COMPROMISE AND ATTRACTION EFFECTS
UNDER PREVENTION AND PROMOTION FOCUS

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ABSTRACT

Compromise and Attraction Effects under Prevention and Promotion Focus

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There is ample evidence that consumer preferences are context dependent. In particular, they are sensitive to the characteristics of the alternatives present in the choice set. The behavioral decision-making literature refers to the changes in share when another alternative is added to the choice set as "context effects". Two types of context effects, "attraction" and "compromise", are particularly important and have received considerable attention from decision researchers over the years.

The attraction effect refers to the finding that adding an alternative which is inferior to another alternative in the choice set increases the share of the relatively superior alternative. The compromise effect, on the other hand, is observed when an alternative becomes more attractive when it is presented as a middle option in a choice set than when it is presented as an extreme option.

Adopting a motivational approach to consumer decision-making, and building on regulatory focus theory, the present thesis hypothesizes that 1) consumers' susceptibility to the compromise effect is greater when the prevention system of self-regulation is activated than when the promotion system is activated; 2) consumers' susceptibility to the attraction effect is greater under promotion focus than under prevention focus; 3) consumers' need to justify their choices will increase their sensitivity to the compromise effect under prevention focus but will decrease it under promotion focus; 4) consumers'

need to justify their choices will increase their sensitivity to the attraction effect under promotion focus but will decrease it under prevention focus; and 5) products that are associated with a prevention concern will be more attractive when positioned as compromise options than as asymmetrically dominant options, whereas the opposite is true for products that are associated with a promotion concern.

Three experimental studies are conducted to test these hypotheses. The data are analyzed using hierarchical linear and non-linear modeling techniques. The results provide full support for hypotheses 1, 3, 4, and 5, and partial support for hypothesis 2. Theoretical and practical implications of these findings are discussed along with the study's limitations, and considerations for future research.

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Chapter 1: Introduction

Understanding how consumers choose among various alternatives is undoubtedly one of the most important challenges faced by marketers. Classical choice theory, based on the principle of value maximization, posits that each alternative in a choice set has a subjective value or utility and that the consumer chooses the alternative with the highest utility (Luce 1959). This perspective implies that consumer preferences between alternatives are independent of the choice context. Recent research in consumer behavior and behavioral decision theory, however, suggests that, in many cases, consumers do not have clear and stable preferences. Instead, preferences are constructed as needed and are greatly influenced by the characteristics of the alternatives present in the choice set (see Bettman, Luce and Payne 1998 for a review). In particular, preferences often reverse as a result of adding other options to the choice set.

Changes in share when another option is added to the choice set are generally referred to as context effects. Two types of context effects, attraction (e.g., Huber, Payne and Puto 1982) and compromise (Simonson 1989), constitute the focus of the present investigation. The attraction effect is observed when adding an alternative which is inferior to another alternative in the choice set increases the share of the relatively superior alternative, whereas the compromise effect is observed when an alternative becomes more attractive when it is presented as a middle option in a choice set than when it is presented as an extreme option.

Over the years, context effects have received considerable attention from marketing scholars (e.g., Chernev 2004b; Huber, Payne and Puto 1982; Huber and Puto

1983; Kivetz, Netzer, and Srinivasan 2004; Mishra, Umesh and Stem 1993; Ratneshwar, Shocker and Stewart 1987; Simonson 1989; Simonson and Tversky 1992), which is not surprising considering the extensive theoretical and practical implications associated with such effects. Theoretically, context effects point to several violations of some basic assumptions underlying classical, utility-based, choice models, while practically, they have major repercussions on various issues ranging from the design and communication of a suitable positioning strategy to deciding on new product introduction and product deletion (more on these implications is found later in the paper).

In trying to grasp the mechanisms leading to these effects, a number of explanations have been offered in the literature. The proposed explanations, however, have been predominantly cognitive in focus, which has limited the scope of our comprehension of these phenomena. While useful at uncovering certain decision mechanisms underlying context effects, an exclusively cognitive analysis fails to capture other critical dimensions. Clearly, consumer decision-making entails more than just cognitive processes. It is argued in this thesis that our understanding of context effects in particular and of decision-making in general can be greatly enhanced by broadening our research perspective to include the influence of motivational factors. Consumers' decisions after all "*do not take place in a motivational vacuum*" (Pham and Higgins, in press, p. 2). On the contrary, these decisions occur in the context of goals, needs, wants, and motives which are likely to influence not only the decision outcomes but also the decision processes.

Adopting a motivational perspective, this thesis examines how consumers' self-regulatory orientations influence their sensitivities to context effects. Building on

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regulatory focus theory (Higgins 1997), I propose that consumers' susceptibility to the compromise effect is greater when their prevention system of self-regulation is activated than when their promotion system is activated. In contrast, their susceptibility to the attraction effect is highest under promotion self-regulation.

The remainder of the thesis is organized as follows: In chapter 2, I focus my discussion on describing and explaining the attraction and compromise effects in choice. In chapter 3, I provide a thorough review of the existing literature on regulatory focus theory. Integrating both research streams, I, then, describe my research hypotheses in chapter 4. Chapters 5, 6, 7, and 8 are dedicated to empirical tests of the research hypotheses through a series of three experimental studies and a pilot study. In the final chapter, I discuss my results and their implications, as well as some limitations and considerations for future research.

Chapter 2: Context Effects in Choice

2.1 Description of the Attraction Effect

The attraction effect refers to the general finding that adding an alternative which is inferior to another alternative in the choice set increases the share of the relatively superior alternative. This effect is best illustrated by a diagram representation such as Figure 1.
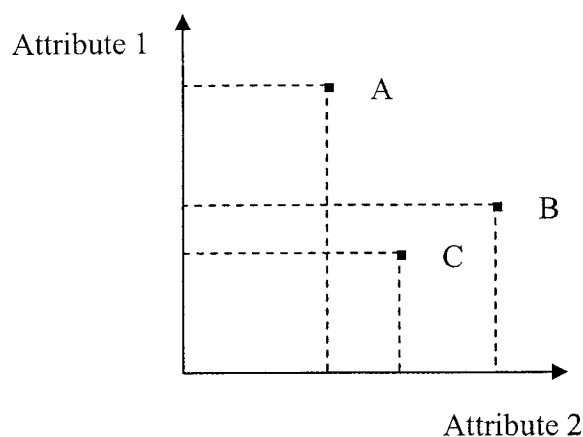
Figure 1: Attraction Effect

Consider a core choice set composed of brand A and brand B, with neither brand totally dominating the other, in a two-dimensional representation of the attributes possessed by these brands. Huber, Payne and Puto (1982) examined the effects of introducing an asymmetrically dominated brand C to the choice set. Notice that brand C is dominated by brand B but not by brand A. That is, brand B scores higher than brand C on both attributes whereas brand A does not achieve that type of dominance. Huber et al. (1982) found that brand C (termed a decoy) was unlikely to be chosen. However, adding

brand C to the choice set shifted choice preferences in favor of the dominating brand B as compared to the condition where only brands A and B are present. Similar demonstrations of the attraction effect have been replicated in later studies (e.g., Huber and Puto 1983; Mishra, Umesh and Stem 1993; Ratneshwar, Shocker and Stewart 1987; Simonson 1989; Simonson and Tversky 1992). Simonson and Tversky (1992), for instance, presented one group of respondents with a choice between two microwave ovens; an Emerson oven with a regular price of $109.99, and a larger Panasonic oven regularly priced at $179.99. Both ovens were on sale for 35% off their regular price. A second group of respondents chose between the Emerson oven, the Panasonic oven, and a second Panasonic oven that was on sale for only 10% off the regular price. As expected, the addition of the relatively less attractive Panasonic oven significantly increased the share of the first Panasonic oven (from 43% to 60%) at the expense of the Emerson oven.

In a cross-category extension of the attraction effect, Simonson and Tversky (1992) offered one group of respondents the choice between six dollars in cash and an elegant Cross pen. A second group of respondents chose between the six dollars, the elegant Cross pen, and a second less attractive pen. Here again, the addition of the relatively less attractive pen resulted in an increase in the share of the Cross pen from 36% to 46% at the expense of the six dollars in cash.

Simonson (1999) also reports the following non-experimental, "real-life" occurrence of the attraction effect. Williams-Sonoma, a retailer in San Francisco, used to sell one home bread maker for $275. Later, it introduced a second home bread maker with similar features except that it was larger and priced 50% higher than the original bread maker. Consistent with the attraction effect, the second more expensive bread

maker did not sell well but the sales of the original less expensive bread maker almost

doubled.

2.2 Description of the Compromise Effect

The compromise effect refers to the finding that an alternative becomes more

attractive when it is presented as a middle option in a choice set than when it is presented

as an extreme option. To illustrate, consider a core choice set consisting of brand B and

brand C, described on two attributes as in Figure 2a. Past research (e.g., Simonson 1989;

Simonson and Tversky 1992) observed that adding a third brand D to the choice set

increased the share of the middle option (brand C) relative to brand B. Note that, unlike

in the case of the attraction effect, brand D is not inferior to brand C in any obvious way

(while C scores higher on attribute 1, D is superior on attribute 2). The compromise effect

also predicts that adding brand A to the core set increases the share of brand B relative to

brand C.
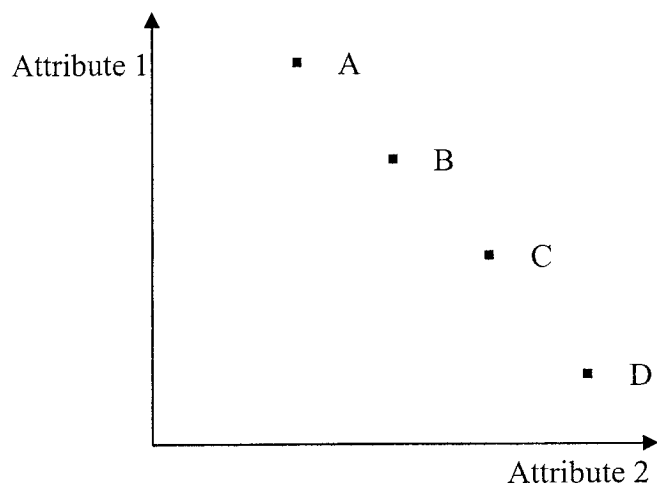
Figure 2a: Illustration of the Compromise Effect

For example, Simonson and Tversky (1992) offered one group of consumers a choice between two models of 35 mm cameras: a Minolta X-370, priced at $169.99, and a higher quality Minolta Maxxum 3000i, priced at $239.99. Both cameras were equally chosen (50% share for each). A second group of respondents were presented with the same two cameras plus a third (highest quality) model: a Minolta Maxxum 7000i, priced at $469.99. The addition of the third model resulted in an increase in the share of the middle option (Minolta Maxxum 3000i) from 50% to 57%, even though the added option was selected by 21% of the respondents.

An alternative way of illustrating the compromise effect (see Figure 2b) consists of having groups of consumers choose from different sets composed of brands {A, B, C}, {B, C, D}, or {C, D, E}, such that B, C, and D are the middle options in one set and an extreme option in one or two of the other sets. The compromise effect occurs when, for example, the share of brand B relative to brand C is greater among the group of consumers choosing from {A, B, C} than among those choosing from {B, C, D}. Similarly, the share of brand C relative to brand D would be greater for those choosing between B, C, and D than those choosing between C, D, and E. Finally, the share of brand D relative to brand E would be greater for consumers choosing from {C, D, E} than those choosing from {B, C, D}.

Attribute 1

■ A

■ B

■ C

■ D

■ E

Attribute 2
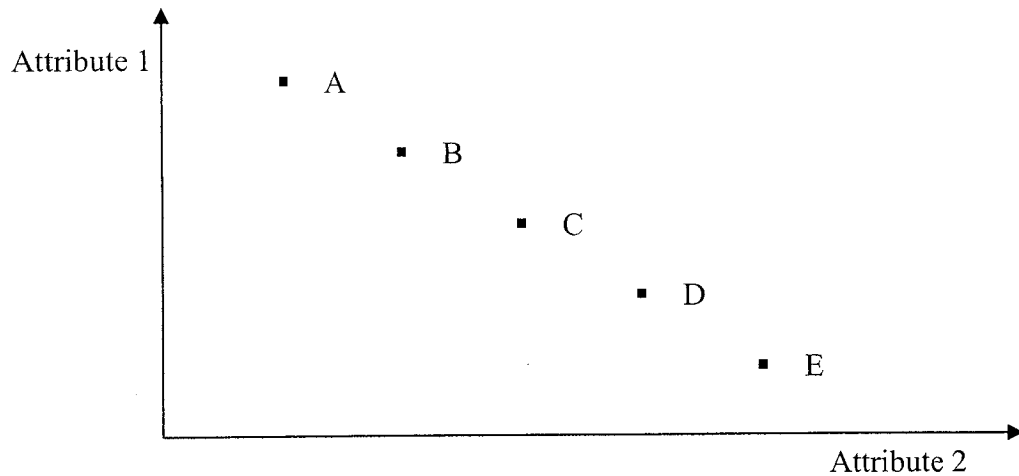
Figure 2b: Alternative Illustration of the Compromise Effect

2.3 Implications of Context Effects

Findings such as the attraction and compromise effects have important theoretical implications. Indeed, these effects violate some fundamental properties underlying rational choice models (Huber et al. 1982). One such assumption is the regularity principle, which asserts that a reduction of the choice set should not decrease the probability of choosing any of the remaining options (Luce 1977). Stated differently, this principle holds that the addition of a new option to the choice set should not increase the probability of choosing any of the original options. Clearly, both the attraction and compromise effects reflect an increase in the share of the target option after adding a third option. Both context effects are also inconsistent with the principle of independence of irrelevant alternatives (Luce 1959), which implies that a new option added to a given set should take shares from existing options in proportion to their original shares.

Moreover, the presence of context effects has a number of practical implications. For instance, Ratneshwar et al. (1987) note that current practices in product concept

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testing and conjoint analysis consider overall liking as a function of the attributes and features of the product concept itself, and tend to ignore the significant influence of other products in the choice set. Findings from the attraction and compromise effects indicate that ignoring the presence of other products could potentially result in misleading conclusions.

New product introduction, product deletion, positioning strategy, and product assortments constitute other marketing areas sensitive to context effects (Bhargava, Kim and Srivastava 2000; Heath and Chatterjee 1995; Kivetz, Netzer, and Srinivasan 2004; Lehmann and Pan 1994; Pan and Lehmann 1993; Simonson and Tversky 1992). Indeed, findings from research on the attraction and compromise effects might help marketers answer questions of the following type: 1) should the company continue offering an existing brand after introducing a new (superior) brand? The attraction effect suggests that the answer might be "yes", provided that the costs of maintaining the existing brand do not offset any benefits the new brand might enjoy as a result of its perceived dominance over the existing brand. 2) How would the deletion of a brand affect the evaluations and sales of the remaining brands? The answer will depend on the relative position of these brands. If the brand to be deleted is an asymmetrically dominated brand, then the sales of the brand that dominates it might fall, since this brand would lose its relative dominance. 3) Should the company introduce an inferior brand to boost the sales of existing brands? The example of Williams-Somona, described by Simonson (1999), suggests that such a strategy might work. 4) How should the company position its brands on important attributes? Findings from the compromise effect suggest that the long-advocated strategy of promoting one unique selling point might not always be optimal. 5)

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What configuration of product assortments would favor high margin products? According to context effects, high margin products would benefit from being displayed along items that make them appear as compromise or asymmetrically dominant options.

2.4 Explanations of Context Effect

Several explanations of the attraction effect have been proposed (see Ratneshwar, Shocker and Stewart 1987 for an early review). An account based on range and frequency effects attributes context effects to perceptual biases in attribute importance (Huber et al. 1982). The range effect holds that extending the range of two stimuli on a particular attribute decreases the perceived difference between the two stimuli on that attribute. The frequency effect suggests that increasing the number of alternatives between two stimuli along a particular attribute increases the perceived difference between the two stimuli on that attribute. Huber and al. (1982) tested the hypothesis that increasing the range of the attribute on which the target brand is inferior will decrease the perceived difference between the target and competitor on that attribute, thus decreasing the importance of that attribute and leading to increased attraction effects. They also tested the hypothesis that increasing the frequency of items along the attribute on which the target is superior will increase the weight of that attribute and lead to greater attraction effects. Their data did not support their hypotheses, and the range-frequency explanation was subsequently rejected by Huber and Puto (1983).

A more convincing explanation attributes the attraction effect to tradeoff contrasts (Simonson and Tversky 1992). According to this view, the decision between two options is influenced by other implied tradeoffs in the choice set. For instance, if brand X is of

higher quality and brand Y has a better price, the choice of X over Y will increase if the consumer encounters other comparisons in which the tradeoff rate between price and quality is higher than that implied by X and Y. Consider brand X (quality = 8; price = $20) and brand Y (quality = 6; price = $16). The tradeoff rate between price and quality is equal to $2 per quality unit. According to the tradeoff contrast principle, the choice of X over Y will increase if the choice set includes pairs of options for which the tradeoff rate is higher than $2 per quality unit. This is the case when an option Z (quality = 7; price = $20) is present in the choice set. Note that the exchange rate between price and quality for the pair (Y, Z) is equal to $4 per quality unit. Thus, compared to option Y, an extra $4 buys one quality unit if Z is chosen, whereas it buys two quality units in option X is chosen.

A third explanation that has gained wide acceptance is based on the ease of justification argument. According to Simonson (1989), "*a possible explanation for the attraction effect is that it reflects the impact of the added dominated alternative on the ability to justify to oneself and to others a choice of the dominating alternative*" (p. 159).

In explaining the compromise effect, however, Simonson (1989) maintained that compromise options are attractive because they are less likely to be evaluated negatively, but not necessarily because they are easier to justify. Indeed, on one hand, one can easily justify the choice of compromise options as a result of their possession of both attributes. On the other hand, compromise options might be difficult to justify because they are not the best on any attribute.

A different analysis attributes the attractiveness of compromise options to people's tendency to avoid selecting between extreme attribute values (Simonson and

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Tversky 1992). The loss aversion principle (Tversky and Kahneman 1991) states that losses or disadvantages in relation to a reference point loom larger than corresponding gains or advantages. By extending loss aversion to disadvantages relative to the other available alternatives rather than a neutral reference point, the extremeness aversion hypothesis posits that compromise options are favored because they have only small disadvantages in relation to the other options. That is, compromise options minimize the maximum loss (Simonson and Tversky 1992; Tversky and Simonson 1993).

Furthermore, Simonson and Tversky (1992) distinguish between two types of effects resulting from extremeness aversion: compromise and polarization. Compromise corresponds to situations in which both attributes exhibit extremeness aversion. Thus, in reference to Figure 2a, the following two conditions must be met: 1) the addition of A to {B, C} increases the share of B relative to C, and 2) the addition of D to {B, C} increases the share of C relative to B.

Polarization, on the other hand, represents situations in which only one attribute is susceptible to extremeness aversion. In those cases, disadvantages loom larger than advantages on only one attribute. Polarization often occurs when the attributes under consideration are price and quality. Simonson and Tversky (1992) reported many examples of polarization favoring quality over price in various product categories, such as dental insurance, binoculars, and personal computers.

An alternative explanation ascribes compromise effects (and context effects in general) to consumers' ability to draw choice-relevant inferences from the set of alternatives under consideration (Prelec, Wernerfelt and Zettelmeyer 1997; Wernerfelt 1995). The assumption is that consumers are often uncertain about the attribute values

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they most prefer. They are, however, more knowledgeable about how their preferences contrast with other consumers. As a result, and in Prelec et al.'s (1997) terms: *"if a choice set is thought to carry information about the absolute location of other consumers' ideal points, then a consumer can use this to infer the absolute location of his or her own ideal point"* (p.118).

Finally, building on a perceptual view of contingent decision making, two recent studies have proposed that compromise effects arise as a result of consumers' excessive focus on the relational characteristics of the alternatives (Dhar, Nowlis and Sherman 2000; Drolet, Simonson and Tversky 2000). Drolet et al. (2000) suggest that when choosing among different alternatives, consumers focus mainly on the relative positions of product alternatives in particular choice sets rather than on the absolute attribute values. The authors argue that such a choice strategy is both easier to perform and easier to justify. In support of their proposition, Drolet et al. (2000) show that, for a variety of product categories, consumers are able to accurately predict their likelihood of choosing compromise or extreme options without any knowledge of attribute values. Further, they show that providing consumers with information about the market range of attribute values does not influence their tendency to focus on the relational characteristics of the alternatives. Chernev (2004b), however, argues that extremeness aversion need not be a function of the relational properties of the choice alternatives. He demonstrates that options with equal attribute values can be perceived as compromise options even when they are not presented as middle options in the set.

In another study, Dhar et al. (2000) compared an effort-minimization framework to a perceptual contrast framework as potential theoretical accounts for explaining

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context effects. By demonstrating that time pressure leads to a reduction of compromise effects, the authors concluded that compromise effects are due to consumers' reliance on the relational characteristics of the alternatives, rather than consumers' attempt at effort minimization.

