goals when deciding how to decide (see, e.g., Payne et al. [1993]; see also Shugan [1980] on costs of thinking). The present findings suggest that choice may also be influenced by a concern with minimizing negative emotion. Of course, there is much to be learned regarding how decision makers balance accuracy, effort, and coping goals in potentially emotion-laden decision situations. For instance, it is unclear how decision makers would react to negative emotion in a situation where engaging in problem-focused coping by identifying the most normatively accurate alternative and engaging in emotion-focused coping by choosing the status quo were at odds (e.g., if the status quo option had attribute values making it clearly inferior to others). Subjects feeling more emotion seem to avoid the most difficult aspects of choice by choosing the status quo alternative, but they do not appear to completely evade their decision-making responsibilities, as response time consistently increases with negative emotion in experiment 2. Similarly, in an investigation of decision-processing patterns, Luce et al. (1997a) find that subjects in more emotion-laden environments work harder, a result attributed to problem-focused coping motivations, but that these same subjects also implement less normatively accurate (i.e., more simplified) decision rules that avoid attribute trade-offs, a result attributed to emotion-focused coping motivations.

**In-Process versus Final Emotion: Divergent Patterns**

Experiments 1 and 2 involve very different patterns of results for negative emotion, presumably because the experiments sample negative emotion at different stages in the decision process. The joint results of the two experiments support the general notion that experienced emotion and coping behaviors comprise a dynamic process with bidirectional causality (Lazarus 1991). In experiment 1, where final, retrospective measures of negative emotion were taken, decision makers who had chosen the avoidant option indicated less negative emotion, presumably because their choice had facilitated coping. In experiment 2, where emotion was measured throughout processing, but before choice, decision makers who ultimately chose the avoidant option indicated more negative emotion, which presumably motivated their avoidant choices. This association of increased negative emotion with (later) avoidant choice continues to be observed during phase 2 processing, where decision makers in the relevant condition are aware that an avoidant option is available to them. Of course, it is impossible to know exactly when subjects committed to choosing the status quo car, and therefore when one would expect the full emotion-mitigating effects of this choice to appear. Future work should address, within the same decision situation, the relationships between in-process and final negative emotion. Note that an attempt at measuring retrospective levels of emotion for experiment 2 failed to show the expected divergence between in-process and final measures, perhaps because subjects either anchored on or felt compelled to report emotion consistent with their earlier in-process measures (see n. 2).

**Validity of Emotion Measures**

A major obstacle to the type of work presented here is that negative emotion is difficult to manipulate and measure within a controlled, laboratory setting. Clearly, subjects in experiments 1 and 2 were not threatened with the actual, material consequences that follow from real-world automobile purchase decisions. However, these subjects may have felt real threats to their reputation or self-esteem.
as decision makers, often a nontrivial component of threat in real-world as well as laboratory decision situations (Janis and Mann 1977; Tetlock 1991). Regardless of the level of threat to self-esteem, subjects seem likely to have responded to emotion questions, at least in part, by accessing naive or lay theories of emotion (e.g., "I think I would feel better if I stuck with my previous choice").

Of course, lay theories of emotion would have to be extremely sophisticated in order to explain the overall patterns from experiments 1 and 2; for instance, note that subjects' reactions to low versus high trade-off difficulty environments were very different, even though the trade-off difficulty manipulation was accomplished between subjects. Further, note that the between-subjects imagery processing instructions in experiment 2 influenced reported emotion while holding constant the decision matrix. Future work should directly address subjects' lay theories of emotion and should investigate the degree to which these theories are predictive of real-world decision behavior in emotion-laden settings. Future work should also address subjects' levels of insight into their own coping behaviors; for instance, it is unclear whether subjects in the current study consciously intended to minimize (hypothetical or real) negative emotion through their avoidant choices.

Future work should also address the discriminant validity of self-reported emotion measures. In particular, future work is needed to distinguish between concepts such as threat/emotion, decision conflict, and decision complexity/cognitive difficulty. Such concepts may be difficult for subjects to distinguish experientially, and therefore nearly impossible for subjects to directly discriminate on rating scales. For instance, it is difficult to determine whether subjects were reacting to the particular goal content of their decisions through primary appraisals, or whether subjects were simply reacting to decision conflict. However, conflict is most often defined in terms of competing response tendencies (see, e.g., Miller 1944), or, in a multiattribute decision paradigm, by negative correlation among attribute values (see, e.g., Bettman et al. 1993). The emotion manipulations used in this article held numerical attribute values (and, for experiment 1, attribute importance weights) constant but still affected reported negative emotion. Also, note that both the trade-off difficulty and imagery manipulations have similar effects on avoidant choice, even though the imagery manipulation is totally independent of the decision alternatives. Finally, note that subjects were asked to report the emotion they were feeling during experiment 2; thus, scale ratings from that study should, at least, reflect mental states that subjects closely associate with emotional experience. Thus, it seems that the "conflict" construct addressed in the social psychology literature (see, e.g., Festinger 1957) may be multidimensional, capturing factors including both conflict between attribute values and aspects of decision content. Future work should more directly address the antecedents and consequences of cognitive versus emotional aspects of conflict.