Despite the considerable attention devoted to demonstrating and explaining context effects, and the few attempts at integrating them in analytical choice models (e.g., Bhargava, Kim and Srivastava 2000; Kivetz, Netzer and Srinivasan 2004; Tversky and Simonson 1993), there is still no comprehensive theory that allows us to predict the magnitude of context effects, though a number of moderators have been suggested in the literature.

Ratneshwar et al. (1987) and Mishra et al. (1993), for instance, proposed that greater product knowledge should diminish the magnitude of the attraction effect. Expert consumers, the authors reasoned, should be influenced to a lesser extent by contextual variables when making their decisions than novice consumers. Findings from both studies, however, failed to provide adequate support to the product knowledge hypothesis. Nonetheless, a later study by Sen (1998) revealed that product knowledge does reduce the attraction effect when attribute information is presented numerically, but it also increases the attraction effect when the information is presented verbally.

Ratneshwar et al. (1987) and Mishra et al. (1993) also examined the impact of two conceptually similar variables: stimulus meaningfulness (Ratneshwar et al. 1987) and information ambiguity (Mishra et al. 1993). In this case, they found that more meaningful stimuli (or less ambiguous information about the choice alternatives) led to a reduction in the size of the attraction effect. In contrast to that result, Simonson and Tversky (1992)

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were able to show strong context effects even when using highly meaningful and realistic stimuli. Furthermore, Mishra et al. (1993) found that the size of the attraction effect was positively related to consumers' perceived target-decoy similarity and decoy popularity, and negatively related to consumers' involvement in the task.

Other moderating variables included time pressure (Dhar, Nowlis, and Sherman 2000), accountability (Simonson 1989), and culture (Briley, Morris, and Simonson 2000). As discussed earlier, Dhar et al. (2000) found that subjects under time pressure were less susceptible to the compromise effect than subjects in a control group. Moreover, Simonson (1989) showed that the sizes of both the attraction and compromise effects increased when subjects expected to justify their choices. He argued that people generally look for reasons for their decisions, and dominance and compromise are simply good reasons for consumers to justify their choices. Finally, Briley et al. (2000) found that, when their cultural knowledge is activated, individuals from a collectivistic culture are more likely to choose compromise options than individuals from an individualistic culture.

In sum, in trying to explain context effects, researchers have examined the influence on the size of such effects of variables related to either the decision task (e.g., stimulus meaningfulness, position and similarity of choice alternatives, time pressure), the social context (e.g., accountability, culture), or the individual decision maker (e.g., knowledge), with the latter receiving the least attention. A limitation of the extant research on context effects is that nearly all efforts to understand these phenomena have been restricted to a cognitive analysis of decision making. To further our understanding of the mechanisms underlying these important effects, we must broaden the research

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perspective to include the motivational dimension of consumer decision making. As stated by Pham and Higgins (in press), *"there is more to consumer decision making than computer-like processing...Consumers' decisions – which brand to purchase, where to go on vacation, or how to decorate the house, do not take place in a motivational vacuum. These decisions take place in the context of goals that consumers are pursuing, needs that they seek to fulfill, and drives that color their thoughts"*(p. 2).

With the aim of broadening the focus of research on context effects, I propose that regulatory focus theory (Higgins 1997), a theory of motivation and self-regulation, offers a compelling framework for investigating the motivational processes underlying these decision phenomena.

In the following chapter, I review the literature on regulatory focus theory. Then, I integrate this literature to existent research on context effects and derive specific hypotheses, which are tested empirically in subsequent chapters.

CHAPTER 3: Regulatory Focus Theory

Regulatory focus theory (Higgins 1997) distinguishes between two types of goals, ideals and oughts. Ideals refer to people's aspirations, hopes, and wishes, whereas oughts are concerned with people's responsibilities, obligations, and duties.

Higgins' theory posits that ideals and oughts entail distinct regulatory systems. In particular, regulation in relation to ideals involves a promotion focus, which is a regulatory state concerned with advancement and accomplishment. In contrast, regulation in relation to oughts involves a prevention focus, which is a regulatory state concerned with protection and safety (Higgins 1997, 1998).

Thus, ideals-related regulation or promotion focus is generally concerned with the presence or absence of positive outcomes. As a result of this sensitivity to positive outcomes, an inclination to approach "matches" to one's desired end states appears to be a natural strategy for promotion self-regulation (Crowe and Higgins 1997). In contrast, oughts-related regulation or prevention focus is generally concerned with the absence or presence of negative outcomes. Because of this sensitivity to negative outcomes, an inclination to avoid "mismatches" to one's desired end states is a natural strategy for prevention self-regulation (Crowe and Higgins 1997).

Regulatory focus has been studied both as a situationally-induced orientation and as a chronic, individual difference variable. In both cases, past research has revealed significant differences between promotion-focused and prevention-focused individuals in their judgmental processes, emotional, and behavioral responses (e.g., Aaker and Lee 2001, Crowe and Higgins 1997, Higgins, Shah and Friedman 1997). In the following

sections, I review the most important findings regarding the effects of regulatory focus on individuals' psychological processes before discussing promotion and prevention focus in consumer research.

3.1 Regulatory Focus and Judgment

A great deal of the earlier work on regulatory focus has centered on the issue of how promotion versus prevention focus influences people's cognitive processes when making decisions. I will discuss the impact of promotion versus prevention focus on risk seeking and other important judgmental processes, including counterfactual thinking, generation of alternatives, and probability estimation of conjunctive and disjunctive events.

3.1.1 Regulatory Focus and Risk Seeking

Promotion-focused and prevention-focused individuals have been shown to differ in their manner of dealing with uncertainty. Promotion-focused people display a tendency to exhibit a risky bias, whereas prevention-focused people generally demonstrate a more conservative bias (Crowe and Higgins 1997; Friedman and Forster 2001). The difference in propensity to risk was predicted, based on differences in strategic preferences in goal attainment. Crowe and Higgins (1997) suggested that promotion-focused individuals prefer to use eager strategies in goal attainment. Such strategies involve a concern with achieving "hits" and ensuring against "misses." In contrast, prevention-focused individuals prefer to use vigilant strategies in pursuing their goals. A vigilant strategy involves a concern with achieving "correct rejections" and ensuring against "false hits". Since eagerness is related to risk taking and vigilance to conservatism, the authors

predicted that promotion-focused people would show a risky response bias, whereas prevention-focused people would show a conservative bias.

Typically, these risk-related predictions have been examined using recognition memory tasks (Crowe and Higgins 1997; Friedman and Forster 2001). Crowe and Higgins (1997), for instance, had their respondents first view a series of letter strings. The participants, then, were presented with a series of old and new strings and asked whether they had previously seen the letter strings. Consistent with the predictions, promotion-focused respondents demonstrated a risky bias for saying "yes" in the recognition memory task, while prevention-focused respondents exhibited a conservative bias for saying "no".

Levine, Higgins and Choi (2000), extended the previous findings to group formation of risky and conservative biases over time. Using the same recognition memory task as in Crowe and Higgins (1997) but in a group setting, the authors asked the participants to state their "yes" or "no" responses aloud. Levine et al. (2000) found that the majority of the groups (27 of 34) converged in their recognition response between the first and the second block of the task (i.e., the within group variance in "yes"-"no" responses decreased significantly between the first and the second block of the task). Furthermore, promotion-focused groups converged in a way that reflects a riskier bias in block 2 than in block 1, whereas, prevention-focused groups converged in a way that reflects a greater conservative bias in block 2 than in block 1.

Interestingly, Zhou and Pham (2004) claim that differences in risk taking between promotion focus and prevention focus is a by-product of the fact that capturing opportunities and achieving gains generally entails more risk, whereas preventing

mistakes and avoiding losses generally entails less risk. The authors argue that in situations where achievement of gains does not require greater risk and where avoidance of losses does not require lesser risk, the correlation between regulatory focus and risk seeking disappears.

3.1.2 Regulatory Focus and Counterfactual Thinking

Counterfactual thoughts refer to thoughts of what might have been, of alternatives to actual events (Roese 1997). These types of thoughts are considered important cognitive processes, through which people learn from the outcomes of their decisions. Two distinct types of counterfactuals seem to be at play: 1) additive counterfactuals, which refer to thoughts about what might have happened had one taken a different action, and 2) subtractive counterfactuals, which refer to thoughts about what might have happened had one not taken a particular action.

Past research reports incongruent findings on which type of counterfactuals occurs more frequently. Kahneman and Tversky (1982), for instance, suggest that people are more likely to generate action-centered additive counterfactuals, whereas Roese and Olson (1993) suggest the opposite. In an effort to resolve this conflict, Roese, Hur and Pennington (1999) proposed regulatory focus as a moderator. More specifically, the authors predicted that additive counterfactuals are more likely to be activated by a promotion failure, whereas subtractive counterfactuals are more likely to be activation by prevention failure. The rationale was that additive counterfactuals represent an eager strategy for reversing past errors because they focus on what might have happened had one not missed an opportunity for advancement. Thus, additive counterfactuals should be preferred by people with a promotion focus. In contrast, subtractive counterfactuals

represent a vigilant strategy for reversing past errors because they emphasize what might have happened had one not committed a mistake. Thus, subtractive counterfactuals should be preferred by prevention-focused people.

To test their predictions, Roese et al. (1999) presented participants with scenarios involving either promotion failures or prevention failures. After each scenario, participants were asked to complete a counterfactual sentence, which began with "If only." As predicted, respondents in the promotion focus condition were more likely to generate additive counterfactuals and less likely to generate subtractive counterfactuals than respondents in the prevention focus condition.

3.1.3 Regulatory Focus and Generation of Alternatives

People often acquire knowledge by generating hypotheses, testing their validity, and then using them for prediction purposes. Liberman, Molden, Idson and Higgins (2001) argue that, when generating hypotheses, people either choose to generate many hypotheses or confine themselves to just a few. In addition, when evaluating plausible hypotheses, people either choose between the alternatives or simultaneously endorse a number of alternative explanations.

Liberman et al. (2001) proposed that regulatory focus influences hypothesis generation and discounting in the following way: promotion-focused individuals are expected to generate more and simultaneously endorse multiple hypotheses, whereas prevention-focused individuals are expected to generate fewer hypotheses and select only one from a set of plausible hypotheses. The idea is that generating more and endorsing multiple hypotheses increases the likelihood of finding a correct hypothesis (maximizing hits) and reduces the likelihood of missing a correct hypothesis (minimizing misses),

which is congruent with the strategic preference of individuals with a promotion focus. On the other hand, generating more and endorsing multiple hypotheses also increases the likelihood of including incorrect hypotheses (i.e., more false hits) and decreases the likelihood of rejecting incorrect hypotheses (i.e., less correct rejections), which is incongruent with the strategic preference of individuals in a prevention focus.

Liberman et al. (2001) found support for their predictions across a series of studies. In one of these studies, the authors primed participants with either a promotion or a prevention focus, and asked them to read about the helpful behavior of a target person. The respondents then had to select plausible causes of the target person's behavior from a provided list. In line with the predictions, promotion-focused individuals selected more potential causes than prevention-focused individuals.

Furthermore, building on the discounting principle (which states that one possible cause of a given behavior is perceived as less likely when other possible causes of the same behavior exist), the authors predicted and found that promotion-focused individuals (who would have selected more potential causes for the helpful behavior) are less inclined to generalize about the target person's helpful behavior in future situations than prevention-focused individuals.

A study by Crowe and Higgins (1997) also supports the idea that regulatory focus influences the generation of alternatives. Crowe and Higgins (1997) asked participants to sort a number of fruits and vegetables into categories using any criteria they considered suitable. As predicted, promotion focused individuals tended to use more criteria, and hence, generated more categories than prevention-focused individuals.

3.1.4 Regulatory Focus and Biased Estimates of Conjunctive and Disjunctive Events

Some events require that several preconditions be met in order to take place. For instance, obtaining a doctoral degree requires at a minimum that the student take and pass a number of graduate courses, successfully write a comprehensive exam and successfully write and defend a major research project (i.e., the dissertation). Meeting anyone of these conditions alone is insufficient for obtaining a doctoral degree. The student must fulfill all of these conditions. Such events are called conjunctive events. In contrast, other events, called disjunctive events, require that only one of several preconditions be met in order to take place. For example, any of the following conditions: falling during the race, being sick the day of the race, coming to the race unprepared, is sufficient for a sprinter to lose a race. Past research indicates that people have a tendency to overestimate the likelihood of conjunctive events while underestimating the likelihood of disjunctive events (e.g., Bazerman 1998). These findings have been qualified in a recent study by Brockner, Paruchuri, Idson and Higgins (2002), in which the authors show that regulatory focus moderates people's ability to estimate accurately the probability of conjunctive and disjunctive events.

Brockner et al. (2002) argue that promotion-focused people's preference for eager strategies and their desire to maximize hits make them more sensitive to the sufficiency notion that only one of several preconditions must be met for an event to occur. Thus, promotion-focused individuals should be less likely to underestimate the occurrence of disjunctive events. On the other hand, prevention-focused people's preference for vigilant strategies and their desire to make correct rejections make them more sensitive to the

necessity notion that if only one of the preconditions is not met, the conjunctive event will not take place. Therefore, prevention-focused individuals should be less likely to overestimate the occurrence of conjunctive events.

Consistent with their predictions, Brockner et al. (2002) found that people's degree of congruence between their ideal and actual selves (reflecting the strength of their promotion focus) was positively related to their ability to accurately predict the occurrence of disjunctive events and was unrelated to their ability to accurately predict the occurrence of conjunctive events. Moreover, people's degree of congruence between their ought and actual selves (reflecting the strength of their prevention focus) was positively related to their ability to accurately predict the occurrence of conjunctive events and was unrelated to their ability to accurately predict the occurrence of disjunctive events.

The previous discussion highlights the role of regulatory focus in influencing a wide range of cognitive and judgmental processes. Nevertheless, promotion focus and prevention focus have also been shown to affect people's emotional responses. This literature is discussed next.

3.2 Regulatory Focus and Emotional Experience

A growing body of evidence supports the notion that regulatory focus influences the nature and magnitude of people's emotional experiences (e.g., Brockner and Higgins 2001; Idson, Liberman and Higgins 2000; Higgins, Shah and Friedman 1997; Roney, Higgins and Shah 1995). Typically, this line of research has focused on examining the nature of emotional responses to success and failure in achieving promotion versus

prevention goals. Higgins et al. (1997), for instance, found that promotion success produces cheerfulness-related emotions and prevention success produces quiescence-related emotions, whereas promotion failure produces dejection-related emotions and prevention failure produces agitation-related emotions.

In addition to producing different emotions, regulatory focus is presumed to influence the intensity of the felt pleasure and pain (Idson, Liberman and Higgins 2000). Idson et al. (2000) suggest that for the same goal, inducing a promotion focus will make representation of the goal as a maximal goal (i.e., an objective one hopes to achieve), whereas inducing a prevention focus will make representation of the goal as a minimal goal (i.e., an objective that one must achieve). The authors propose that the eagerness involved in achieving a maximal goal is maintained and sometimes strengthened in the case of promotion success. This maintained or strengthened eagerness should result in experiencing cheerfulness-related emotions with a relatively high intensity. Failing to achieve a maximal goal, however, results in weakened eagerness and leads to experiencing dejection-related emotions with a relatively low intensity. Idson et al. (2000) also argue that the vigilance involved in attaining a minimal goal is weakened in the case of prevention success. This should lead to experiencing quiescence-related emotions with a relatively low intensity. On the other hand, failing to achieve a minimal goal causes vigilance to be increased or at least maintained, and leads to experiencing agitation-related emotions with a relatively high intensity.

The authors tested their hypotheses in a series of studies, in which participants reported on both how they would feel should these outcomes (successes and failures in achieving various goals) happen to them, and how they actually felt after having these

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outcomes happen to them. In support of their propositions, Idson et al. (2000) found that the pleasure of a promotion success (gain) was greater than the pleasure of a prevention success (non-loss), while the pain of a prevention failure (loss) was greater than the pain of a promotion failure (non-gain).

Another domain in which regulatory focus has been associated with emotions is appraisal efficiency. Shah and Higgins (2001) suggested that people's appraisals of how they feel and of how other objects in the world make them feel are more efficient when the emotional dimensions underlying their appraisals are congruent with their regulatory concerns. In support of their hypothesis, the authors found that individuals with both chronic and situationally-induced promotion focus were faster in appraising how cheerful or dejected objects made them feel, whereas individuals with both chronic and situationally-induced prevention focus were faster in appraising how quiescent or agitated objects made them feel.

3.3 Regulatory Focus and Behavior

Besides the internal processes (cognitive and emotional), regulatory focus has also been studied in relation to overt behavior. Some of these studies are reviewed next.

3.3.1. Regulatory Focus and the "Sunk Costs" Effect

"Sunk cost" effects refer to phenomena in which people tend to stick to some unsatisfactory previous plan, in which they have already invested resources, despite now having the opportunity to select a more attractive alternative whose costs would not be greater than sticking to the old plan (Arkes and Blumer 1985). Arkes and Blumer (1985) distinguish between two types of sunk cost effects: one related to an error of omission

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and one related to an error of commission. The former was illustrated in an experiment, in which participants imagined having purchased a $100 weekend trip to Michigan and, several weeks later, purchasing a more enjoyable $50 weekend trip to Wisconsin. Suddenly realizing that both trips are scheduled for the same weekend, the respondents were asked to indicate which trip they would choose to go on (assuming that the tickets could not be refunded nor sold). The "sunk cost" effect is reflected in the choice of the Michigan trip, simply because one had paid more for that trip even if the Wisconsin trip would be more enjoyable.

The second type of "sunk cost", reflecting an error of commission, was also illustrated by Arkes and Blumer (1985). In a separate experiment, the authors asked participants to imagine themselves as the president of an airline company who invests 10 million dollars of the company's money in a research project to develop a new radar-blank airplane. At 90% of the completion of the project, a competitor starts marketing a new radar-blank plane that is apparently faster and more economical than the one the company is building. Respondents were then asked whether they should invest the remaining 10% of the research funds to complete the project. An affirmative answer constitutes a sunk cost error; an error of wasting additional money on a project with virtually no possible benefits just because one has spent money on it.

Higgins, Friedman, Harlow, Idson, Ayduk and Taylor (2001) proposed and found that promotion-focused people, because of their preference for eager strategies, are less likely to show the first type of sunk cost effect, which is associated with an error of omission. On the other hand, prevention-focused people, because of their preference for

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vigilant strategies, are less likely to show the second type of sunk cost effect, which is associated with an error of commission.

3.3.2 Regulatory Focus, Stability, and Change

The "sunk cost" effect discussed earlier involves a choice between resuming an unpleasant current course of action (in which one has already invested resources) and undertaking a new more satisfactory action. In many cases, however, people have to choose whether to continue a perfectly satisfactory activity or engage in an alternative activity. Liberman, Idson, Camacho and Higgins (1999) investigated the influence of regulatory focus on people's decisions between stability and change. They examined two situations involving a choice between stability and change: task substitution, which deals with choosing between continuing an interrupted original task and undertaking a different activity, and endowment, which deals with choosing between a possessed object and a new object.

In both cases, the authors predicted and found that promotion-focused people's eagerness to achieve hits was associated with openness to change, whereas prevention-focused people's vigilance was associated with a preference for stability. More specifically, individuals induced with a promotion focus were more likely to start a new activity after interruption of the original activity, and more likely to exchange objects they possessed for alternative objects. In contrast, individuals induced with a prevention focus were more likely to resume the interrupted activity, and more reluctant to exchange currently possessed objects.

3.3.3 Regulatory Focus and Goal Pursuit

An important issue in goal pursuit is when to initiate action toward a goal. Regulatory focus theory predicts that prevention focus should lead to an earlier initiation of goal pursuit than promotion focus. Freitas, Liberman, Salovey and Higgins (2002) reasoned that in a prevention focus, the representation of goals as minimal goals that one must achieve should lead to pressure to pursue goals quickly in order to meet the minimum standard. In contrast, in a promotion focus, the representation of goals as maximal goals that one hopes to achieve should not engender any pressure to pursue goals quickly.

In one study, Freitas et al. (2002) asked participants when they would initiate action toward applying for a hypothetical academic fellowship. As predicted, chronically prevention-focused individuals estimated more immediate action initiation than chronically promotion-focused individuals. The same patterns of results were replicated in further studies in which prevention and promotion foci were situationally induced.

Another important issue in goal pursuit is how long one must spend to complete a goal. Pennington and Roese (2003) addressed this question in relation to regulatory focus. The authors proposed and found that promotion-focused goals not only tended to be initiated further in time by also invited longer completion time than prevention-focused goals. The logic was that promotion-focused goals, which are represented as maximal goals, would be regarded as resource-demanding and thus their completion would be considered as distant in time. In contrast, prevention-focused goals, which are perceived as necessities, would be regarded as resource-independent (i.e., this needs to be done here and now) and thus their completion would be expected to happen more immediately.

3.3.4 Regulatory Focus and Speed versus Accuracy

There seems to be a tradeoff between accomplishing a task fast and accomplishing it accurately. This is similar to doing more (emphasizing quantity) of something versus doing something well (emphasizing quality). Forster, Higgins and Bianco (2003) showed that people's regulatory focus influences their speed/accuracy decisions in different tasks. The authors proposed that, because moving fast maximizes the opportunity to achieve hits, promotion-focused individuals should emphasize speed over accuracy. On the other hand, because carefully examining task requirements minimizes the possibility of making mistakes, prevention-focused people should emphasize accuracy versus speed.

Forster et al. (2003) tested and found support for their hypothesis. In a series of studies, participants were asked to draw a picture by connecting numbered dots within a given time. At the end of the allotted time, the number of connected dots was assessed and constituted a measure of speed, whereas the number of missed dots constituted a reversed measure of accuracy. As expected, the authors found that promotion-focused individuals connected more dots but also missed more dots than prevention-focused individuals.

In another study, Forster et al. (2003) asked participants to complete four connect-the-dots pictures in a given time. Interestingly, they found that as participants moved closer toward the completion of the task (i.e., from the first to the fourth picture), promotion-focused individuals became faster (i.e., connected more dots) and less accurate (missed more dots), whereas prevention-focused individuals became slower (connected less dots) and more accurate (missed less dots). These results were attributed

the "goal looms larger" principle (Forster, Higgins and Idson 1998), which holds that strategic motivation increases as people get closer to goal completion.

So far, I have reviewed many ways in which regulatory focus has been shown to influence people's cognitive, emotional, and behavioral responses. Two other important issues that are receiving a growing attention in the psychological literature are the antecedents of regulatory focus (e.g., Lee, Aaker and Gardner 2000), and the notion of regulatory fit (Higgins 2000) and its impact on judgment and behavior. I now turn to these issues.

3.4 Antecedents of Regulatory Focus

Relatively few studies have directly investigated the antecedents of prevention and promotion regulatory patterns. Higgins (1997) and Higgins and Silberman (1998) attribute chronic differences in promotion versus prevention focus to socialization processes and styles of caretaker-child interactions that emphasize ideal versus ought self. For instance, in caretaker-child interactions involving a promotion focus, the caretaker would communicate to the child that what matters most is the achievement of accomplishments and the fulfillment of hopes and aspirations. Alternatively, in caretaker-child interactions that involve a prevention focus, the caretaker would emphasize to the child that what matters most is ensuring safety, being responsible and meeting obligations.

Situational manipulations of promotion and prevention focus indicate that regulatory focus is also affected by the framing of the task. For instance, framing a set of task payoffs for success and failure as "gain-non gain" induces a promotion focus,

whereas framing the same set as "non loss-loss" induces a prevention focus (e.g., Crowe and Higgins 1997).

In addition to problem framing, priming people's ideals versus oughts also affects their regulatory orientation, with primed ideals leading to a promotion focus and primed oughts leading to a prevention focus (e.g., Liberman, Molden, Idson and Higgins 2001).

Lee, Aaker and Gardner (2000) investigated people's self-construal as another factor influencing promotion and prevention strategies. The authors found that individuals with a dominant independent self-construal put more emphasis on promotion-focused information (i.e., weighed gain-framed information as more important), whereas individuals with a dominant interdependent self-construal place more emphasis on prevention-focused information (i.e., weighed loss-framed information as more important). The effect of self construal on regulatory focus was observed for participants who scored high versus low on the self-construal scale, participants who were presented with an independent versus interdependent situation, and participants from a Western (individualistic) versus Eastern (collectivistic) culture.

Finally, Pennington and Roese (2003) examined the role of a goal's temporal distance on people's regulatory focus. The authors found that temporally distant goals are generally approached with a promotion focus, whereas temporally proximal goals are characterized with a more balanced consideration of both promotion- and prevention-focused concerns. In one study, Pennington and Roese (2003) had students rate the importance of promotion goals (e.g., getting a high score) and prevention goals (avoiding an unfavorable score) at two points in time: two weeks before the exam and two minutes before the exam. They found that the importance scores of prevention goals increased as

the exam time got closer, whereas the importance of promotion goals decreased as the exam time approached.

3.5 Regulatory Fit

Regulatory fit is experienced when people pursue a goal in a manner that is congruent with their regulatory orientation (Higgins 2000). Higgins theorizes that experiencing regulatory fit increases the value of the goal pursuit process for the individual. In other words, a promotion-focused individual who pursues a goal using an eager strategy should experience greater regulatory fit, and hence value the goal pursuit process more than a promotion-focused individual who uses vigilant means. In contrast, a prevention-focused individual who uses a vigilant strategy should experience a greater regulatory fit, and thus value the goal pursuit process more than a prevention-focused individual who uses eager means.

This proposition was tested by Freitas and Higgins (2002) in a series of studies, in which participants were presented with a large assortment of shapes and asked to circle any four-sided figures. Half of the respondents were instructed to do so using an eager strategy ("find the helpful elements"), whereas the other half were instructed to use a vigilant strategy ("eliminate the harmful elements"). Then, participants were asked to indicate their level of enjoyment in doing the task. As predicted, both chronically and situationally-induced promotion-focused participants enjoyed doing the task more in the eager condition than in the vigilant condition, whereas the reverse was true for both chronically and situationally-induced prevention-focused participants.

Higgins' (2000) regulatory fit theory also suggests that because people may confuse the sources of value associated with the process versus the outcome, the increased value of the goal pursuit process may transfer to the outcome. That is, people who experience regulatory fit should value the outcome of their goal pursuit process more than those who do not experience regulatory fit.

This hypothesis was tested by Higgins, Idson, Freitas, Spiegel and Molden (2003) in a series of studies, in which participants were asked to choose between a coffee mug and a less desirable disposable pen. Half of the participants were instructed to make their choice using an eager strategy (by asking them to think about what they would gain if they chose each object), whereas the other half were instructed to make their choice using a vigilant strategy (by asking them to think about what they would loose by not choosing each object). After making their choice (most people chose the mug), the participants were asked to indicate how much they thought the mug was worth, and in another study participants were asked how much of their own money they would pay to buy the mug. As predicted, promotion-focused individuals gave higher price estimates and were willing to pay more for the mug when they used an eager strategy than when they used a vigilant strategy, whereas prevention-focused individuals gave higher price estimates and were willing to pay more for the mug when they used a vigilant strategy than when they used an eager strategy.

Another implication of Higgins' (2000) theory is that the increased perceived value of the goal pursuit process from regulatory fit should enhance people's motivational strength, which, in turn, should improve their efforts at goal attainment. This proposition was tested by Spiegel, Grant-Pillow and Higgins (2004). In one experiment,

the authors asked predominantly promotion- and prevention-focused participants to write a report about their leisure time. In one condition, participants were assigned eagerness-framed means to use (e.g., by asking them to imagine a good, convenient time where they would be able to write their report). In a second condition, participants were assigned vigilance-framed means to use (e.g., by asking them to imagine bad or inconvenient times for writing their reports, so that they could avoid these times). Promotion/eagerness and prevention/vigilance participants were about 50% more likely to turn in their reports than promotion/vigilance and prevention/eagerness participants.

In a second experiment, Spiegel et al. (2004) had participants read either a promotion-focused or a prevention-focused health message urging them to eat more fruits and vegetables. Then, they asked them to imagine either the benefits of compliance or the costs of non-compliance. As predicted, promotion/benefits and prevention/costs participants ate significantly more fruits and vegetables (20% more) over the following week than promotion/costs and prevention/benefits participants.

3.6 Regulatory Focus Theory in Consumer Research

With the increasing recognition, in recent years, of the importance of goals and motives in shaping consumer behavior (see Hauffman, Ratneshwar and Mick 2000), consumer researchers have found in regulatory focus theory a powerful framework for investigating various phenomena such as persuasion and choice decisions (Aaker and Lee 2001; Chernev 2004a; Pham and Avnet 2004; Zhou and Pham 2004).

3.6.1 Regulatory Focus in Persuasion Research

Based on the previous discussion of regulatory fit, it is possible that an advertising message that is compatible with consumers' goal orientation would lead to more favorable evaluations of the message as well as the advertised product than a message that is incongruent with consumers' goal orientation. Aaker and Lee (2001) investigated this issue by examining the influence of regulatory focus on information processing and persuasion. Using web-based persuasive messages, they found that, for individuals with a dominant independent self construal, a persuasive message that relies on a promotion frame (i.e., compatible with independent self construal), such as emphasizing product benefits involving enjoyment led to more favorable attitudes toward the website and the depicted brand than a persuasive message that relies on a prevention focus (incompatible with independent self construal), such as emphasizing product benefits involving security. In contrast, for individuals with a dominant interdependent self construal, a prevention-focused message resulted in more favorable evaluations of the website and the brand than a promotion-focused message.

In two additional experiments, Aaker and Lee (2001) found that people demonstrate a greater recall of the content of a persuasive message and are more discerning about argument strength when the persuasive message is compatible with self-regulatory focus.

Pham and Avnet (2004), also in the context of persuasion, investigated the moderating role of regulatory focus on the relative reliance on affective versus substantive information. The authors proposed that in forming evaluations, promotion-focused consumers would rely more on their subjective affective responses to the ad than

on the substance of the message, whereas prevention-focused consumers would rely more

on the substance of the message than on their subjective affective responses to the ad.

The authors suggested several arguments in support of their hypothesis. With

respect to prevention-focused people's greater reliance on substantive information, Pham

and Avnet (2004) offer that, first, heightened vigilance (characteristic of prevention-

focused individuals) increases the reliance on external data versus internal knowledge.

Second vigilant individuals should favor easily justifiable information, and third, vigilant

individuals should favor information that is seen as safe. With respect to promotion-

focused people's preference for their subjective affective responses, the authors argue

that eagerness (characteristic of promotion-focused individuals) encourages the use of

heuristics in general. Moreover, eagerness enhances creativity and increases the reliance

on internal inputs versus external information.

3.6.2 Regulatory Focus and Choice

The integration of regulatory focus theory in consumer choice research is both

recent and scarce. Chernev (2004a) tested the proposition that product attributes which

are compatible with a consumer's regulatory focus tend to be overweighed in a choice

decision. He examined the impact of promotion versus prevention focus on consumer

preferences in choice contexts involving hedonic versus utilitarian attributes,

performance versus reliability attributes, and attractive versus unattractive attributes.

Chernev's (2004a) findings indicate that promotion-focused consumers are more prone to

overweighting hedonic, performance-related, and attractive attributes (considered

compatible with a promotion focus) than prevention-focused consumers, who are more

likely to overweight utilitarian, reliability-related, and unattractive attributes (considered compatible with a prevention focus) in making their choices.

Another study by Zhou and Pham (2004) examined the role of regulatory focus in consumer investment decisions. The authors demonstrated that decisions about different financial products tend to trigger the regulatory orientation (promotion or prevention) typically associated with these products, which, in turn, leads to asymmetric sensitivities to potential gains and potential losses.

In a pair of experiments, Zhou and Pham (2004) found that financial products such as individual stocks and trading accounts are associated with a promotion focus, whereas products such as mutual funds and retirement accounts are associated with a prevention focus. They also showed that money associated with trading accounts is invested in a risk-seeking manner, whereas money associated with retirement accounts is invested in a risk-averse manner. Further, this difference in investment behavior is mediated by differences in promotion versus prevention orientations.

If different products really prime different regulatory orientations, then these orientations should carry over to unrelated tasks that are sensitive to promotion and prevention. In support of this prediction, Zhou and Pham (2004) found that participants (in experiment 3) who had previously made decisions about individual stocks in trading accounts showed a preference for products with promotion-related benefits and tended to favor approach strategies in friendship. Conversely, respondents who had previously made decisions about mutual funds in retirement accounts tended to favor products with prevention-related benefits and preferred avoidance strategies in friendship.

Finally, Zhou and Pham (2004) proposed that the reverse effect should also hold. That is, priming distinct regulatory foci through unrelated tasks would affect consumers' investment allocations across different financial products. As expected, promotion-focused respondents tended to shift their investments toward the trading account and away from the retirement account, as well as toward the individual stock and away from the mutual fund, whereas prevention-focused respondents tended to shift their investments toward retirement accounts and away from trading accounts, and toward the mutual fund and away from the individual stock.

In sum, extant research on regulatory focus theory has consistently reported a major influence of people's promotion versus prevention focus on a vast array of cognitive, emotional and behavioral responses in various domains of social psychology and consumer research. In the following section, I will try to show that differences in promotion versus prevention focus will also influence consumers' sensitivity to context effects in choice.

Chapter 4: Research Hypotheses

4.1 Regulatory Focus and Sensitivity to Context Effects

The central premise of this research is that promotion-focused and prevention-focused consumers differ in their sensitivities to compromise and attraction effects. In particular, it is expected that prevention-focused consumers would display a greater susceptibility to the compromise effect, whereas promotion-focused consumers would be more susceptible to the attraction effect.

There are many arguments in support of these predictions. First, compromise options are thought to be attractive mainly because they avoid the disadvantages of the extreme options, and hence minimize the maximum loss (Simonson and Tversky 1992). In addition, verbal protocol data (Simonson 1989) indicate that compromise options are often seen as "safe" options. Hence, choosing a compromise option reflects a vigilant strategy concerned with minimizing negative outcomes. Such vigilance is congruent with the strategic preferences of individuals in a prevention focus. In contrast, extreme options, which are invariably more positive on one attribute, should be more attractive to promotion-focused individuals, whose eagerness and concern with ensuring "hits" lead them to place a greater weight on positive attributes than on negative attributes (Chernev 2004a).

The literature also provides indirect evidence in favor of the suggested prediction. Briley, Morris and Simonson (2000) proposed that choosing compromise options is more compatible with the decision norms of collectivistic cultures than those of individualistic cultures. The authors found that, when their cultural knowledge is activated, individuals

from a collectivistic culture are more likely to choose compromise options than individuals from an individualistic culture.

Combined with the results of Lee, Aaker and Gardner (2000), who reported a greater prevention focus among individuals from a collectivistic culture and a greater promotion focus among individuals from an individualistic culture, these findings provide additional, albeit indirect, support for the general prediction that consumers in a prevention focus are more likely to choose compromise options than consumers in a promotion focus.

H1: The size of the compromise effect will be greater for prevention-focused consumers than for promotion-focused consumers.

Furthermore, prospect theory (Kahneman and Tversky 1979) includes a number of editing rules that decision makers are thought to use in order to simplify choice problems prior to evaluation. In particular, Kahneman and Tversky (1979) proposed that transparently dominated alternatives within a choice set are recognized and eliminated, and that editing precedes and takes priority over evaluation. Thus, contrary to the attraction effect, adding a dominated brand to a choice set should have little effect on the choice probabilities of the existing brands, since the new (dominated) brand would be discarded prior to evaluation. Such editing rules, however, project a vigilant decision strategy concerned with achieving "correct rejections", and are therefore more likely to be used by prevention-focused individuals than promotion-focused individuals.

Accordingly, one can expect prevention-focused consumers to be less sensitive to the attraction effect than promotion-focused consumers.

Moreover, a dominant alternative can be regarded as an opportunity to be seized and not to miss (Pham and Higgins, in press). A dominant brand would then be more attractive to promotion-focused individuals. Conversely, vigilant consumers may be more cautious of simply basing their decision on a dominance relation.

H2: The size of the attraction effect will be greater for promotion-focused consumers than for prevention-focused consumers.

4.2 The Effect of Justification

As discussed earlier, a major explanation of context effects ascribes the occurrence of these effects to people's need to justify their decisions to themselves and to others (Simonson 1989). This assertion stems from a research tradition advancing that, in many situations, attitudes and choices are highly influenced by the available reasons for and against each alternative (Shafir, Simonson, and Tversky 1993; Simonson 1989; Slovic 1975; Wilson, Hodges, and LaFleur 1995; Wilson and Schooler 1991). According to this view, both dominant and compromise options offer compelling reasons for their choice. Thus, explicitly asking subjects to justify their choices should increase their preferences for compromise and dominant options. The literature generally supports a positive relationship between providing reasons and preference for dominant options (e.g., Simonson 1989). Findings regarding the effect of providing reasons on choice of compromise options, however, are less conclusive. Early work by Simonson (1989)

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suggests that asking respondents to provide reasons for their choice increases their tendency to choose compromise options. In contrast, later work by Simonson and Nowlis (2000) reports a negative effect of providing reasons on compromising.

I propose that consumers' regulatory orientation plays a critical role in shaping the relationship between justification and susceptibility to context effects. Specifically, it is suggested that asking promotion-focused consumers to provide reasons for their choice would decrease their preference for compromise options and increase their preference for dominant options, whereas asking prevention-focused consumers to provide reasons for their choice would increase their choice of compromise options and decrease their choice of dominant options.

There are at least two arguments in support of these predictions. First, asking people to provide reasons for their choice is akin to asking them to reflect on their goals. Such an exercise may render their regulatory goals even more salient and prompt an active engagement in self-regulation (Zhou and Pham 2004). Because the effects of promotion and prevention focus should be greater when self-regulation is actively engaged, it is expected that promotion-focused respondents will have a lower (higher) preference for compromise (dominant) options when asked to provide reasons for their choice than when not asked to do so. In contrast, prevention-focused participants should be more (less) likely to choose compromise (dominant) options when asked to provide reasons for their choice than when they are not.

A second argument is that, under promotion focus, gain-related reasons are both more accessible (more easily retrieved) and more diagnostic (are attributed greater weight) than loss-related reasons, whereas the opposite holds under prevention focus.

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Because asking people to provide reasons for their choice shifts their focus from choosing among alternatives to choosing among reasons (Simonson and Nowlis 2000), asking promotion-focused people to justify their choice will increase their preference for options associated with gain-related reasons (i.e., extreme options and dominant options), whereas asking prevention-focused people to justify their choice will increase their preference for options associated with loss-related reasons (i.e., compromise options).

H3: The relationship between justification and preference for compromise brands is moderated by consumers' regulatory focus in the following fashion: Justification will increase preference for compromise options under prevention focus but decrease it under promotion focus.

H4: The relationship between justification and preference for asymmetrically dominant brands is moderated by consumers' regulatory focus in the following fashion: Justification will increase preference for dominant options under promotion focus but decrease it under prevention focus.

4.3 The Effect of Product Type

So far, I have focused on how regulatory focus may influence consumers' choice decisions. There is, however, evidence that promotion and prevention foci may themselves be triggered by the decision context. For instance, the study by Zhou and Pham (2004), discussed earlier, suggests that different product categories might naturally prime different regulatory concerns. In the context of financial products, Zhou and Pham

found that products such as individual stocks and trading accounts are associated with a promotion concern, whereas mutual funds and retirement accounts are associated with a prevention concern.

If different products are capable of triggering different promotion versus prevention inclinations, then choices among different product categories should lead to different patterns of sensitivity to context effects. In particular, decisions among products that consumers associate with a prevention focus are likely to result in higher preferences for compromise options and lower preferences for asymmetrically dominant options than choices among products that consumers associate with a promotion focus. This implies that depending on the product type, achieving a compromise position can be either a more or a less effective strategy than achieving asymmetric dominance.

H5: Products associated with a promotion focus will be more attractive when presented as asymmetrically dominant options than when presented as compromise options, whereas, products associated with a prevention focus will be more attractive when presented as compromise options than when presented as asymmetrically dominant options.

Chapter 5: Pilot Study

Three experimental studies were conducted to test the proposed hypotheses. The stimulus material used in studies 1 and 2 was developed based on the following pretest.

5.1 Pretest Results

A pretest on 33 undergraduate students (48.5% male; $M_{age} = 21.1$, SD = 1.71) was carried out on ten products having four to five attributes taken from *Consumer Reports* and previous studies (e.g., Chernev 2004b; Simonson and Tversky 1992). When not self-explanatory, product attributes were accompanied by their *Consumer Reports* descriptions to limit potential ambiguity (see Exhibit 1). The pilot study was designed to assess product familiarity, decision involvement, and attribute importance. Product familiarity was measured by a nine-point, three-item scale adapted from Mishra et al. (1993). Decision involvement was assessed by a nine-point, three-item scale adapted from Ratchford (1987). Finally, attribute importance was measured by a nine-point, one-item rating scale (1 being very unimportant and 9 being very important). The list of products and their mean scores on familiarity and decision involvement is provided in Table 1, whereas the list of attributes and their mean importance scores is presented in Table 2.

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Table 1: Mean Scores on Product Familiarity and Decision Involvement

N = 33	Mean Familiarity	Std. Deviation	Mean Involvement	Std. Deviation
Computer	5.90	1.79	6.85	1.43
Toothpaste	6.98	1.42	4.02	1.67
Portable Phone	6.85	1.73	5.08	1.85
Printer	5.31	1.97	5.81	1.56
Electric Grill	3.32	2.23	4.15	1.78
Vacation Package	5.87	1.58	7.42	1.37
Fine Restaurant	3.33	1.89	5.59	2.08
Sports Car	5.28	1.50	7.98	1.71
Anti-virus	4.57	2.64	5.97	1.89
Bike Helmet	5.30	2.38	5.09	2.08

On the basis of this pretest, two high-familiarity products (toothpaste and phone), two medium-familiarity products (printer and helmet), and two low-familiarity products (fine restaurant and grill) were selected for inclusion in study 1. The chosen products displayed average levels of decision involvement with means ranging from 4.02 for toothpaste to 5.81 for printer. One high-familiarity product (toothpaste), one medium-familiarity product (printer), and one low-familiarity product (fine restaurant) were used to construct choice sets including a compromise option. The remaining three products (portable phone, bike helmet, and electric grill) were used in choice sets with an asymmetrically dominated option.