Note, finally, that even the highest-emotion cells in experiments 1 and 2 tended to be associated with reported emotion near the midpoint of subjects' emotion scales. Emotion experienced in reaction to real-world decision tasks is likely to cover a much wider range than that observed in these experiments, and coping behavior clearly may vary over that range. While there are obvious ethical barriers to manipulating negative emotion or stress, an important goal for future emotion research is to increase the impact and realism of laboratory decision-making tasks in order to better study reactions to negative emotion. Future work should also address additional sources of task-related emotion, both within and outside laboratory research settings. Such sources may include low alternative quality and high personal accountability for decision outcomes; both of these were held constant in the current research.

Implications for Causes of Decision Bias

The choice patterns of experiments 1 and 2 are related to research investigating causes of the status quo bias. Proposed causes for the bias can be summarized into three general types (Ritov and Baron 1992; Samuelson and Zeckhauser 1988). First, a preference for the status quo would follow from simple motivations to conserve cognitive effort, because the decision to maintain the status quo can often be made particularly quickly and easily. The status quo bias reported in this article almost certainly followed from factors other than the desire to minimize cognitive effort, as the tendency to choose the status quo was mediated by increased decision time in experiment 2. However, the desire to minimize effort is almost certainly relevant to other experimental demonstrations of the status quo bias, particularly those associated with less emotion-laden decision contexts.

A second explanation for the status quo effect involves cognitive misperceptions, specifically, the tendency for losses from one's reference point to loom larger than equivalent gains (Kahneman and Tversky 1979). If a status quo alternative is accepted as one's reference point, loss aversion may lead to increased preference for that alternative, as the losses that must be accepted in order to obtain other alternatives will tend to outweigh the gains provided by these other alternatives. The current results could potentially follow from decision makers' concerns about minimizing the emotional costs of accepting losses as these potential losses increase in either magnitude (with higher trade-off difficulty) or salience (with imagery instructions). However, for experiment 2, it is doubtful that the status quo alternative was used as a referent against which other attribute values were directly compared, as the status quo alternative was presented after considerable decision processing had been undertaken. The above experiments may, however, extend our understanding of loss aversion by demonstrating that the construct is closely linked to negative emotion. For example, note that attributes were assigned to trade-off difficulty...
If loss aversion is associated with negative emotion, the third explanation of the status quo bias is quite similar to the second. Specifically, the bias may result from a psychological commitment to the status quo situation, perhaps because deviations from the status quo are associated with increased levels of regret (after a decision) or dissonance (both during and after a decision: Baron 1992; Ritov and Baron 1992; Samuelson and Zeckhauser 1988). Kahneman and Miller’s (1986) norm theory predicts that outcomes arising from subjectively less normal events tend to elicit more extreme emotional reactions, and that actions will generally seem less normal than inactions. Similarly, the status quo bias has been associated with the desire to cope with ambiguity, even at the cost of purchasing an inferior status quo alternative over a superior later entrant into the market (Muthukrishnan 1995).

To the degree that ambiguity may elicit negative emotion (e.g., worry, anticipated regret), this ambiguity explanation of the status quo effect is consistent with the findings of experiments 1 and 2.

Implications for Consumer Research

Although it is clear that negative moods influence consumer decisions (Gardner 1985; Isen 1984; Kahn and Isen 1993), little previous work has addressed effects of more task-related emotion on consumer choice. However, the presence of task-related emotion may often be easier for a marketer to predict and control than is the presence of ambient emotion. Marketers may be able to make some predictions regarding the average level of threat, and therefore the likely salience of coping goals, by analyzing the goal content of various purchase environments. For instance, some product classes (e.g., life insurance, automobile purchases) will consistently involve trade-offs between attributes linked to highly valued goals (e.g., financial security, physical safety), and consumer decisions within these classes may be reliably associated with negative emotion. Coping goals may influence choice patterns in these product classes. For example, one of the factors underlying the pioneering advantage (Carpenter and Nakamoto 1989) may be the tendency to cope with emotion-laden consumer decisions by purchasing an item that is viewed as the default for a product class. If so, the pioneering advantage may increase in magnitude for more emotion-laden product categories (e.g., favoring the purchase of initial branded pharmaceuticals over generic equivalents).