Table 2: Product Attributes and their Mean Importance Scores

Products	Attributes	Mean Importance	Std. Deviation
Computer	Processing speed	8.42	.75
	RAM memory	7.81	1.26
	Disk Space	7.18	1.72
	Warranty	7.06	2.45
	price	7.70	1.47
Toothpaste	Cavity-fighting	7.48	2.18
	Tooth-whitening	7.76	1.95
	Breath-freshening	8.00	1.41
	Price	6.23	2.29
Portable	Voice quality	8.06	.83
Phone	Ease of use	7.21	1.73
	Talk time	8.03	1.53
	Price	7.76	1.41
Printer	Text quality	8.03	1.16
	Text speed	6.97	1.59
	Text cost	7.39	1.73
	Price	7.64	1.50
Electric	Cooking quality	7.24	2.09
Grill	Cooking area	6.48	1.75
	Convenience	7.00	1.79
	Cooking speed	6.97	1.78
	Price	7.67	1.51
Vacation	Weather	8.54	.87
Package	Beach quality	7.94	1.14
	Organized activities	7.42	1.98
	Hotel quality	8.12	1.05
	Price	8.27	1.12
Fine	Food quality	7.94	1.73
Restaurant	Waiting time	6.97	1.86
	Atmosphere	7.60	1.27
	Distance	5.21	2.59
	Price	6.60	2.37
Sports Car	Performance	8.15	.97
	Reliability	8.33	.96
	Style	8.24	1.00
	Price	7.36	2.30
Anti-virus	Versatility	8.03	1.38
Software	Scan speed	6.82	1.74
	Price	7.12	1.45
Bike	Impact	8.18	1.21
Helmet	Retention	7.64	1.29
	Ventilation	6.67	1.57
	Ease of use	6.45	1.89
	Price	6.03	2.39

5.2 Choice Sets

The choice sets used in the examination of the compromise effect are presented in Exhibit 1.A. The choice sets used in the study of the attraction effect are presented in Exhibit 1.B. Each alternative in a given choice set was described on four or five attributes, two of which varied between alternatives. The remaining attributes were set to be equal across alternatives.

For each product, the two varying attributes were chosen on the basis of their importance ratings. Attribute tradeoffs, and hence, compromise and attraction effects are less likely to be observed when one attribute is significantly more important than the other. Therefore, care was taken to select varying attributes with similar importance ratings. For toothpaste, the varying attributes were tooth-whitening and breath-freshening ($M_{whitening} = 7.76$, $SD_{whitening} = 1.95$ vs. $M_{freshening} = 8.00$, $SD_{freshening} = 1.41$; $t = -.568$, $p = .574$). The varying attributes for portable phone were voice quality and talk time ($M_{voice\ quality} = 8.06$, $SD_{voice\ quality} = .83$ vs. $M_{talk\ time} = 8.03$, $SD_{talk\ time} = 1.53$; $t = .092$, $p = .927$). The varying attributes for printer were text quality and text cost ($M_{text\ quality} = 8.03$, $SD_{text\ quality} = 1.16$ vs. $M_{text\ cost} = 7.39$, $SD_{text\ cost} = 1.73$; $t = 1.80$, $p = .081$). The varying attributes for grill were convenience and cooking speed ($M_{convenience} = 7.00$, $SD_{convenience} = 1.79$ vs. $M_{cooking\ speed} = 6.98$, $SD_{cooking\ speed} = 1.77$; $t = .083$, $p = .934$). The varying attributes for fine restaurant were food quality and atmosphere ($M_{food\ quality} = 7.94$, $SD_{food\ quality} = 1.73$ vs. $M_{atmosphere} = 7.61$, $SD_{atmosphere} = 1.27$; $t = .905$, $p = .372$). Finally, the varying attributes for bike helmet were ventilation and ease of use ($M_{ventilation} = 6.67$, $SD_{ventilation} = 1.57$ vs. $M_{ease\ of\ use} = 6.45$, $SD_{ease\ of\ use} = 1.89$; $t = .729$, $p = .472$).

Choice sets including a compromise option were constructed by offering three brands A, B, and C, varying on two attributes, such as: option A is highest on attribute 1 and lowest on attribute 2; option C is highest on attribute 2 and lowest on attribute 1; and option B has intermediate values on both attributes. In this case, options A and C are dubbed extreme options, while option B is called a compromise option. Alternatively, choice sets including an asymmetrically dominated brand were constructed by having three options A, B, and C, varying on two attributes, such as: option C is lower than option B on both attributes; and option A is higher on attribute 1 and lower on attribute 2 than both options B and C. In this case, option A is generally referred to as a competitor brand, option B is the target brand or dominant brand, and option C is the dominated brand or decoy.

Exhibit 1.A: Choice Sets – Compromise Structure

Toothpaste

Imagine that you are shopping for toothpaste. You have narrowed potential selection to the following brands. Which of these would you buy?

	Breath-freshening effectiveness (Rating scale 1-10)	Tooth-whitening effectiveness (Rating scale 1-10)	Cavity-fighting effectiveness (Rating scale 1-10)	Price ($)
Brand A	8	6	8	2.99
Brand B	7	7	8	2.99
Brand C	6	8	8	2.99

Printer

Imagine that you are shopping for a printer. You are considering the following brands. Which one of these would you buy?

	Text quality[1] (Rating scale 1-10)	Text speed[2] (Page per minute)	Text cost[3] (Cents per page)	Price ($)
Brand A	7	8	2.0	200
Brand B	8	8	3.5	200
Brand C	9	8	5.0	200

[1] = how crisply and clearly a printer produces black text in a variety of faces, sizes, and styles
[2] = calculation of the printer's typical output in pages per minute
[3] = estimated cost of black ink and paper to produce a single text page

Restaurant

Imagine that you and your friends have decided to go for a dinner at a fine restaurant. You are considering the following alternatives. Which one of these would you choose?

	Food quality (Rating scale 1-10)	Atmosphere (Rating scale 1-10)	Average queuing time (minutes)	Driving Distance (minutes)	Price per person ($)
Restaurant A	10	6	20	15	40
Restaurant B	8	8	20	15	40
Restaurant C	6	10	20	15	40

Exhibit 1.B: Choice Sets – Asymmetric Dominance Structure

Electric Grill

Imagine that you are shopping for an electric grill. You are considering the following brands. Which one of these would you buy?

	Cooking quality[1] (Rating scale 1-10)	Cooking area (square inches)	Convenience[2] (Rating scale 1-10)	Cooking speed[3] (Rating scale 1-10)	Price ($)
Brand A	10	128	8	6	100
Brand B	10	128	6	8	100
Brand C	10	128	5	7	100

[1] = evaluation of the appearance of the food and, when appropriate, juiciness
[2] = primarily, ease of cleaning, but also includes time for setup and storage
[3] = time required to grill various foods after preheating the grill

Bike Helmet

Imagine that you are shopping for a bike helmet. You are considering the following brands. Which one of these would you buy?

	Impact[1] (Rating scale 1-10)	Retention[2] (Rating scale 1-10)	Ventilation[3] (Rating scale 1-10)	Ease of use[4] (Rating scale 1-10)	Price ($)
Brand A	8	9	9	6	45
Brand B	8	9	7	8	45
Brand C	8	9	6	8	45

[1] = how well the helmet absorbs energy in impact tests
[2] = how well the straps, buckles, and other hardware meet standard strength criteria
[3] = how well air flows through the helmet
[4] = how easily the helmets straps, buckles and other hardware can be adjusted

Portable Phone

Imagine that you are shopping for a cordless phone. You are considering the following brands. Which of these would you buy?

	Voice quality (Rating scale 1-10)	Talk time[1] (Hours)	Ease of use[2] (Rating scale 1-10)	Price ($)
Brand A	9	8	8	35
Brand B	7	10	8	35
Brand C	6	9	8	35

[1] = how long you can converse on the hand set when it is fully charged
[2] = includes handset weight and comfort, ease of phone setup and use, and size of controls and buttons

Chapter 6: Study 1

6.1 Sample

Two hundred and forty eight undergraduate business students at Concordia University participated in study one. The sample comprised one hundred and thirty men (52.4%) and one hundred and eighteen women (47.6%). Participants' age ranged from 18 to 36 with a mean of 22.5 and a standard deviation of 3.3.

6.2 Design

The goal of study 1 was to test the hypotheses that 1) the compromise effect is greater for prevention-focused consumers than for promotion-focused consumers, and 2) the attraction effect is greater for promotion-focused consumers than for prevention-focused consumers.

Two factors were manipulated in a 2 X 2 (either promotion-focus or prevention-focus vs. either two or three options in the choice set) between subjects design. Promotion and prevention foci were manipulated by combining two methods that have been described in the literature. First, participants in the promotion condition were asked to reflect on and write down their most important hopes and aspirations and those in the prevention condition were asked to reflect on and write down their most important duties and obligations (Chernev 2004a; Higgins, Roney, Crowe and Hymes 1994). This manipulation was intended to prime either a promotion or a prevention focus. Next, respondents in the promotion condition were instructed to think and write about times in the past when, trying to achieve something important to them, they performed as well as

they ideally would like to. Those in the prevention condition were instructed to think and write about times in the past when, being careful enough has avoided them getting into trouble (Higgins et al. 2001). This manipulation was intended to make salient respondents' subjective history of success in either using promotion-related eagerness (promotion pride) or prevention-related vigilance (prevention pride) in goal attainment.

Following the regulatory focus manipulations, respondents were presented with a series of choice tasks. Participants in the two-option (core set) condition were presented with choice sets, in six product categories, comprising brands A and B only. Participants in the three-option (extended set) condition chose among brands A, B, and C in six product categories. Respondents indicated their choice, their evaluation of the attractiveness of each option, and their confidence in their choice, the latter two on a seven-point scale. Respondents' gender, age, and their chronic regulatory focus (an individual difference trait) were also recorded. Regulatory focus as a trait was measured using the Regulatory Focus Questionnaire (Higgins et al. 2001), a five-point, eleven-item scale designed to assess individuals' promotion pride and prevention pride.

6.3 Analyses: Choice Patterns

In general, compromise and attraction effects are measured by comparing the relative shares of choice options between the core and the extended sets (e.g., Chernev 2004b; Ratneshwar et al. 1987; Simonson and Tversky 1992). In particular, if P(B; A,C) reflects the share of brand B relative to brands A and C in the extended set {A, B, C} and P(A; B,C) reflects the share of brand A relative to brands B and C in the extended set {A,

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B, C}, then $P_C(B; A)$ is the share of brand B relative to brand A in the same extended set {A, B, C}, with

$$P_C(B; A) = \frac{P(B; A, C)}{P(B; A, C) + P(A; B, C)}$$

Compromise and attraction effects are typically measured by $\Delta\ P_B = P_C(B; A) -$ $P(B; A)$, where $\Delta\ P_B$ refers to the change in the share of brand B relative to brand A as a result of adding brand C to the core set {A, B}, and $P(B; A)$ is the share of brand B relative to brand A in the core set {A, B}. Tables 3A and 3B summarize the choice shares of each alternative across all experimental conditions and for all products. The tables also report the sizes of the compromise and attraction effects (i.e., $\Delta\ P_B$) and whether these effects are statistically significant (i.e., $H0 = P_C(B; A) = P(B; A)$).

Table 3A: Compromise Effect across Promotion and Prevention Foci

Shares in %	Promotion Focus			Prevention Focus		
	Toothpaste	Printer	Restaurant	Toothpaste	Printer	Restaurant
P(A; B)	41.9	56.4	50.0	48.4	69.4	53.2
P(B; A)	58.1	43.6	50.0	51.6	30.6	46.8
P(A; B,C)	24.2	33.9	30.7	11.3	25.8	29.0
P(B; A,C)	48.4	50.0	53.2	62.9	58.1	62.9
P(C; A,B)	27.4	16.1	16.1	25.8	16.1	8.1
$P_C(B; A)$	66.7	59.6	63.5	84.8	69.2	68.4
$\Delta\ P_B$	8.6	16.0	13.5	33.2	38.6	21.6
$\chi^2_{(1)}$	.816	2.92	2.08	5.68	16.9	5.68
p-value	.366	.087	.149	.017	<.001	.017

Table 3B: Attraction Effect across Promotion and Prevention Foci

Shares in %	Promotion Focus			Prevention Focus		
	Helmet	Phone	Grill	Helmet	Phone	Grill
P(A; B)	50.0	83.9	72.6	45.2	74.2	64.5
P(B; A)	50.0	16.1	27.4	54.8	25.8	35.5
P(A; B,C)	37.1	72.6	45.2	41.9	79.0	54.8
P(B; A;C)	59.7	27.4	54.8	51.6	21.0	43.6
P(C; A,B)	3.2	0.0	0.0	6.5	0.0	1.6
P_C(B; A)	61.7	27.4	54.8	55.2	21.0	44.3
ΔP_B	11.7	11.3	27.4	0.4	-4.8	8.8
$\chi^2_{(1)}$	1.68	2.32	9.63	.001	.405	.989
p-value	.336	.128	.002	.971	.524	.320

The results indicate a marked difference in the size of the compromise effect across the promotion and prevention conditions. In the case of toothpaste, for instance, the relative share of the middle option increased by 33.2% (p = .017) under prevention focus but only by 8.6% (p = .366) under promotion focus. Similarly, the share of option B, in the case of printer, increased by 38.6% (p<.001) under prevention focus, while it increased by 16% (p = .087) under promotion focus. Finally, in the case of restaurant, the share of option B increased by 21.6% (p = .017) under prevention focus versus 13.5% (p = .149) under promotion focus. In fact, the compromise effect was statistically significant for all three products under prevention focus, whereas, it failed to reach statistical significance for any of the three products under promotion focus.

Furthermore, the results suggest a notable difference in the size of the attraction effect across the promotion and prevention conditions. The share of the dominant phone, for instance, increased by 11.3% (p = .128) under promotion focus, but it decreased by 4.8% (p = .524) under prevention focus. In the case of helmets, the share of the dominant option increased by 11.7% (p = .336) under promotion focus, while it increased by a mere 0.4% (p = .971) under prevention focus. Although changes in the share of the dominant

option did not reach statistical significance, suggesting weak attraction effects in the case of both helmet and phone, there seems to be an important difference between the sizes of these effects across promotion and prevention focus (11.7% vs. 0.4% for helmet and 11.3% vs. -4.8% for phone). Finally, the share of the dominant grill increased by a significant 27.4% (p = .002) under promotion focus, while it only gained a marginal 8.8% (p = .320) under prevention focus.

Thus, at first glance, these results seem in line with the predicted effects of regulatory focus on consumer sensitivity to compromise and attraction effects. A complete test of hypotheses one and two, however, requires a statistical test of the difference between ΔP_B (promotion) and ΔP_B (prevention). In other words, is a 33.2% increase in the share of the compromise toothpaste really (statistically) greater than an 8.6% increase? Alternatively, is an 11.7% increase in the share of the dominant phone really (statistically) greater than a 0.4% increase? Finally, does the influence of regulatory focus on the compromise and attraction effects hold across different products?

6.4 Analyses: Multilevel Models

By design, the data collected in study 1 are hierarchically structured. I have data on choice scenarios (product category, choice, attractiveness ratings, confidence in choice, and compromise vs. dominance structure), but choice scenarios are nested within individuals since each individual was faced with six choice scenarios. I also have data for each individual (promotion focus versus prevention focus, whether the individual chose from a core set or an extended set, age, gender, and regulatory focus as a trait). Testing the study's hypotheses requires modeling the relationships between some choice scenario

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variables and some individual variables, for example, modeling choice (choice scenario level) as a function of product category (choice scenario level), promotion versus prevention focus (individual level), and core versus extended choice set (individual level).

One way to analyze these nested data is to disaggregate the higher-order (individual level) variables to the lower-level (choice scenario level) and conduct the analyses at the lower choice scenario level. The problem with disaggregating, however, is that if we know that choice scenarios are measured within the same individual then we also know that they have the same value on each individual variable. Therefore, we cannot use the assumption of independence of observations required by the classical statistical techniques. Another way to analyze the data is to aggregate the lower-order variables (choice scenario level) to the higher level (individual level variables) and conduct the analyses at the higher individual level. The problem, here, is that by aggregating we lose all the within individual information, which may represent a substantial part of the total variation at the start of the analysis. As a result, relations among aggregated variables are often much stronger, and may be much different from the relations between non-aggregate variables (Raudenbush and Bryk 2002). In other words, by aggregating data, we not only waste valuable information but we also distort interpretation if we try to interpret the aggregate analysis at the lower choice scenario level.

A more appropriate way to analyze nested data is to use hierarchical or multilevel models. With hierarchical models, each level of the hierarchical structure is formally represented by its own submodel. The submodels describe relationships between

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variables within the same level, and specify how variables within one level influence relations between variables at a different level. In addition, unlike the ordinary regression model, the hierarchical model contains multiple error terms: one for each level.

The hierarchical model begins with a level-1 structural model, which could be expressed as follows:

$$Y_{ij} = \beta_{0j} + \beta_{1j}X_{ij} + r_{ij} \tag{1}$$

Where Y_{ij} is the level-1 dependent variable for observation i (=1,...,N_j) nested in level-2 unit j (1,...J). X_{ij} is the level-1 predictor and r_{ij} is the level-1 disturbance term. The model is similar to the traditional regression model except that the parameters (β_{0j} + β_{1j}) are not fixed. That is, they vary across level-2 units as indicated by the j-subscripts. These parameters could then be influenced by level-2 variables. The effects of a level-2 variable (W) are expressed as follows:

$$\beta_{0j} = \gamma_{00} + \gamma_{01}W_j + u_{0j} \tag{2}$$

$$\beta_{1j} = \gamma_{10} + \gamma_{11}W_j + u_{1j} \tag{3}$$

Equations (2) and (3) form the level-2 model where the γ-parameters represent the fixed level-2 parameters and the u-parameters are disturbance terms. Including level-2 disturbance terms in the model allows us to avoid the questionable assumption underlying simple regression models that the level-2 parameters account for all the variation in level-1 parameters.

Substituting equations (2) and (3) into equation (1) provides the combined model:

$$Y_{ij} = \gamma_{00} + \gamma_{01}W_j + \gamma_{10}X_{ij} + \gamma_{11}W_jX_{ij} + u_{0j} + u_{1j}X_{ij} + r_{ij} \tag{4}$$

Where γ_{00} is the intercept, γ_{01} is the effect of the level-2 variable, γ_{10} is the effect of the level-1 predictor, and γ_{11} is the effect of the cross-level interaction between the level-1 and level-2 predictors. Disturbance terms are represented by u_{0j}, u_{1j}, and r_{ij}.

It is important to note that equation (4) is different from a typical linear regression model. The OLS estimation method in linear regression requires the error terms to be independent and normally distributed. In contrast, the random error in equation (4) is of a more complex form, $u_{0j} + u_{1j} X_{ij} + r_{ij}$. These errors are dependent within each level-2 unit j and have unequal variances. Clearly, OLS cannot estimate such models reliably. However, maximum likelihood procedures, used to estimate hierarchical models are more appropriate (Raudenbush and Bryk 2002).

In what follows, I report six sets of analyses. First, I discuss data pertaining to the compromise effect. I present two sets of analyses, one having a binary choice as the outcome variable and the other having a continuous relative attractiveness measure as the outcome variable. Then, I discuss data relating to the attraction effect. Here again, I offer two sets of analyses having either choice or relative attractiveness as outcome variable. Finally, I present two analyses (one for choice and one for relative attractiveness) in which I modeled compromise and attraction effects simultaneously.

6.4.1 Multilevel Analysis of the Compromise Effect

6.4.1.1 Choice as Outcome

In the present section, I discuss two models: an "unconditional" model with no predictors at either level (also known as "null" or "empty" model); and a "full" model with both level-1 and level-2 predictors. These models, as well as all the following choice

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models, were estimated with the highly accurate Laplace approximation to maximum likelihood (Raudenbush et al. 2001), using the multilevel software HLM5 for Windows (Raudenbush, Bryk, Cheong and Congdon 2000).

6.4.1.1.1 The Unconditional Model

The unconditional model, which is equivalent to a one-way ANOVA with random effects, is often prescribed as a useful preliminary step in the analysis of hierarchical data (Raudenbush and Bryk 2002). Such a model provides information on how much variation in the outcome lies within and between level-2 units (individuals in this case).

The outcome variable considered here is the choice of option B, which takes the value 1 when option B is chosen and the value 0 when it is not. The level-2 dataset consists of 248 respondents, who each answered three choice scenarios related to the compromise effect. This produced 744 level-1 observations. Since the compromise effect is measured by the change in the share of option B relative to option A, any choice of option C was deleted from the level-1 dataset. This reduced the size of the final level-1 sample to 676 observations.

At level-1, the unconditional model is simply:

$$\text{Choice of B} = \beta_{0j} \tag{5}$$

And the level-2 model is:

$$\beta_{0j} = \gamma_{00} + u_{0j}, \qquad u_{0j} \sim N(0, \tau_{00}). \tag{6}$$

The combined model is then:

$$\text{Choice of B} = \gamma_{00} + u_{0j} \tag{7}$$

Here, γ_{00} is the grand mean and represents the average log-odds of choosing option B across all products and all individuals, while τ_{00} is the variance between individuals in individual-average log-odds of choosing option B.

The results from running the unconditional model are summarized in Table 4. For a typical respondent, that is, a respondent with a random effect $u_{0j} = 0$, the expected log-odds of choosing option B is .333. This corresponds to an odds of exp (.333) = 1.395, and a probability of 1 / (1 + exp (-.333)) = .582. This probability of choosing B for a "typical" respondent is not directly relevant to testing my hypotheses. A more useful piece of information is that provided by the results for τ_{00}. Table 4 shows a statistically significant variance at the individual level, indicating that the multilevel nature of the data should not be ignored. To get an idea on the proportion of variation in choice of B that is attributed to either the individual level or the product level, I calculated the intraclass correlation coefficient (ICC). The ICC for hierarchical linear models is obtained by the following formula: $\rho = \tau_{00} / (\tau_{00} + \sigma^2)$, where σ^2 is level-1 variance. In nonlinear models, however, this formula is inaccurate because σ^2 is heteroscedastic (Raudenbush and Bryk 2002). An alternative formula for nonlinear models, such as the logit model estimated here, is $\rho = \tau_{00} / (\tau_{00} + \pi^2/3)$ (Snijders and Bosker 1999; Rubenson 2004). The ICC in this case was .534/ (.534 + 3.29) = .140. Thus 14% of the total variance in choice of option B lies between individuals.

Table 4: Results from the Unconditional Compromise Model - Choice

Fixed Effect	Coefficient	se		
Intercept γ_{00}	.333	.111		
Random Effect	variance component τ_{00}	df	χ^2	p-value
Individual mean u_{0j}	.534	247	335.9	.000

6.4.1.1.2 The Full Model

The full model consists of a multilevel model in which the choice of option B was specified as varying across products (level-1 structural model). In addition, the log-odds of choosing B for each product was modeled, at level-2, to be a function of individuals' regulatory focus condition (represented by the variable 'regcond'), whether they chose from a core or an extended set (represented by the variable 'options'), and the interaction of these variables (represented by the variable 'regcondXoptions').

At level-1, the full model is as follows:

$$\text{Choice of (B)} = \beta_{0j} + \beta_{1j}(\text{printer})_{ij} + \beta_{2j}(\text{restaurant})_{ij} \tag{8}$$

At level-2, the full model is expressed as follows:

$$\beta_{0j} = \gamma_{00} + \gamma_{01}(\text{regcond})_j + \gamma_{02}(\text{options})_j + \gamma_{03}(\text{regcondXoptions})_j + u_{0j} \tag{9}$$

$$\beta_{1j} = \gamma_{10} + \gamma_{11}(\text{regcond})_j + \gamma_{12}(\text{options})_j + \gamma_{13}(\text{regcondXoptions})_j \tag{10}$$

$$\beta_{2j} = \gamma_{20} + \gamma_{21}(\text{regcond})_j + \gamma_{22}(\text{options})_j + \gamma_{23}(\text{regcondXoptions})_j \tag{11}$$

The combined full model is therefore:

$$\text{Choice of (B)} = \gamma_{00} + \gamma_{10}(\text{printer})_{ij} + \gamma_{20}(\text{restaurant})_{ij} + \gamma_{01}(\text{regcond})_j + \gamma_{02}(\text{options})_j$$
$$+ \gamma_{03}(\text{regcondXoptions})_j + \gamma_{11}(\text{regcond})_j (\text{printer})_{ij} + \gamma_{12}(\text{options})_j (\text{printer})_{ij} +$$

$\gamma_{13}(\text{regcondXoptions})_j (\text{printer})_{ij} + \gamma_{21}(\text{regcond})_j (\text{restaurant})_{ij} + \gamma_{22}(\text{options})_j (\text{restaurant})_{ij}$

$+ \gamma_{23}(\text{regcondXoptions})_j (\text{restaurant})_{ij} + u_{0j}$
(12)

The results, summarized in Table 5, indicate that neither regulatory focus condition ($\gamma_{01} = -.309$; p = .472) nor the number of options in the choice set ($\gamma_{02} = .444$; p = .369) had a significant main effect on respondents' log-odds of choosing the compromise toothpaste. The interaction effect, however, was significant ($\gamma_{03} = 1.47$; p = .047). This positive interaction is consistent with the prediction of hypothesis one, according to which the increase in the probability of choosing option B as a result of adding option C to the core set is higher under prevention focus than under promotion focus. Table 5 also shows that the effects of regcond, options, and regcondXoptions do not vary across product categories. Indeed, the cross-level interactions are all below the significance level (see p-values for $\gamma_{11}, \gamma_{12}, \gamma_{13}, \gamma_{21}, \gamma_{22}, \gamma_{23}$). Another interesting result is the still significant individual random effect ($\tau_{00} = .440$, p = .002), which suggests that the individual-level variables included in the model do not account for all the variation in the level-1 intercept.

In addition to recording participants' choices, I also measured their evaluations of the attractiveness of each brand. Replicating the findings from the choice outcome using the attractiveness measure would give additional support to hypothesis one. In the next section, I present the analyses conducted using the relative attractiveness of option B as the outcome variable.

Table 5: Results from the Full Compromise Model - Choice

Fixed Effects	Coefficient	se	t-ratio	p-value
For individual means				
Intercept (toothpaste), γ_{00}	.383	.306	-	-
Regcond, γ_{01}	-.309	.429	-.719	.472
Options, γ_{02}	.444	.493	.900	.369
regcondXoptions, γ_{03}	1.47	.741	1.98	.047
For the printer slope				
Intercept, γ_{10}	-.689	.369	-1.87	.061
Regcond, γ_{11}	-.343	.539	-.637	.524
Options, γ_{12}	.333	.656	.508	.611
regcondXoptions, γ_{13}	-.330	.964	-.343	.732
For the restaurant slope				
Intercept, γ_{20}	-.383	.391	-.981	.327
Regcond, γ_{21}	.155	.540	.287	.774
Options, γ_{22}	.167	.647	.258	.796
regcondXoptions, γ_{23}	-1.02	.895	-1.14	.257

Random Effect	variance component τ_{00}	df	χ^2	p-value
Individual mean u_{0j}	.440	244	311.8	.002

6.4.1.2 Relative Attractiveness as Outcome

Since the compromise effect reflects the attractiveness of the compromise brand (option B) relative to the other brand in the core set (option A), an index of relative attractiveness of option B was created by subtracting the attractiveness score of option A from the attractiveness score of option B. Thus, theoretically, this measure could range from -6 to +6.

The unconditional model for the relative attractiveness of option B is:

Relative Attractiveness of B = $\gamma_{00} + u_{0j} + r_{ij,}$; $r_{ij} \sim N(0, \sigma^2)$, $u_{0j} \sim N(0, \tau_{00})$ (13)

Where γ_{00} represents the mean score of relative attractiveness of B across all products and all individuals, σ^2 is the product-level variance, and τ_{00} is the individual-level variance. The model was estimated using the full maximum likelihood approximation method with HLM 5. The results are summarized in Table 6. Of particular interest is the significant τ_{00}, indicating individual-level differences in the relative attractiveness of option B. The intraclass correlation for this model is $\rho = \tau_{00}/ (\tau_{00} + \sigma^2) = $ .104, indicating that 10.4% of the variance in the relative attractiveness of option B lies between individuals.

Table 6: Results from the Unconditional Compromise Model – Relative Attractiveness

Fixed Effect	Coefficient	se (robust)		
Intercept γ_{00}	.123	.070		
Random Effect	variance component	df	χ^2	p-value
Individual mean u_{0j} (τ_{00})	.294	247	324.4	.001
Product effect r_{ij} (σ^2)	2.54			

The full model for the relative attractiveness of option B is:

Relative Attractiveness of (B) = $\gamma_{00} + \gamma_{10}(printer)_{ij} + \gamma_{20}(restaurant)_{ij} + $

$\gamma_{01}(regcond)_j + \gamma_{02}(options)_j + \gamma_{03}(regcondXoptions)_j + \gamma_{11}(regcond)_j (printer)_{ij} + $

$\gamma_{12}(options) (printer)_{ij} + \gamma_{13}(regcondXoptions)_j (printer)_{ij} + \gamma_{21}(regcond)_j (restaurant)_{ij} + $

$\gamma_{22}(options)_j (restaurant)_{ij} + \gamma_{23}(regcondXoptions)_j (restaurant)_{ij} + u_{0j} + r_{ij}$ (14)

This model was estimated using full maximum likelihood and produced the following results (Table 7):

Table 7: Results from the Full Compromise Model – Relative Attractiveness

Fixed Effects	Coefficient	se (robust)	t-ratio	p-value
For individual means				
Intercept (toothpaste), γ_{00}	-.048	.171	-	-
Regcond, γ_{01}	.226	.251	.900	.368
Options, γ_{02}	.295	.279	1.06	.290
regcondXoptions, γ_{03}	.767	.426	1.80	.071
For the printer slope				
Intercept, γ_{10}	-.210	.260	-.809	.420
Regcond, γ_{11}	-.548	.418	-1.31	.190
Options, γ_{12}	.305	.417	.732	.464
regcondXoptions, γ_{13}	.023	.638	.037	.971
For the restaurant slope				
Intercept, γ_{20}	-.097	.230	-.421	.674
Regcond, γ_{21}	-.645	.379	-1.70	.089
Options, γ_{22}	.048	.342	.141	.888
regcondXoptions, γ_{23}	-.038	.579	-.065	.948

Random Effect	variance component	df	χ^2	p-value
Individual mean u_{0j}	.135	244	283.3	.042
Product effect r_{ij} (σ^2)	2.45			

Consistent with the choice model, Table 7 indicates that neither regulatory focus condition ($\gamma_{01} = .226$; p = .368) nor the number of options in the choice set ($\gamma_{02} = .295$; p = .290) had a significant main effect on the relative attractiveness of the compromise toothpaste. The interaction effect, in this case, was marginally significant ($\gamma_{03} = .767$; p = .071), and in the predicted direction. Table 5 also shows that the effects of options and regcondXoptions do not vary across product categories. The cross-level interactions (γ_{11}, γ_{12}, γ_{13}, γ_{22}, γ_{23}) are all below the significance level. The main effect of regcond, however,

was marginally different for restaurant (γ_{21} = -.645; p = .089). As for the individual level random effect, Table 7 shows a significant τ_{00} = .440, p = .002, indicating that not all the variation in the level-1 intercept is accounted for by the model.

Taken together, the results from the choice model and the relative attractiveness model provide a clear demonstration of how regulatory focus moderates the compromise effect. Across both analyses, I found that the size of the compromise effect (measured by the difference in the relative share (attractiveness) of option B across the core and the extended set) was significantly larger under prevention than under promotion focus. A graphical representation of this effect is shown in figure 3. For the purposes of this graph, I averaged the relative attractiveness scores of the three products. This was possible because the effect of the interaction term RegcondXoptions did not vary across products.
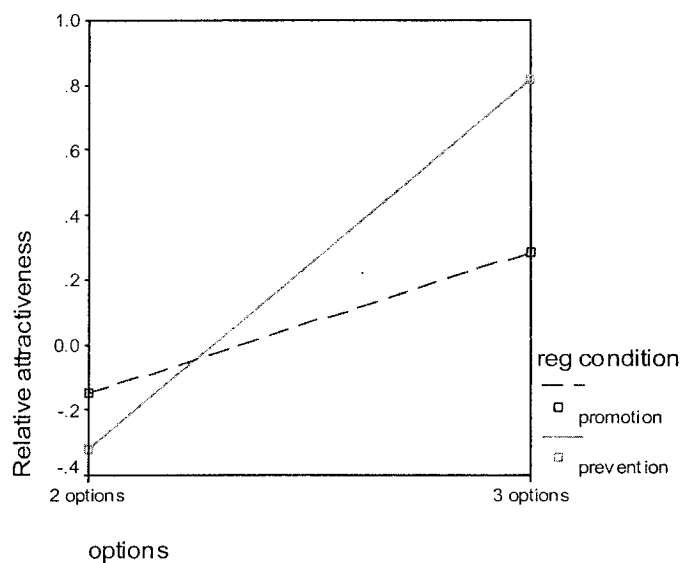
Figure 3: Relative Attractiveness of the Compromise Option

6.4.2 Multilevel Analysis of the Attraction Effect

As in the case of the compromise effect, the outcome variables considered here are the choice and the relative attractiveness of option B. The difference, of course, is in the choice scenarios considered (grill, helmet, and phone in this case). The level-2 dataset consists of 248 respondents, who each answered three choice scenarios related to the attraction effect. This produced 744 level-1 observations. Since the attraction effect is measured by the change in the share of option B relative to option A, any choice of option C was deleted from the level-1 dataset. The final level-1 sample, thus, was composed of 737 observations.

The analyses described in section 6.4.1 were replicated in the study of the attraction effect. These are briefly described under the same subheadings.

6.4.2.1 Choice as Outcome

The Laplace approximation method was used to estimate the unconditional model (as per equation (7)) and the full choice, which could be expressed as follows:

$$\text{Choice of (B)} = \gamma_{00} + \gamma_{10}(\text{helmet})_{ij} + \gamma_{20}(\text{phone})_{ij} + \gamma_{01}(\text{regcond})_j + \gamma_{02}(\text{options})_j +$$

$$\gamma_{03}(\text{regcondXoptions})_j + \gamma_{11}(\text{regcond})_j\,(\text{helmet})_{ij} + \gamma_{12}(\text{options})\,(\text{helmet})_{ij} +$$

$$\gamma_{13}(\text{regcondXoptions})_j\,(\text{helmet})_{ij} + \gamma_{21}(\text{regcond})_j\,(\text{phone})_{ij} + \gamma_{22}(\text{options})_j\,(\text{phone})_{ij} +$$

$$\gamma_{23}(\text{regcondXoptions})_j\,(\text{phone})_{ij} + u_{0j} \tag{15}$$

The results are summarized in Tables 8 and 9.

Table 8: Results from the Unconditional Attraction Model - Choice

Fixed Effect	Coefficient	se		
Intercept γ_{00}	-.454	.084		
Random Effect	variance component τ_{00}	df	χ^2	p-value
Individual mean u_{0j}	.129	247	269.9	.152

Table 8 indicates that, across all products and individuals, the probability of choosing option B is $1 / (1 + \exp (.454)) = 38.8\%$. More importantly, Table 8 reports a non-significant individual-level random effect, suggesting little variance between individuals in the choice of option B. This was confirmed by a very low intraclass correlation coefficient of .0129. Thus, only 1.29% of the variance in the choice of option B lies between subjects.

Results from the full model (Table 9) indicate no main effect of regulatory focus condition ($\gamma_{01} = .410$; $p = .341$) on the choice of the dominant grill. Furthermore, contrary to the prediction in hypothesis 2, the interaction between regulatory focus and the number of options in the choice set was non-significant ($\gamma_{03} = -.872$; $p = 137$). The effect (or the non-effect) of the interaction term was also found to be invariant across the three products. On the other hand, the analysis revealed a significant main effect of options ($\gamma_{02} = 1.27$; $p = .003$). The positive sign of the effect indicates that the probability of choosing option B was significantly higher among those choosing from the extended set than those choosing from the core set. The other significant fixed effect is the intercept ($\gamma_{10} = 1.06$; $p = .007$) for helmet. This simply suggests that, under promotion focus, the probability of selecting option B from the core set was significantly higher in the case of helmet than in

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the case of grill. Finally, a significant individual-level random effect ($\tau_{00} = .252$; p = .025) indicates that the choice of grill B varies across individuals but this variation was not accounted for by the model.

Table 9: Results from the Full Attraction Model - Choice

Fixed Effects	Coefficient	se	t-ratio	p-value
For individual means				
Intercept (grill), γ_{00}	-1.06	.317	-	-
Regcond, γ_{01}	.410	.430	.954	.341
Options, γ_{02}	1.27	.427	3.02	.003
regcondXoptions, γ_{03}	-.872	.586	-1.49	.137
For the helmet slope				
Intercept, γ_{10}	1.06	.395	2.70	.007
Regcond, γ_{11}	-.197	.529	-.372	.710
Options, γ_{12}	-.766	.560	-1.37	.171
regcondXoptions, γ_{13}	.387	.767	.504	.614
For the phone slope				
Intercept, γ_{20}	-.723	.510	-1.418	.156
Regcond, γ_{21}	.227	.658	.344	.730
Options, γ_{22}	-.555	.864	-.864	.388
regcondXoptions, γ_{23}	-.144	.165	-.165	.869

Random Effect	variance component τ_{00}	df	χ^2	p-value
Individual mean u_{0j}	.252	244	289.0	.025

6.4.2.2 Relative Attractiveness as Outcome

Using the same measure of relative attractiveness of option B as in the compromise analysis, I fitted the unconditional model (as per equation 13) and the following full model (the results are shown in Tables 10 and 11):

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Relative Attractiveness of (B) = γ_{00} + γ_{10}(helmet)$_{ij}$ + γ_{20}(phone)$_{ij}$ + γ_{01}(regcond)$_j$ +

γ_{02}(options)$_j$ + γ_{03}(regcondXoptions)$_j$ + γ_{11}(regcond)$_j$ (helmet)$_{ij}$ + γ_{12}(options) (helmet)$_{ij}$ +

γ_{13}(regcondXoptions)$_j$ (helmet)$_{ij}$ + γ_{21}(regcond)$_j$ (phone)$_{ij}$ + γ_{22}(options)$_j$ (phone)$_{ij}$ +

γ_{23}(regcondXoptions)$_j$ (phone)$_{ij}$ + u$_{0j}$ + r$_{ij}$ (16)

Table 10: Results from the Unconditional Attraction Model – Relative Attractiveness

Fixed Effect		Coefficient	se (robust)		
Intercept γ_{00}		-.195	.060		
Random Effect	variance component	df	χ^2	p-value	
Individual mean u$_{0j}$ (τ_{00})	.014	247	245.0	>.500	
Product effect r$_{ij}$ (σ^2)	2.72				

Results from the unconditional model paint the same picture as the one provided by the unconditional choice model. That is, a non-significant random effect at level-2 and a small intraclass correlation coefficient (.5% of the total variation in the relative attractiveness score).

Analysis of the full model revealed no main effect of regulatory focus (γ_{01} = .419; p = .115) and a positive main effect of options (γ_{02} = 1.07; p = .000) on the relative attractiveness of option B. These findings are parallel to those obtained from the analysis of choices. The interaction effect (γ_{03} = -.873; p = .028), however, was significant in this case, suggesting that the effect of options on the relative attractiveness of the dominant grill is moderated by regulatory focus. Consistent with hypothesis two, the negative interaction coefficient indicates that the relative attractiveness of the dominant option is greater among promotion-focused than among prevention-focused individuals.

Furthermore, the effect of the interaction term did not vary across products, as indicated by non-significant γ_{13} and γ_{23} coefficients. A visual representation of this interaction effect (averaged across the three products) is shown in figure 4. Finally, Table 11 also shows a significant difference in the main effect of options between grill and phone (γ_{22} = -.742; p = .042) and a significant intercept (γ_{10} = .774; p = .003) for helmet. The latter means that, under promotion focus, the relative attractiveness of option B in the core set was higher in the case of helmet than in the case of grill.