More generally, a conceptual framework developed by applying Lazarus’s emotion work to consumer decision situations may provide a theoretical basis for revisiting the concept of perceived risk in consumer research (see Bettman [1973] on the difficulties with the concept of perceived risk). The perceived risk components of consequences and uncertainty overlap with Lazarus’s concepts of primary and secondary appraisal. Thus, subjects’ reported emotion levels may prove to be useful criterion measures of perceived risk. Further, many proposed risk reduction behaviors overlap with the concepts of emotion-focused coping (e.g., rushing through or postponing a decision, exhibiting brand loyalty, and developing simplified decision rules), while others overlap with the concept of problem-focused coping (e.g., increasing information search and relying on experts). Thus, the current framework may help to remedy the lack of a comprehensive theory about or a criterion measure of perceived risk.

APPENDIX

Pretest for Trade-Off Difficulty Manipulations

The attribute-level manipulations of trade-off difficulty used in experiments 1 and 2 were based on a pretest involving assessments of loss aversion and importance for 15 automobile attributes. Research clearly indicates that decision makers’ reactions to losses tend to be more severe than decision makers’ reactions to gains of equivalent magnitude (Kahneman and Tversky 1979). It further seems that some attributes, such as safety, are associated with higher levels of loss aversion than are other attributes, such as monetary costs (Tversky and Kahneman 1991; see Shapira 1981 for related examples involving job choice attributes; and see Hardie, Johnson, and Fader 1993 for a comparison of the levels of loss aversion associated with price vs. quality). It should be more difficult to make trade-offs among attributes associated with higher degrees of loss aversion, because trade-offs by definition require that losses be accepted on at least one of the attributes being traded off. Thus, the trade-off difficulty manipulations in experiments 1 and 2 were based in part on measures of attribute-level loss aversion.

Attribute importance is also of interest. Importance and loss aversion are related, but not identical, concepts. For instance, in an early pretest, subjects considering a hypothetical automobile purchase reported that cost was more important than safety, but that safety was associated with more loss aversion. Thus, attribute importance weights were also measured and considered in developing trade-off difficulty manipulations.

Pretest Methods

Subjects and procedure. Twenty-eight subjects participating as part of a course requirement completed the pretest in small groups. The paper-and-pencil pretest instrument contained multiple measures of loss aversion and of importance, for each of 15 attributes relevant to an automobile purchase decision (the attributes are listed in Table A1). Four versions of the questionnaire were developed by crossing two task orders with two orders of attributes within each task, and seven subjects completed each version.
Measures. Three different measures of importance, all well accepted in the decision analysis literature (see Von Winterfeldt and Edwards 1986), were collected. Measures of importance are sometimes found to be dependent on subjects’ understanding of the relevant attribute’s range (Fischer 1995). Thus, each attribute’s range (i.e., each attribute’s highest and lowest possible value) was specified in exactly the same manner both during the pretest and during experiments 1 and 2. This specification of attribute ranges was intended to ensure that all subjects were operating under the same assumptions regarding the attributes in general and regarding specific values of the attributes (e.g., what “average” or “a 20 percent improvement over average” meant for each attribute). Attribute descriptions and ranges were from Consumer Reports magazine and similar sources, and they were therefore reasonably realistic. Three measures of loss aversion, adapted from the literature on loss aversion, were also collected for each attribute. The specific measurement tasks are reviewed briefly next. Note that some pretest measures focus subjects on average, or middle, attribute values, while others focus subjects on the entire attribute range.

The first importance measure, *pricing improvement*, involves placing a dollar value on changes from the average value of an attribute to a new value reflecting a 20 percent improvement (over average) for that attribute. The *swing improvement* measure asks subjects to first imagine that they possess an alternative with the worst possible value for each attribute. Subjects are then asked to decide which attribute they would most want to change from its worst to its best value and to indicate so by assigning that attribute range a value of 100. Subjects are then asked to rate the value of changing each of the remaining 14 attributes from worst to best by assigning each attribute range a point value relative to the 100 points assigned to the initial attribute. Finally, for the *ratio weights* method, subjects are given a list of all 15 attributes and asked to first assign a value of 100 to the attribute that would be most important to them, were they choosing a car to purchase. Then, subjects are asked to assign values to the remaining attributes relative to that value of 100.