Table 11: Results from the Full Attraction Model – Relative Attractiveness

Fixed Effects	Coefficient	se (robust)	t-ratio	p-value
For individual means				
Intercept (grill), γ_{00}	-.758	.170	-	-
Regcond, γ_{01}	.419	.267	1.57	.115
Options, γ_{02}	1.07	.281	3.78	.000
regcondXoptions, γ_{03}	-.873	.397	-2.20	.028
For the helmet slope				
Intercept, γ_{10}	.774	.254	3.04	.003
Regcond, γ_{11}	-.177	.437	-.406	.685
Options, γ_{12}	-.381	.403	-.946	.345
regcondXoptions, γ_{13}	.467	.598	.781	.435
For the phone slope				
Intercept, γ_{20}	-.080	.216	-.374	.708
Regcond, γ_{21}	-.355	.341	-1.04	.298
Options, γ_{22}	-.742	.365	-2.03	.042
regcondXoptions, γ_{23}	.615	.510	1.21	.228

Random Effect	variance component	df	χ^2	p-value
Individual mean u_{0j}	.020	244	254.6	.307
Product effect r_{ij} (σ^2)	2.44			
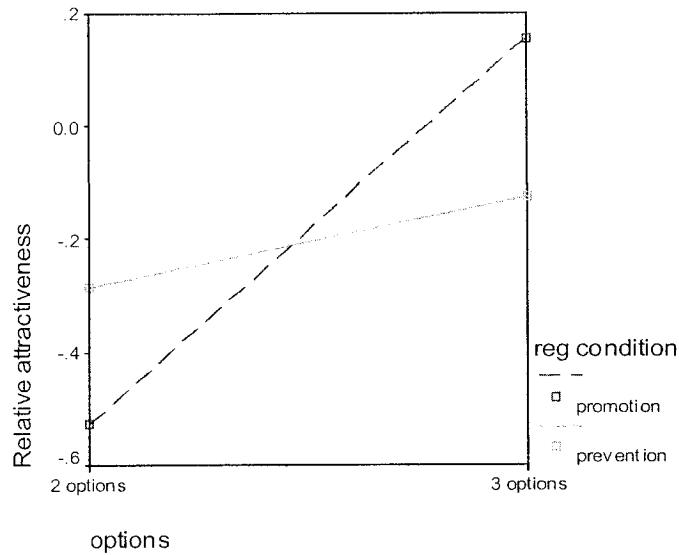
Figure 4: Relative Attractiveness of the Dominant Option

In sum, regulatory focus was found to moderate the size of the attraction effect when measured in terms of attractiveness ratings but not when measured in terms of choice. Therefore, hypothesis 2 was only partially supported.

6.4.3 Simultaneous Analysis of the Compromise and Attraction Effects

When considered simultaneously, hypotheses 1 and 2 predict that prevention-focused people would be more sensitive to the compromise effect and less sensitive to the attraction effect than promotion-focused people. This differential effect of regulatory focus on compromise and attraction effects was examined by analyzing choices in the six product categories simultaneously. A "context" variable was created and was coded 0 when the choice scenario was related to the compromise effect (i.e., for toothpaste, printer, and restaurant). Context was coded 1 when the choice scenario was related to the attraction effect (i.e., for grill, helmet, and phone). The level-1 dataset in this case comprised 1413 observations ((6 products * 248 respondents) – choices of C).

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6.4.3.1 Choice as Outcome

The unconditional model is of little interest to the present analyses and was therefore omitted.

At level-1, the full choice model is as follows:

$$\text{Choice of (B)} = \beta_{0j} + \beta_{1j}(\text{context})_{ij} \tag{17}$$

At level-2, the full model is as follows:

$$\beta_{0j} = \gamma_{00} + \gamma_{01}(\text{regcond})_j + \gamma_{02}(\text{options}) + \gamma_{03}(\text{regcondXoptions}) + u_{0j} \tag{18}$$

$$\beta_{1j} = \gamma_{10} + \gamma_{11}(\text{regcond})_j + \gamma_{12}(\text{options}) + \gamma_{13}(\text{regcondXoptions}) \tag{19}$$

The combined full model is therefore:

$$\text{Choice of (B)} = \gamma_{00} + \gamma_{10}(\text{context})_{ij} + \gamma_{01}(\text{regcond})_j + \gamma_{02}(\text{options})_j +$$

$$\gamma_{03}(\text{regcondXoptions})_j + \gamma_{11}(\text{regcond})_j(\text{context})_{ij} + \gamma_{12}(\text{options})(\text{context})_{ij} +$$

$$\gamma_{13}(\text{regcondXoptions})_j(\text{context})_{ij} + u_{0j} \tag{20}$$

Of particular interest are the parameters γ_{03} and γ_{13}. While γ_{03} represents the effect of the interaction between regulatory condition and options on the probability of choosing option B when option B is a compromise option, γ_{13} corresponds to the difference in that effect when option B is a dominant option instead. The results show a significant effect when option B is a compromise ($\gamma_{03} = .810$; $p = .011$), thus, confirming the findings presented earlier. More importantly, the results also show a significant cross-level interaction ($\gamma_{13} = -1.48$; $p = .001$) indicating that the interaction effect of regulatory focus and options on the probability of choosing option B is indeed different across contexts (attraction versus compromise).

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6.4.3.2 Relative Attractiveness as Outcome

The analysis of the full model was replicated using relative attractiveness as the outcome variable.

Relative Attractiveness of (B) $= \gamma_{00} + \gamma_{10}(\text{context})_{ij} + \gamma_{01}(\text{regcond})_j + \gamma_{02}(\text{options})_j$

$+ \gamma_{03}(\text{regcondXoptions})_j + \gamma_{11}(\text{regcond})_j (\text{context})_{ij} + \gamma_{12}(\text{options}) (\text{context})_{ij} +$

$\gamma_{13}(\text{regcondXoptions})_j (\text{context})_{ij} + u_{0j} + r_{ij}$
$\hspace{4cm}$ (21)

The results are consistent with those pertaining to the choice analysis ($\gamma_{03} = .735$; $p = .005$; and $\gamma_{03} = -1.25$; $p = .000$) and lead to the conclusion that regulatory focus influences the compromise and attraction effects differently.

Chapter 7: Study 2

7.1 Sample

The sample for study 2 consisted of 246 undergraduate business students at Concordia University. The respondents were 54.1% males and varied in age from 18 to 36 with a mean of 22.7 and a standard deviation of 3.1.

7.2. Design

Study 2 was designed to test the hypotheses that 1) regulatory focus would moderate the effect of justification on consumers' preference for compromise options, and 2) regulatory focus would moderate the effect of justification on consumers' preference for asymmetrically dominant options.

Two factors were manipulated in a 2 X 2 (either promotion-focus or prevention-focus vs. either no justification or justification) between subjects design. Promotion and prevention foci were manipulated as in study 1. One hundred and twenty two respondents in the justification condition were asked to provide reasons for choosing one option over the others. They were instructed to do so after reviewing each of the choice scenarios but before indicating their choices and rating options (Briley and al. 2000). Space for reasons was provided above the choice sets to encourage respondents to think about reasons before rather than after making a decision. The no justification condition was composed of the 124 respondents from study 1, who made their decisions from the extended choice sets. Following the regulatory focus manipulations, respondents were presented with four of the six extended choice scenarios used in study 1 (toothpaste and restaurant for the

compromise effect; and grill and helmet for the attraction effect). As in study 1, respondents indicated their choice, their evaluation of the attractiveness of each option, and their confidence in their choice. Respondents' gender, age, and their chronic regulatory focus were also recorded.

7.3 Analyses: Choice Patterns

The choice shares across experimental conditions are presented in Tables 12A and 12B. The tables also report the differences in the share of option B, that is Δ P(B; A, C), between the justification and the no justification conditions.

Table 12A: Effect of Justification on Choice of Compromise across Promotion and Prevention Foci

		Promotion		Prevention	
		Toothpaste	Restaurant	Toothpaste	Restaurant
No	P(A; B, C)	24.2	30.7	11.3	29.0
Justification	P(B; A, C)	48.4	53.2	62.9	62.9
	P(C; A, B)	27.4	16.1	25.8	8.1
Justification	P(A; B, C)	34.4	44.2	8.2	11.5
	P(B; A, C)	34.4	41.0	78.7	82.0
	P(C; A, B)	31.2	14.8	13.1	6.5
	Δ P(B; A, C)	-14.0	-12.2	15.8	19.1

Table 12B: Effect of Justification on Choice of Dominance across Promotion and Prevention Foci

		Promotion		Prevention	
		Grill	Helmet	Grill	Helmet
No	P(A; B, C)	45.2	37.1	54.8	41.9
Justification	P(B; A, C)	54.8	59.7	43.6	51.6
	P(C; A, B)	0.0	3.2	1.6	6.5
Justification	P(A; B, C)	24.6	19.7	59.0	49.2
	P(B; A, C)	72.1	75.4	36.1	39.3
	P(C; A, B)	3.3	4.9	4.9	11.5
	Δ P(B; A, C)	17.3	15.7	-7.5	-12.3

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Table 12A shows that justification had opposite effects on consumers' preference for compromise options across prevention and promotion conditions. Consistent with hypothesis 3, the share of the compromise toothpaste increased by 15.8% under prevention focus, but it was reduced by 14.0% under promotion focus. Similarly, the share of the compromise restaurant, when respondents are asked to justify their choice, increased by 19.1% under prevention focus and decreased by 12.2 percent under promotion focus.

In addition, Table 12B suggests a notable difference in the effect of justification on consumers' preference for dominant options across promotion and prevention foci. In line with hypothesis 4, the share of the dominant grill increased by 17.3% under promotion focus, but it decreased by 7.5% under prevention focus. In the case of helmets, the share of the dominant option increased by 15.7% under promotion focus, while it decreased by 12.3% under prevention focus.

Thus, these results seem to support the predictions that asking people to justify their choices would influence their preference for compromise and dominant options differently across promotion and prevention foci. A complete test of hypotheses three and four, however, requires a statistical test of the difference between Δ P(B; A, C) (promotion) and Δ P(B; A, C) (prevention).

7.4 Multilevel Analysis

Here again, I have data on choice scenarios, which are nested within individuals. Following the same presentation structure as in study one, I report several sets of multilevel analyses. I discuss preference for compromise options and preference for

dominant options separately before analyzing them simultaneously. In each case, I present analyses of binary choices and of relative attractiveness

7.4.1 Multilevel Analysis of the Preference for Compromise Options

7.4.1.1 Choice as Outcome

The level-2 dataset consists of 246 respondents, who each answered two choice scenarios related to their preference for compromise options. This produced 492 level-1 observations. With choice of B as the outcome variable, the unconditional model (as per equation 7) revealed a significant individual-level random effect ($\tau_{00} = .350$; $p = .031$) and an intraclass correlation coefficient of 9.6%.

The full model consists of a multilevel model in which the choice of option B was specified as varying across products (level-1 structural model). In addition, the log-odds of choosing B for each product was modeled, at level-2, to be a function of individuals' regulatory focus condition (represented by the variable 'regcond'), whether they had to justify their choice (represented by the variable 'reasons'), and the interaction of these variables (represented by the variable 'regcondXreasons').

At level-1, the full model is as follows:

$$\text{Choice of (B)} = \beta_{0j} + \beta_{1j} (\text{restaurant})_{ij} \qquad (22)$$

At level-2, the full model is:

$$\beta_{0j} = \gamma_{00} + \gamma_{01}(\text{regcond})_j + \gamma_{02}(\text{reasons}) + \gamma_{03}(\text{regcondXreasons}) + u_{0j} \qquad (23)$$

$$\beta_{1j} = \gamma_{10} + \gamma_{11}(\text{regcond})_j + \gamma_{12}(\text{reasons}) + \gamma_{13}(\text{regcondXreasons}) \qquad (24)$$

The combined full model is therefore:

Choice of (B) $= \gamma_{00} + \gamma_{10}(\text{restaurant})_{ij} + \gamma_{01}(\text{regcond})_j + \gamma_{02}(\text{reasons})_j +$

$\gamma_{03}(\text{regcondXreasons})_j + \gamma_{11}(\text{regcond})_j (\text{restaurant})_{ij} + \gamma_{12}(\text{reasons}) (\text{restaurant})_{ij} +$

$\gamma_{13}(\text{regcondXreasons})_j (\text{restaurant})_{ij} + u_{0j}$ (25)

The results, summarized in Table 13, indicate that neither regulatory focus condition ($\gamma_{01} = .636$; p = .112) nor justification ($\gamma_{02} = -.622$; p = .124) had a significant main effect on respondents' log-odds of choosing the compromise toothpaste. The interaction effect, however, was significant ($\gamma_{03} = 1.45$; p = .016). This positive interaction is consistent with the prediction of hypothesis three, according to which the increase in the probability of choosing option B as a result of justification is higher under prevention focus than under promotion focus (since it is supposed to decrease under promotion focus). Table 13 also shows that the effects of regcond, options, and regcondXoptions do not vary across product categories. Indeed, the cross-level interactions are all below the significance level (see p-values for $\gamma_{11}, \gamma_{12}, \gamma_{13}$). Finally, a non-significant $\tau_{00} = .145$, p = .260 indicates that most of the variation in the level-1 intercept was accounted for by the model.

As in study one, participants' evaluations of the attractiveness of each option were recorded in addition to their choice. Replicating the findings from the choice outcome using the attractiveness measure would give additional support to hypothesis three. In the next section, I present the analyses conducted using the relative attractiveness of option B as the outcome variable.

Table 13: Results from the Full Choice Model – Preference for Compromise

Fixed Effects	Coefficient	se	t-ratio	p-value
For individual means				
Intercept (toothpaste), γ_{00}	-.069	.278	-	-
Regcond, γ_{01}	.636	.400	1.59	.112
Reasons, γ_{02}	-.622	.405	-1.54	.124
regcondXreasons, γ_{03}	1.45	.602	2.41	.016
For the restaurant slope				
Intercept, γ_{10}	.209	.419	.498	.618
Regcond, γ_{11}	-.209	.548	-.380	.703
Reasons, γ_{12}	.091	.586	.155	.877
regcondXreasons, γ_{13}	-.330	.964	-.343	.732

Random Effect	variance component τ_{00}	df	χ^2	p-value
Individual mean u_{0j}	.145	242	255.7	.260

7.4.1.2 Relative Attractiveness as Outcome

An index of relative attractiveness of option B was created by subtracting the average attractiveness score given to the two extreme options from the attractiveness score of option B.

The unconditional model for the relative attractiveness of option B (as per equation 13) produced similar results as the unconditional choice model. That is, a significant individual-level variance (τ_{00} = .233; p = .001) and an intraclass correlation coefficient of 13.5%.

The full model for the relative attractiveness of option B can be expressed as follows:

Relative Attractiveness of (B) = $\gamma_{00} + \gamma_{10}(\text{restaurant})_{ij} + \gamma_{01}(\text{regcond})_j +$

$\gamma_{02}(\text{reasons})_j + \gamma_{03}(\text{regcondXreasons})_j + \gamma_{11}(\text{regcond})_j(\text{restaurant})_{ij} + \gamma_{12}(\text{reasons})$

$(\text{restaurant})_{ij} + \gamma_{13}(\text{regcondXreasons})_j(\text{restaurant})_{ij} + u_{0j} + r_{ij}$ 　　　　(25)

This model was estimated using full maximum likelihood. The results, summarized in Table 14, confirm the interaction effect of regulatory focus and reasons ($\gamma_{03} = .796$; $p = .012$) on consumer preference for compromise options and, thus, give additional support to hypothesis 3. Table 14 also shows that justification ($\gamma_{02} = -.282$; $p = .178$) had no significant main effect on the relative attractiveness of the compromise toothpaste, while regulatory focus had a positive effect ($\gamma_{01} = .565$; $p = .012$), suggesting that prevention-focused consumers generally rated the compromise toothpaste more favorably than promotion-focused consumers. Moreover, a significant intercept ($\gamma_{10} = .484$; $p = .004$) for helmet means that, under promotion focus, the relative attractiveness of option B in the no justification condition was higher for helmet than for grill. Furthermore, the effects of regulatory focus, justification, and their interaction did not vary between products. The cross-level interactions (γ_{11}, γ_{12}, γ_{13}) are all below the significance level. Finally, Table 14 shows a non-significant $\tau_{00} = .057$, $p = .147$, indicating that most of the variation in the level-1 intercept was accounted for by the model.

In sum, the results from the choice model and the relative attractiveness model demonstrate that the effect of justification on consumers' preference for compromise options is different across promotion and prevention conditions. Justification increases the attractiveness of the compromise option under prevention focus but decreases it under promotion focus. A graphical representation of this effect is shown in figure 5.

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Table 14: Results from the Full Attractiveness Model – Preference for Compromise

Fixed Effects	Coefficient	se (robust)	t-ratio	p-value
For individual means				
Intercept (toothpaste), γ_{00}	.315	.147	-	-
Regcond, γ_{01}	.565	.225	2.51	.012
Reasons, γ_{02}	-.282	.209	-1.35	.178
regcondXreasons, γ_{03}	.796	.314	2.53	.012
For the restaurant slope				
Intercept, γ_{10}	.484	.168	2.88	.004
Regcond, γ_{11}	-.379	.313	-1.21	.226
Reasons, γ_{12}	-.263	.260	-1.01	.313
regcondXreasons, γ_{13}	.051	.435	.118	.907

Random Effect	variance component	df	χ^2	p-value
Individual mean u_{0j}	.057	242	265.1	.147
Product effect r_{ij} (σ^2)	1.45			
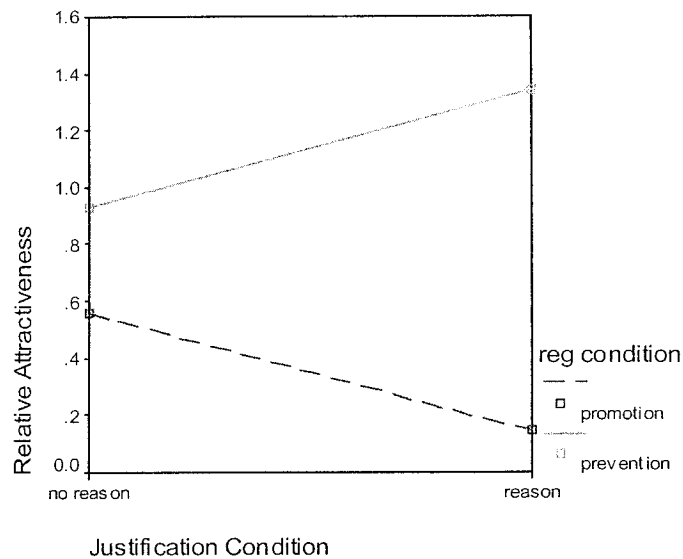
Figure 5: Justification and Attractiveness of Compromise Options
across Promotion and Prevention Foci

7.4.2 Multilevel Analysis of the Preference for Dominant Options

Here again, the level-1 data set consisted of 492 observations (246 respondents *
2 choice scenarios).

7.4.2.1 Choice as Outcome

The unconditional choice model (as per equation 7) produced a marginally
significant individual-level variance (τ_{00} = .250; p = .078) and an intraclass correlation
coefficient of 7.1%.

The full choice model could be expressed as follows:

$$\text{Choice of (B)} = \gamma_{00} + \gamma_{10}(\text{helmet})_{ij} + \gamma_{01}(\text{regcond})_j + \gamma_{02}(\text{reasons})_j +$$

$$\gamma_{03}(\text{regcondXreasons})_j + \gamma_{11}(\text{regcond})_j (\text{helmet})_{ij} + \gamma_{12}(\text{reasons}) (\text{helmet})_{ij} +$$

$$\gamma_{13}(\text{regcondXreasons})_j (\text{helmet})_{ij} + u_{0j} \qquad (25)$$

Table 15: Results from the Full Choice Model – Preference for Dominant Option

Fixed Effects	Coefficient	se	t-ratio	p-value
For individual means				
Intercept (Grill), γ_{00}	.206	.273	-	-
Regcond, γ_{01}	-.480	.386	-1.25	.213
Reasons, γ_{02}	.797	.408	1.95	.050
regcondXreasons, γ_{03}	-1.13	.567	-1.99	.047
For the helmet slope				
Intercept, γ_{10}	.209	.402	.521	.602
Regcond, γ_{11}	.134	.549	.243	.808
Reasons, γ_{12}	-.032	.586	-.054	.957
regcondXreasons, γ_{13}	-.164	.780	-.210	.834

Random Effect	variance component τ_{00}	df	χ^2	p-value
Individual mean u_{0j}	.112	242	257.2	.240

Results from the full model, summarized in Table 15, indicate no main effect of regulatory focus condition ($\gamma_{01} = -.410$; $p = .213$) on the choice of the dominant grill. The analysis, however, revealed a significant main effect of reasons ($\gamma_{02} = .797$; $p = .050$). The positive sign of the effect suggests that the probability of choosing option B was generally higher among those who had to justify their choice than those who did not. Most importantly, the interaction between regulatory focus and justification was significant ($\gamma_{03} = -1.13$; $p = .047$). The negative sign of the interaction term is consistent with hypothesis four, which predicts that the increase in the probability of choosing option B as a result of justification would be higher among promotion-focused individuals than among prevention-focused individuals (since it is supposed to decrease under prevention focus). Furthermore, the effects of regulatory focus, justification, and their interaction did not vary between products, as indicated by non-significant cross-level interactions (γ_{11}, γ_{12}, γ_{13}). Finally, a non-significant individual-level random effect ($\tau_{00} = .112$; $p = .240$) indicates that most of the variation in the level-1 intercept was accounted for by the model.

7.4.2.2 Relative Attractiveness as Outcome

The unconditional model (as per equation 13) and the following full model were specified and estimated using full maximum likelihood:

Relative Attractiveness of (B) $= \gamma_{00} + \gamma_{10}(\text{helmet})_{ij} + \gamma_{20}(\text{phone})_{ij} + \gamma_{01}(\text{regcond})_j +$

$\gamma_{02}(\text{reasons})_j + \gamma_{03}(\text{regcondXreasons})_j + \gamma_{11}(\text{regcond})_j (\text{helmet})_{ij} + \gamma_{12}(\text{reasons}) (\text{helmet})_{ij}$

$+ \gamma_{13}(\text{regcondXreasons})_j (\text{helmet})_{ij} + u_{0j} + r_{ij}$ (26)

Results from the unconditional model show a significant random effect at level-2 ($\tau_{00} = .282$; $p = .000$) and an intraclass correlation coefficient of 14.7%.