Three measures of loss aversion were also collected. First, a *pricing decrement* measure was collected. For this task, subjects are asked to imagine they possess a car characterized by average values on all attributes and to report the amount of money they would require in return for accepting a 20 percent decrease on each attribute. Given that this measure involves explicit acceptance of a loss, attributes that differ from one another in terms of loss aversion should show differences on pricing decrement, even if the earlier pricing improvement measure is held constant.

A variation on the swing improvement measure, *swing decrement*, was also developed. For this task, subjects are asked to imagine that they possess an alternative characterized by the best value for all attributes and to rate their reluctance to relinquish the best value for the worst value for each attribute. The attribute that they are least reluctant to change is given a value of 10, and attributes for which they are more reluctant to accept the worst value are assigned higher point values. Because this measure involves explicit consideration of losses, whereas the swing improvement measure described above does not, attri-

<table>
<thead>
<tr>
<th>Importance measures</th>
<th>Swing improvement</th>
<th>Pricing improvement</th>
<th>Swing decrement</th>
<th>Pricing decrement</th>
<th>Risk attitude</th>
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<tr>
<td>Ratio weights</td>
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<td>5.06</td>
<td>5.15</td>
<td>5.61</td>
<td>5.07</td>
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<td>Breakdown frequency</td>
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<td>4.90</td>
<td>5.19</td>
<td>5.17</td>
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<td>5.02</td>
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<td>4.30</td>
<td>3.95</td>
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<tr>
<td>Accident avoidance</td>
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<td>4.91</td>
<td>4.91</td>
<td>4.88</td>
<td>4.95</td>
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<tr>
<td>Maintenance costs</td>
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<td>4.81</td>
<td>4.82</td>
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<td>4.53</td>
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<td>4.03</td>
<td>3.96</td>
<td>3.95</td>
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<tr>
<td>Interior roominess</td>
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<td>3.84</td>
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<td>Acceleration</td>
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<td>3.67</td>
<td>3.53</td>
<td>3.49</td>
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<td>Sound system</td>
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<td>3.70</td>
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<td>4.02</td>
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<td>3.19</td>
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<td>3.24</td>
<td>3.02</td>
<td>3.19</td>
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</table>

Note.—High trade-off difficulty attributes are marked with an “H,” and low trade-off difficulty attributes are marked with an “L.” All measures are standardized by subject, such that they have a mean of 4 and a standard deviation of 1.

*Attributes used for the trade-off difficulty manipulation in experiment 1.

*Attributes used for the trade-off difficulty manipulation in experiment 2.
buttes varying substantially in terms of loss aversion should show significant differences on the swing decrement measure, even if the value of swing improvement is held constant.

Finally, the third measure of loss aversion, risk attitude, involves choices between a sure thing and a gamble involving even chances of a gain or a loss. Specifically, risk attitude is assessed by asking subjects to complete questions of the following form:

"I am indifferent between Car A with average breakdown frequency and Car B with a:
* 50% chance of a 20% increase in breakdown frequency
* 50% chance of a ______% decrease in breakdown frequency."

Thus, subjects were asked to indicate the magnitude of a 50 percent probable better-than-average level of breakdown frequency they would require in order to balance the 50 percent chance of a 20 percent worse-than-average level of breakdown frequency. Larger values for such responses reflect greater loss aversion (Tversky and Kahneman 1991).

Pretest Results

The purpose of this study is to investigate attribute, rather than subject, characteristics. Thus, subjects' data were standardized so that each subject's responses on each variable possessed a mean of 4 and a standard deviation of 1 (see Table A1). The trade-off difficulty manipulation for experiment 2 uses the attributes noted in the table; manipulation checks of dispersion in attribute importance weights and of the emotional potential of each attribute are reported for that study.

Experiment 1 contains only manipulation checks of attribute importance weights, and therefore the validity of this emotion manipulation rests more heavily on the pretest measures. For this experiment, the pretest data were used to identify pairs of attributes with the following qualities: (1) attributes in each pair do not significantly differ from one another in terms of importance, and (2) attributes in each pair do significantly differ from each other in terms of loss aversion. Thus, subjects in the high trade-off difficulty conditions for experiment 1 considered the Occupant Survival and Pollution Caused attributes, while subjects in the low trade-off difficulty conditions considered the Routine Handling and Sound System attributes. Multivariate tests on the three loss-aversion measures indicate that Occupant Survival is associated with more average loss aversion than is Routine Handling (F(3, 46) = 56.62, p < .0001), likewise. Pollution Caused is associated with more loss aversion than Sound System (F(3, 46) = 17.17, p < .001). However, multivariate tests indicate no differences across the three importance measures for either the first pair of attributes (F < 1) or the second pair (F(3, 46) = 1.70, NS).

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