Table 16: Results from the Full Attractiveness Model – Preference for Dominant Options

Fixed Effects	Coefficient	se (robust)	t-ratio	p-value
For individual means				
Intercept (grill), γ_{00}	1.02	.171	-	-
Regcond, γ_{01}	-.419	.225	-1.86	.062
Reasons, γ_{02}	.492	.245	2.01	.044
regcondXreasons, γ_{03}	-.663	.336	-1.97	.048
For the helmet slope				
Intercept, γ_{10}	.097	.229	.422	.673
Regcond, γ_{11}	.137	.298	.459	.645
Reasons, γ_{12}	-.056	.334	-.167	.868
regcondXreasons, γ_{13}	-.096	.460	-.209	.835

Random Effect	variance component	df	χ^2	p-value
Individual mean u_{0j}	.129	242	279.3	.050
Product effect r_{ij} (σ^2)	1.65			

Analysis of the full model, summarized in Table 16, confirmed the interaction effect of regulatory focus and reasons (γ_{03} = -.663; p = .048) on consumer preference for dominant options and, thus, offered additional support to hypothesis 4. The results also revealed a significant main effect of justification (γ_{02} = .492; p = .048) and a marginally significant main effect of regulatory focus (γ_{01} = -.419; p = .062) on the relative attractiveness of option B. Furthermore, consistent with the results from the choice model, the effects of regulatory focus, justification, and their interaction did not vary between products, as indicated by non-significant cross-level interactions (γ_{11}, γ_{12}, γ_{13}). Finally, a significant individual-level random effect (τ_{00} = .129; p = .050) indicates that not all the variation in the level-1 intercept was accounted for by the model. A visual

representation of how regulatory focus moderates the relationship between justification

and consumer preference for dominant options is shown in figure 6.
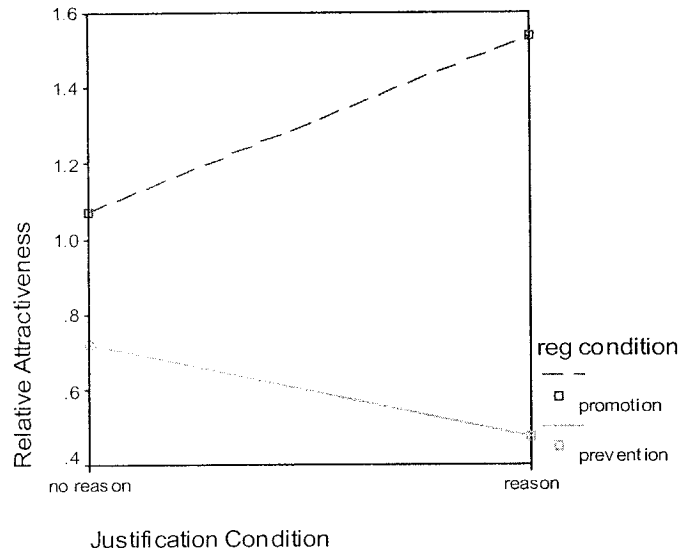
Figure 6: Justification and Attractiveness of Dominant Options
across Promotion and Prevention Foci

7.4.3 Simultaneous Analysis of the Compromise and Attraction Effects

When considered simultaneously, hypotheses 3 and 4 predict that under

prevention focus, providing reasons for one's decisions would lead to a higher preference

for compromise options and a lower preference for dominant options. In contrast, under

promotion focus, having to justify one's choice would reduce a consumer's preference

for compromise options, while increasing his/her preference for dominant options. This

differential effect of regulatory focus was examined by analyzing choices in the four

product categories simultaneously. As in study 1, a "context" variable was created and

was coded 0 when the choice scenario included a compromise structure (i.e., for

toothpaste and restaurant). Context was coded 1 when the choice scenario included an

asymmetric dominance structure (i.e., for grill and helmet). The level-1 dataset in this case comprised 984 observations (4 products * 246 respondent).

7.4.3.1 Choice as Outcome

At level-1, the full choice model is as follows:

$$\text{Choice of (B)} = \beta_{0j} + \beta_{1j}(\text{context})_{ij} \tag{27}$$

At level-2, the full model is as follows:

$$\beta_{0j} = \gamma_{00} + \gamma_{01}(\text{regcond})_j + \gamma_{02}(\text{reasons}) + \gamma_{03}(\text{regcondXreasons}) + u_{0j} \tag{28}$$

$$\beta_{1j} = \gamma_{10} + \gamma_{11}(\text{regcond})_j + \gamma_{12}(\text{reasons}) + \gamma_{13}(\text{regcondXreasons}) \tag{29}$$

The combined full model is therefore:

$$\text{Choice of (B)} = \gamma_{00} + \gamma_{10}(\text{context})_{ij} + \gamma_{01}(\text{regcond})_j + \gamma_{02}(\text{reasons})_j +$$

$$\gamma_{03}(\text{regcondXreasons})_j + \gamma_{11}(\text{regcond})_j(\text{context})_{ij} + \gamma_{12}(\text{reasons})(\text{context})_{ij} +$$

$$\gamma_{13}(\text{regcondXreasons})_j(\text{context})_{ij} + u_{0j} \tag{30}$$

Of particular interest are the parameters γ_{03} and γ_{13}. While γ_{03} represents the effect of the interaction between regulatory condition and reasons on the probability of choosing option B when option B is a compromise option, γ_{13} corresponds to the difference in that effect when option B is a dominant option instead. The results show a significant effect when option B is a compromise ($\gamma_{03} = 1.47$; $p = .011$), thus, confirming the findings presented earlier. More importantly, the results also show a significant cross-level interaction ($\gamma_{13} = -2.67$; $p = .000$) indicating that the interaction effect of regulatory focus and reasons on the probability of choosing option B is indeed different across contexts (compromise versus asymmetric dominance).

7.4.3.2 Relative Attractiveness as Outcome

The analysis of the full model was replicated using relative attractiveness as the outcome variable.

$$\text{Relative Attractiveness of (B)} = \gamma_{00} + \gamma_{10}(\text{context})_{ij} + \gamma_{01}(\text{regcond})_j + \gamma_{02}(\text{reasons})_j$$
$$+ \gamma_{03}(\text{regcondXreasons})_j + \gamma_{11}(\text{regcond})_j(\text{context})_{ij} + \gamma_{12}(\text{reasons})(\text{context})_{ij} +$$
$$\gamma_{13}(\text{regcondXreasons})_j(\text{context})_{ij} + u_{0j} + r_{ij} \tag{31}$$

The results are consistent with those for the choice analysis ($\gamma_{03} = .822$; $p = .000$; and $\gamma_{03} = -1.53$; $p = .000$) and lead to the conclusion that regulatory focus moderates the effect of justification on consumer preferences for compromise and dominant options in different manners. Figures 7A and 7B provide graphical illustrations of this effect.
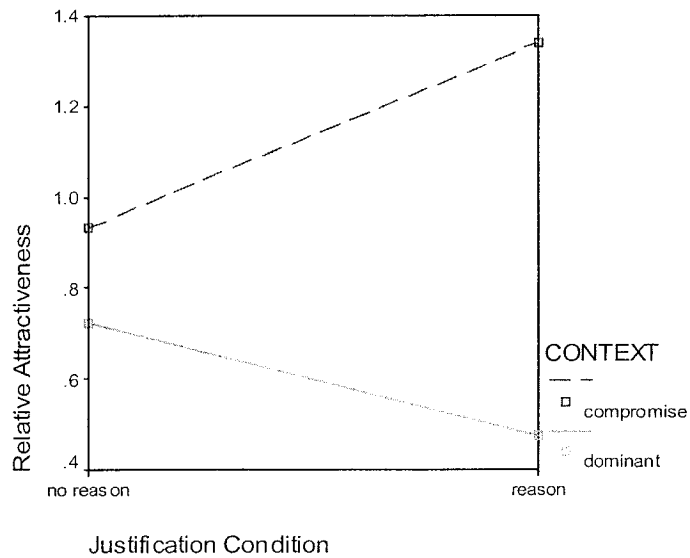
Figure 7A: Differential Effect of Justification on Preference for Compromise and Dominant Options under Prevention Focus

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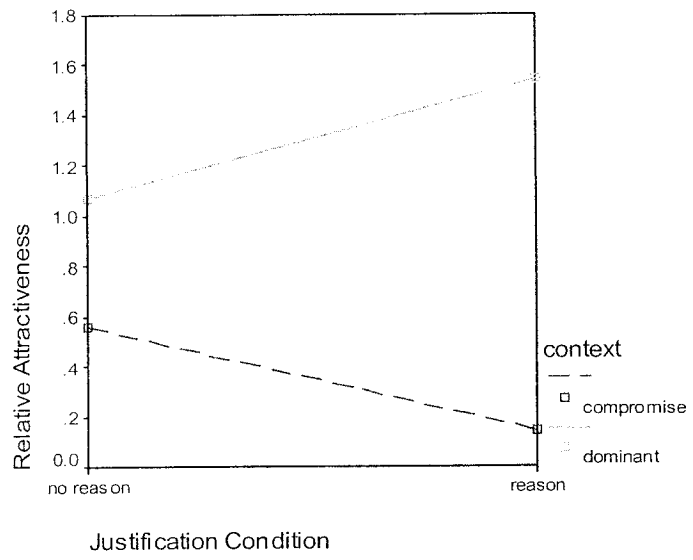
Figure 7B: Differential Effect of Justification on Preference for
Compromise and Dominant Options under Promotion Focus

Chapter 8: Study 3

8.1 Sample

The sample for study 3 comprised 232 undergraduate business students from two universities (Bishop's and Concordia). The respondents were 52.2% males and varied in age from 18 to 31 with a mean of 22.7 and a standard deviation of 1.94.

8.2 Design

Study 3 was designed to test hypothesis 5, which predicts that products associated with a promotion focus would be more attractive when presented as asymmetrically dominant options than when presented as compromise options, whereas, products associated with a prevention focus would be more attractive when presented as compromise options than when presented as asymmetrically dominant options.

Two factors were manipulated in a 2 X 2 (either promotion-priming products or prevention-priming products versus either choice scenarios with compromise structures or choice scenarios with asymmetric dominance structures) mixed design. The product type was manipulated within subjects. Each participant was faced with four choice scenarios; two involving promotion-priming products (wine and restaurant) and two involving prevention priming products (sunscreen and mouthwash). These products were selected because consumers' concerns when purchasing and using them were thought to differ in their regulatory orientation (see the manipulation check for more details). The descriptive attributes for these products were similar to those used in previous studies of context effects (e.g., Chernev 2004b). Half of the respondents were randomly assigned to

the compromise condition, and the other half to the asymmetric dominance condition. The values of the varying attributes for options A and B in each choice scenario were identical across the compromise and dominance conditions. Attribute values for option C were arranged to render option B either a compromise option or an asymmetrically dominant option which dominates C but not A (see Exhibits 2.A and 2.B). As in studies one and two, respondents reported their choice, their evaluation of the attractiveness of each option, and their confidence in their choice. Respondents' gender, age, and their chronic regulatory focus were also assessed.

Exhibit 2.A
Choice Sets – Compromise Structure

Sunscreen

	UVA protection* (Rating scale 1-10)	UVB protection* (Rating scale 1-10)	Price ($)
Brand A	9	6	7.99
Brand B	8	7	7.99
Brand C	7	8	7.99

* = UVA and UVB are two radiation wavelengths produced by the sun which may damage the skin.

Wine

	Body[1] (Rating scale 1-10)	Complexity[2] (Rating scale 1-10)	Price ($)
Brand A	8	6	19
Brand B	7	7	19
Brand C	6	8	19

[1] = the perception of texture and weight of the wine in the mouth
[2] = the perception of multiple layers and nuances of bouquet and flavor

Mouthwash

	Germ-Killing effectiveness (Rating scale 1-10)	Decay-preventing effectiveness (Rating scale 1-10)	Price ($)
Brand A	9	6	4.50
Brand B	7	8	4.50
Brand C	6	9	4.50

Fine Restaurant

	Food quality (Rating scale 1-10)	Atmosphere (Rating scale 1-10)	Driving Distance (minutes)	Price per person ($)
Restaurant A	9	6	15	40
Restaurant B	7	7	15	40
Restaurant C	6	9	15	40

Exhibit 2.B
Choice Sets – Asymmetric Dominance Structure

Sunscreen

	UVA protection* (Rating scale 1-10)	UVB protection* (Rating scale 1-10)	Price ($)
Brand A	9	6	7.99
Brand B	8	7	7.99
Brand C	6	7	7.99

* = UVA and UVB are two radiation wavelengths produced by the sun which may damage the skin.

Wine

	Body[1] (Rating scale 1-10)	Complexity[2] (Rating scale 1-10)	Price ($)
Brand A	8	6	19
Brand B	7	7	19
Brand C	6	7	19

[1] = the perception of texture and weight of the wine in the mouth
[2] = the perception of multiple layers and nuances of bouquet and flavor

Mouthwash

	Germ-Killing effectiveness (Rating scale 1-10)	Decay-preventing effectiveness (Rating scale 1-10)	Price ($)
Brand A	9	6	4.50
Brand B	7	8	4.50
Brand C	6	8	4.50

Fine Restaurant

	Food quality (Rating scale 1-10)	Atmosphere (Rating scale 1-10)	Driving Distance (minutes)	Price per person ($)
Restaurant A	9	6	15	40
Restaurant B	7	7	15	40
Restaurant C	5	7	15	40

8.3 Manipulation Check

In manipulating product type, I chose sunscreen and mouthwash as prevention-type products, and wine and restaurant as promotion-type products. The reasoning was that people's main concerns when buying or using products such as sunscreen and mouthwash would be to avoid or minimize negative outcomes (e.g., sunburn and bad breath). In contrast, the main concerns when purchasing products such as a bottle of wine or a dinner at a fine restaurant would to achieve or maximize positive outcomes (e.g., pleasure). To test this, I asked the respondents at the end of the questionnaire to distribute 100 points between two general goals (achieving a positive outcome versus avoiding a negative outcome) they might have when purchasing each of the four products.

As expected, the mean scores of promotion concern for wine (M_{wine} = 87.2, SD_{wine} = 14.9) and restaurant ($M_{restaurant}$ = 87.0, $SD_{restaurant}$ = 13.7) were significantly higher (F = 562.3; p = .000) than those for sunscreen ($M_{sunscreen}$ = 23.9, $SD_{sunscreen}$ = 26.6) and mouthwash ($M_{mouthwash}$ = 38.9, $SD_{mouthwash}$ = 25.5). Figure 8 captures these differences nicely.
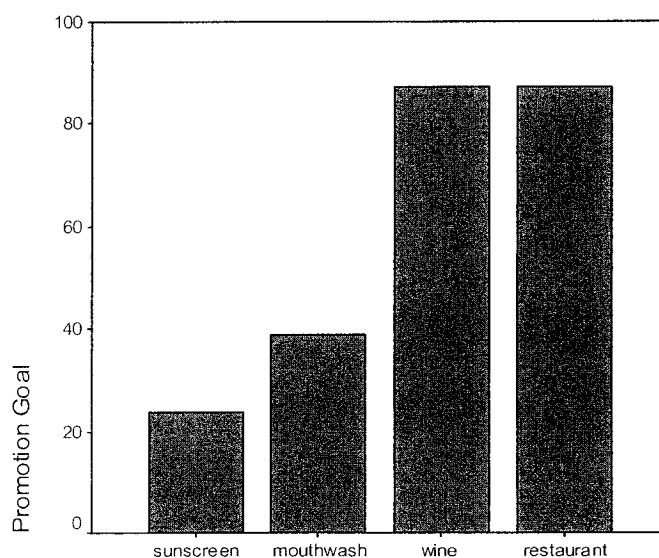
Figure 8: Mean Scores of Promotion goal

8.4 Analyses: Choice Patterns

The choice shares of each alternative across all experimental conditions and for all products are presented in Table 17. The table also reports the share of brand B relative to brand A (P_C (B; A)).

Table 17: Choice of Compromise vs. Dominant Brands across Product Types

		P (A; B, C)	P(B; A, C)	P (C; A, B)	P_C(B; A)
Sunscreen	Compromise	7.8	89.7	2.6	92.0
(Prev-type)	Dominant	29.9	67.5	2.6	69.3
	Pearson χ^2_1	18.4	16.7	0	18.5
	(p-value)	(<.001)	(<.001)	(.983)	(<.001)
Mouthwash	Compromise	30.4	59.1	10.4	66.0
(Prev-type)	Dominant	55.6	41.9	2.6	43.0
	Pearson χ^2_1	14.9	6.9	5.9	11.6
	(p-value)	(<.001)	(.009)	(.015)	(.001)
Wine	Compromise	32.2	33.0	34.8	50.7
(Prom-type)	Dominant	23.1	73.5	3.4	76.1
	Pearson χ^2_1	2.4	38.2	37.1	13.0
	(p-value)	(.121)	(<.001)	(<.001)	(<.001)
Restaurant	Compromise	67.0	27.8	5.2	29.4
(Prom-type)	Dominant	55.6	43.6	.9	44.0
	Pearson χ^2_1	3.2	6.3	3.8	5.2
	(p-value)	(.075)	(.012)	(.052)	(.023)

The results show that, in the case of prevention-type products, the share of brand B relative to brand A was much higher when B was presented as a compromise brand than an asymmetrically dominant brand (P_C(B; A)$_{compromise}$ = 92.0% vs. P_C(B; A)$_{dominant}$ = 69.3%; χ^2_1 = 18.5; p = .001 for sunscreen, and P_C(B; A)$_{compromise}$ = 66.0% vs. P_C(B; A)$_{dominant}$ = 43.0%; χ^2_1 = 11.6; p = .001 for mouthwash). These proportions were reversed for promotion-type products. In this case, the relative share of brand B was higher when B was presented as an asymmetrically dominant brand as opposed to a compromise brand

$(P_C(B; A)_{compromise} = 50.7\%$ vs. $P_C(B; A)_{dominant} = 76.1\%$; $\chi^2_1 = 13.0$; $p < .001$ for wine, and $P_C(B; A)_{compromise} = 29.4\%$ vs. $P_C(B; A)_{dominant} = 44.0\%$; $\chi^2_1 = 5.2$; $p = .023$ for restaurant).

The results are thus consistent with the predictions of hypothesis 5. Nonetheless, to formally test whether the effect of context on choice is dependent on the product type, both context and product type variables must be analyzed simultaneously. Such analyses are presented next.

8.5 Multilevel Analysis

A product type variable "ptype" was created and was coded 0 for prevention-priming products (i.e., sunscreen and mouthwash) and 1 for promotion-priming products (i.e., wine and restaurant). A context variable "context" was coded 0 when option B was a compromise brand and 1 when option B was a dominant brand. Two hundred and thirty two participants chose and rated alternatives in four different product categories. This produced 928 level-1 observations. After deleting choices of brand C, the final level-1 dataset was reduced to 856 observations.

8.5.1. Choice as Outcome

With choice of B as the outcome variable, the unconditional model produced a significant individual-level random effect ($\tau_{00} = .221$; $p = .014$) and an intraclass correlation coefficient of 6.3%.

In the full model, the choice of option B was specified as varying across product types (level-1 structural model). In addition, the probability of choosing B for each

product type was modeled, at level-2, to be a function of the choice set structure (compromise vs. dominance).

At level-1, the full model is as follows:

$$\text{Choice of (B)} = \beta_{0j} + \beta_{1j} (\text{ptype})_{ij} \qquad (32)$$

At level-2, the full model is:

$$\beta_{0j} = \gamma_{00} + \gamma_{01}(\text{context})_j + u_{0j} \qquad (33)$$

$$\beta_{1j} = \gamma_{10} + \gamma_{11}(\text{context})_j \qquad (34)$$

The combined full model is therefore:

$$\text{Choice of (B)} = \gamma_{00} + \gamma_{10}(\text{ptype})_{ij} + \gamma_{01}(\text{context})_j + \gamma_{11}(\text{context})_j (\text{ptype})_{ij} + u_0 \qquad (35)$$

The results, summarized in Table 18, indicate that context had no main effect on respondents' probability of choosing option B ($\gamma_{01} = -.199$; $p = .537$). Table 18 also shows a negative intercept for promotion-type, which means that compromise options had a higher probability of being chosen when consumers decided among prevention-priming than promotion-priming products. Most importantly, a significant cross-level interaction ($\gamma_{11} = 1.15$; $p = .014$) indicates that the effect of context on choice was moderated by the product type. The positive sign of the interaction is consistent with hypothesis 5 and implies that the effect of context (i.e., the increase in the probability of choosing B when option B moves from a compromise to a dominant position) was stronger for promotion-priming products than for prevention-priming products (the probability of choosing of B was indeed expected to decrease for prevention-priming products). Finally, a significant $\tau_{00} = .236$, $p = .010$ suggests that some of the variation in the level-1 intercept was not accounted for by the model.

Table 18: Results from the Full Choice Model – Context Effects and Product Types

Fixed Effects	Coefficient	se	t-ratio	p-value
For individual means				
Intercept (prev-type), γ_{00}	.466	.242	-	-
context, γ_{01}	-.199	.323	-.617	.537
For the prom-type slope				
Intercept, γ_{10}	-.988	.341	-2.90	.004
context, γ_{11}	1.15	.466	2.46	.014
Random Effect	variance component τ_{00}	df	χ^2	p-value
Individual mean u_{0j}	.236	230	283.2	.010

8.5.1.2 Relative Attractiveness as Outcome

An index of relative attractiveness of option B was computed in the same manner as in study 1. The results of the following full model, estimated using full maximum likelihood, are presented in Table 19.

Relative Attractiveness of (B) = $\gamma_{00} + \gamma_{10}(\text{ptype})_{ij} + \gamma_{01}(\text{context})_j + \gamma_{11}(\text{context})_j$

$(\text{ptype})_{ij} + u_{0j} + r_{ij}$ (36)

Additional support for hypothesis five was found in the positive cross-level interaction ($\gamma_{11} = 1.85$; p = .00), which confirms that the effect of context on the relative attractiveness of brand B depends on the product type. A graphical representation is shown in Figure 9. The results also reveal negative main effects of context ($\gamma_{01} = -1.10$; p = .000) and product type ($\gamma_{10} = -1.27$; p = .000). Finally, Table 19 shows a non-significant $\tau_{00} = .007$, p > .500, indicating that most of the variation in the level-1 intercept was accounted for by the model.

Table 19: Results from the Full Relative Attractiveness Model – Context Effects and Product Types

Fixed Effects	Coefficient	se	t-ratio	p-value
For individual means				
Intercept (prev-type), γ_{00}	.991	.099	-	-
context, γ_{01}	-1.10	.170	-6.50	.000
For the prom-type slope				
Intercept, γ_{10}	-.127	.156	-8.13	.000
context, γ_{11}	1.85	.255	7.28	.000
Random Effect	variance component τ_{00}	df	χ^2	p-value
Individual mean u_{0j}	.007	230	225.2	>.500
Product effect r_{ij} (σ^2)	1.58			

In sum, results from the multilevel models, combined with those from the analyses of choice patterns converge to the conclusion that prevention-type products are more attractive when positioned as compromise options than when positioned as asymmetrically dominant options, while the opposite is true for promotion-type products.
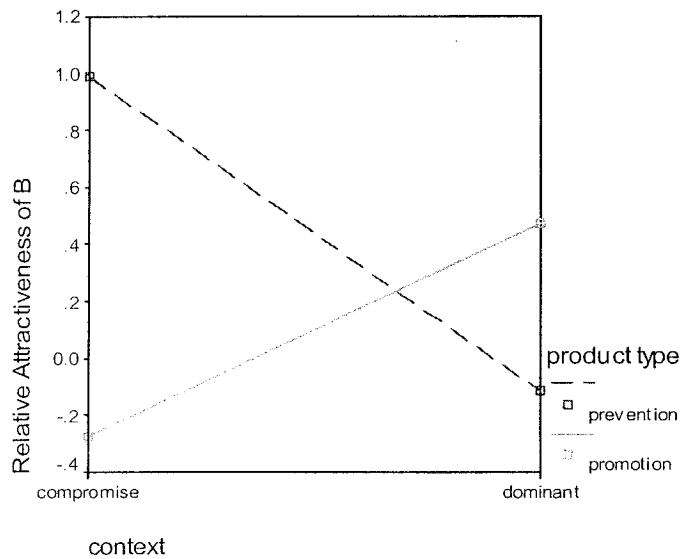
Figure 9: Attractiveness of Compromise vs. Dominant Brands across Product Types

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Chapter 9: Discussion

9.1 Summary of Findings

Preference reversals have long intrigued consumer and other decision researchers. That a consumer may choose brand A over brand B in one context and then choose B over A in another has indeed many theoretical and practical implications, a number of which have been discussed in this text.

In a series of studies, I tested the influence of consumers' regulatory focus on their sensitivity to context effects. I found that prevention-focused consumers had a greater sensitivity to the compromise effect and to a lesser extent a lower sensitivity to the attraction effect than promotion-focused consumers. It appears that the choice of dominant and extreme options is more compatible with an eager strategy, whereas the choice of compromise options is more compatible with a vigilant strategy. I also found that the effect of justification on sensitivity to context effects is moderated by consumers' regulatory focus. The need to justify one's choice increased promotion-focused consumers' preference for dominant options and reduced their preference for compromise options. In contrast, justification decreased prevention-focused consumers' preference for dominant options and increased their preference for compromise options. A possible explanation is that the need for justification renders regulatory goals more salient and thus triggers an active engagement in self-regulation, which amplifies the effects of promotion and prevention on sensitivity to context effects. Another explanation is that under promotion focus, gain-related reasons become more accessible and more diagnostics, whereas under prevention focus, loss-related reasons are more accessible and

more diagnostic. Hence, asking promotion-focused individuals to provide reasons for their choices increases their preference for dominant and extreme options which are associated with gains, whereas asking prevention-focused consumers to justify their choices increases their preference for compromise options which are associated with losses. Finally, I found that different products prompted different regulatory orientations and led to different patterns of sensitivity to context effects. Consistent with the first findings, products that were associated with a prevention concern were more attractive when presented as compromise options than dominant options, and products that were associated with a promotion concern were more attractive when presented as dominant options than compromise options.

9.2 Theoretical Implications

When analyzing context effects, past research has focused mainly on the cognitive dimension of decision-making. The present thesis argued that, like decision-making in general, context effects cannot be fully explained without considering the motivational dimension of decision-making.

Regulatory focus theory (Higgins 1997) was proposed as a useful and parsimonious framework for analyzing the motivational processes underlying context effects. Indeed, unlike other motivational approaches, regulatory focus theory is not founded on consumers' specific goals, needs, and motives, which are virtually infinite. Instead, it is rooted in the strategic inclinations for attaining these goals, needs, and motives, which are organized into two broad categories: promotion focus and prevention focus (Pham and Higgins, in press). Promotion focus is a regulatory state concerned with

advancement and accomplishment. It is mostly concerned with the presence or absence of positive outcomes, and is associated with a preference for eager strategies in goal pursuit. In contrast, prevention focus is a regulatory state concerned with protection and safety. It is generally concerned with the absence or presence of negative outcomes and is associated with a preference for vigilant strategies in goal pursuit.

Further justifying the call for more motivational analyses in consumer decision-making research, the present thesis showed that conflicting findings in the literature regarding the nature of the relationship between justification and consumers' sensitivity to the compromise effect can be reconciled by considering consumers' motivational orientations. A study by Simonson (1989) found that the compromise effect is stronger under high versus low justification. In contrast, Simonson and Nowlis (2000) report a negative influence of justification on the size of the compromise effect. The present research found that justification leads to more compromising under prevention focus but less compromising under promotion focus. Note that Briley et al. (2000) proposed another moderator of this relationship. The authors found that justification leads to more compromising in a collectivistic culture and less compromising in an individualistic culture.

A major implication of my findings is that regulatory focus affects choice by influencing consumers' decision strategies (e.g., eliminating versus selecting; reliance versus no reliance on the dominance heuristic; tradeoff calculations and minimization of disadvantages versus emphasis on one attribute). An alternative view, expressed in the literature, is that regulatory focus affects choice by influencing the weights of the attributes under consideration (Chernev 2004a). According to this view, attributes that are

compatible with the decision-maker's regulatory focus tend to be overweighed. In a binary choice context, Chernev (2004a) found that promotion-focused consumers have a tendency to overweigh hedonic, performance-related, and attractive attributes, whereas prevention-focused consumers gave more weight to utilitarian, reliability-related, and unattractive attributes. Which of these two views best describes the influence of regulatory focus on choice?

A partial answer could be obtained from having subjects choose among three options, such as one option is highest on a promotion-compatible attribute, one option is highest on a prevention-compatible attribute, and one option has intermediate values on both attributes. The weight shifting perspective predicts that prevention-focused consumers would prefer the option highest on the prevention-compatible attribute, whereas the view based on shifts in decision strategy predicts a higher preference for the compromise option. The printer choice set in this study includes one option highest on text quality and text cost, one option lowest on quality and cost, and one intermediate option. If we assume that quality is more compatible with a promotion focus, and cost is more compatible with a prevention focus, then we can compare the alternative views. In this case, the results appear to support the view adopted in this thesis (share of compromise option = 58.1% versus share of option with smallest cost = 16.1%). This does not mean that the attribute weight shifting hypothesis should be discarded, however. To begin with, there is no evidence that text quality is more compatible with a promotion focus or that text cost is more compatible with a prevention focus. Text quality may be just as compatible with a promotion focus as it is compatible with a prevention focus, and text cost may well be as compatible with a prevention focus as it is with a promotion

focus. In fact, none of the choice sets used in this thesis seem to require a tradeoff between an obviously promotion-compatible and an obviously prevention-compatible attribute. Second, both views need not be mutually exclusive. The influence of regulatory focus on choice may be manifested through shifts in attribute importance in some situations (e.g., binary choice) and through shifts in decision strategies in other situations. Clearly, more research is needed to disentangle these sources of influence.

Finally, the present research recognized the nested nature of the data and used hierarchical modeling techniques to analyze these data. Multilevel analyses are not only more sophisticated but also more accurate than the traditional techniques used in existing research on context effects. The latter has generally relied on aggregating the data to the individual level (e.g., Briley et al. 2000; Lehmann and Pan 1994). As discussed earlier, such aggregations not only waste potentially valuable information but may also lead to incorrect conclusions because relations among aggregated variables tend to be inflated and sometimes totally different from relations among non-aggregated variables (Raudenbush and Bryk 2002).

9.3 Practical Implications

The marketing implications associated with the occurrence of context effects in general have already been discussed and need not be repeated here. Instead, this section discusses the implications of the influence of regulatory focus on context effects.

From a managerial perspective, it would be interesting to identify buying situations related with different motivational states. Study 3 shows that consumers purchase and use different products for different reasons. Some products, such as a bottle

of wine or a dinner at a fine restaurant, are purchased with the general concern of obtaining or increasing some positive outcome. Decisions about these products are likely to involve the promotion system of self-regulation. In this case, consumers are more susceptible to the attraction effect and less susceptible to the compromise effect. Other products, however, are purchased with the general concern of avoiding, reducing, or elimination an existing or a potential negative outcome. Decisions about such products (e.g., sunscreen, mouthwash) are likely to invoke the prevention system of self-regulation, which leads to higher sensitivity to the compromise effect and lower susceptibility to the attraction effect. Thus, not all products are equally susceptible to the same context effects. Marketers need to assess the core benefits of their offers along the promotion-prevention dimension before modifying or basing their strategies – including positioning, new product introduction, and product deletion decisions – on the mere findings that context effects exist. Indeed, positioning a promotion-priming product as a compromise brand may not be a desirable strategy. Alternatively, introducing an asymmetrically dominated prevention-priming product may not help the sales of the dominant option.

Furthermore, the results of study 2 indicate that marketers of socially visible products and products consumed in groups (i.e., purchase situations associated with high levels of accountability) should be particularly alert to the existence of context effects and to the influence of consumers' motivational orientations on these effects.

Finally, purchase-related variables other than the product itself may trigger different regulatory foci. For instance, Pennington and Roese (2003) found that temporally distant goals are generally approached with a promotion focus, whereas

temporally proximal goals involve a more balanced consideration of both promotion- and prevention-focused concerns. Thus, one may surmise that when a product is purchased for immediate consumption, the decision is likely to be approached with a balanced consideration of promotion and prevention concerns. When the same product is purchased for a delayed consumption, however, the decision might involve more promotion concerns.

9.4 Limitations

The typical limitations associated with the use of student subjects in a laboratory setting apply here, and are countered with the typical argument that since the objective of this research is theory testing and not effects application, a homogeneous sample, such as a student sample, may in fact be more desirable than a heterogeneous sample, such as a representative sample of the adult population. This is because a homogeneous sample reduces the chance of committing type II errors and rejecting real relationships (Calder, Phillips, and Tybout 1981; Cook and Campbell 1975).

Another limitation pertains to the use of relatively simple choice scenarios. The choice sets included only two or three alternatives which were described on four or five attributes but only two of these attributes varied across alternatives. Moreover, only fictitious brands were used. This clearly limits the generalizibility of the findings and may question their robustness in more complex situations. Recent findings, however, showed significant context effects even in more complex situations involving larger sets of alternatives and attributes (e.g., Kivetz, Netzer, and Srinivasan 2004). In addition, consumers often reduce the set of available alternatives to a smaller more manageable

number before making a choice (Lussier and Olshavsky 1979). Moreover, by using relevant products and important attributes, both taken from *Consumer Reports*, this study tried to ensure a high degree of realism. Finally, the use of real brands was considered then abandoned because of the possible confounds that brand familiarity and loyalty may introduce to the research design.

9.5 Future Research

Data have been collected on consumers' regulatory focus as a trait and on their confidence in their choices. These data are not related to the dissertation's hypotheses and thus have not been discussed. Nevertheless, these data will be used as a starting point for other projects. For instance, measuring consumers' promotion pride and prevention pride (the trait measures) will allow me to test whether it is generally easier to prime the regulatory system that is more compatible with an individual's chronic inclination. In other words, would the priming of promotion (prevention) focus be equally effective for consumers who are chronically promotion-focused (prevention-focused) as for those who are chronically prevention-focused (promotion-focused)?

Another extension of this research deals with choice-motivation incongruence. Not all consumers will choose in a way that is perfectly congruent with their regulatory focus. For instance, promotion-focused individuals may choose compromise options (incongruent choice). In this case, I expect that their confidence in their choice would be lower than when they choose an extreme or a dominant option (congruent choice). The opposite would be true for prevention-focused people.

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The present thesis demonstrated that consumers' regulatory orientation influences their sensitivity to context effects. The following questions might also be of great interest: does the presence of a compromise option in a choice set trigger a prevention focus? Alternatively, does the presence of a dominant option in the choice set activate a promotion focus?

Finally, regulatory focus has been shown to be a powerful predictor of judgment and decision-making. The effects of promotion and prevention foci could certainly be extended to many aspects of consumer decision-making (see Pham and Higgins, in press for a discussion). Fruitful avenues include the investigation of motivational influences on other context effects, such as the substitution and the no choice effects, as well as on other stages of the consumer decision-making process, such as information search and post purchase processes. The opportunities to conduct research in this area are numerous and promising.

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Appendix 1A: Questionnaire – Study 1 – Promotion/Extended Choice Set

Thank you for your cooperation. We value your responses to this questionnaire. It is important that you answer **ALL** the questions. If at any time you do not know the exact answer, please provide the estimate that best suits your situation.

The goal of this study is to understand consumers' brand preferences. You will, therefore, be asked to make brand choice decisions in various product categories.

In the first part of the questionnaire, we would like to learn more about you. Please **take your time** and give **detailed** answers to the questions below (You may use the back of the page if needed).

SECTION 1

As human beings, we all have certain hopes, dreams, and aspirations (the sort of things that we wish to achieve, and the sort of person that we wish to be). Please take a moment and think about your most important dreams, hopes and aspirations.
Describe three of them in order of importance, starting by the most important one.

1) Description of my most important dream, hope or aspiration:

_____
_____
_____
_____
_____
_____

2) Description of my second most important dream, hope or aspiration:

_____
_____
_____
_____
_____
_____

3) Description of my third most important dream, hope or aspiration:

_____
_____
_____
_____
_____
_____

Now, close your eyes for thirty seconds and think about times in the past when, **trying to achieve something important to you, you performed as well as you ideally would like to.** Please describe 3 such episodes in reverse chronological order (i.e., start by the most recent one).

1) Description of the most recent episode when trying to achieve something important to me, I performed as well as I ideally would like to:

_____

_____

_____

_____

_____

_____

2) Description of the second most recent episode when trying to achieve something important to me, I performed as well as I ideally would like to:

_____

_____

_____

_____

_____

_____

3) Description of the third most recent episode when trying to achieve something important to me, I performed as well as I ideally would like to:

_____

_____

_____

_____

_____

_____

You are:　　Male_____　　Female_____

Your age is: _____

In the following section, you will be asked to make several choice decisions among various products, based on the information provided in this questionnaire.

Each choice situation consists of three brands, described on some of their important attributes. The ratings on these attributes come from a reputable consumer magazine.

Some attributes are rated using a scale from 1 to 10, in which 1 indicates poor quality and 10 indicates superior quality. Other attributes are described by their actual value (for example, price is described in dollars).

For each choice situation, please read the product descriptions and indicate your favorite brand.

Imagine that you are shopping for toothpaste. You have narrowed potential selection to the following brands. Which of these would you buy?

	Breath-freshening effectiveness (Rating scale 1-10)	Tooth-whitening effectiveness (Rating scale 1-10)	Cavity-fighting effectiveness (Rating scale 1-10)	Price ($)
Brand A	8	6	8	2.99
Brand B	7	7	8	2.99
Brand C	6	8	8	2.99

I would buy brand _____

How would you evaluate brand A?

Unattractive   1   2   3   4   5   6   7   Attractive

How would you evaluate brand B?

Unattractive   1   2   3   4   5   6   7   Attractive

How would you evaluate brand C?

Unattractive   1   2   3   4   5   6   7   Attractive

How confident are you in having made the best choice?

Not at all confident   1   2   3   4   5   6   7   Extremely confident

---

Imagine that you are shopping for a bike helmet. You are considering the following brands. Which one of these would you buy?

	Impact[1] (Rating scale 1-10)	Retention[2] (Rating scale 1-10)	Ventilation[3] (Rating scale 1-10)	Ease of use[4] (Rating scale 1-10)	Price ($)
Brand A	8	9	9	6	45
Brand B	8	9	7	8	45
Brand C	8	9	6	8	45

[1] = how well the helmet absorbs energy in impact tests
[2] = how well the straps, buckles, and other hardware meet standard strength criteria
[3] = how well air flows through the helmet
[4] = how easily the helmets straps, buckles and other hardware can be adjusted

I would buy brand _____

How would you evaluate brand A?

Unattractive   1   2   3   4   5   6   7   Attractive

How would you evaluate brand B?

Unattractive   1   2   3   4   5   6   7   Attractive

How would you evaluate brand C?

Unattractive   1   2   3   4   5   6   7   Attractive

How confident are you in having made the best choice?

Not at all confident   1   2   3   4   5   6   7   Extremely confident

Imagine that you are shopping for a cordless phone. You are considering the following brands. Which of these would you buy?

	Voice quality (Rating scale 1-10)	Talk time[1] (Hours)	Ease of use[2] (Rating scale 1-10)	Price ($)
Brand A	9	8	8	35
Brand B	7	10	8	35
Brand C	6	9	8	35

[1] = how long you can converse on the hand set when it is fully charged
[2] = includes handset weight and comfort, ease of phone setup and use, and size of controls and buttons

I would buy brand _____

How would you evaluate brand A?

Unattractive   1   2   3   4   5   6   7   Attractive

How would you evaluate brand B?

Unattractive   1   2   3   4   5   6   7   Attractive

How would you evaluate brand C?

Unattractive   1   2   3   4   5   6   7   Attractive

How confident are you in having made the best choice?

Not at all confident   1   2   3   4   5   6   7   Extremely
confident

Imagine that you are shopping for a printer. You are considering the following brands. Which one of these would you buy?

	Text quality[1] (Rating scale 1-10)	Text speed[2] (Page per minute)	Text cost[3] (Cents per page)	Price ($)
Brand A	7	8	2.0	200
Brand B	8	8	3.5	200
Brand C	9	8	5.0	200

[1] = how crisply and clearly a printer produces black text in a variety of faces, sizes, and styles
[2] = calculation of the printer's typical output in pages per minute
[3] = estimated cost of black ink and paper to produce a single text page

I would buy brand _____

How would you evaluate brand A?

Unattractive   1   2   3   4   5   6   7   Attractive

How would you evaluate brand B?

Unattractive   1   2   3   4   5   6   7   Attractive

How would you evaluate brand C?

Unattractive   1   2   3   4   5   6   7   Attractive

How confident are you in having made the best choice?

Not at all confident   1   2   3   4   5   6   7   Extremely
confident

Imagine that you are shopping for an electric grill. You are considering the following brands. Which one of these would you buy?

	Cooking quality[1] (Rating scale 1-10)	Cooking area (square inches)	Convenience[2] (Rating scale 1-10)	Cooking speed[3] (Rating scale 1-10)	Price ($)
Brand A	10	128	8	6	100
Brand B	10	128	6	8	100
Brand C	10	128	5	7	100

[1] = evaluation of the appearance of the food and, when appropriate, juiciness
[2] = primarily, ease of cleaning, but also includes time for setup and storage
[3] = time required to grill various foods after preheating the grill

I would buy brand _____

How would you evaluate brand A?

Unattractive   1   2   3   4   5   6   7   Attractive

How would you evaluate brand B?

Unattractive   1   2   3   4   5   6   7   Attractive

How would you evaluate brand C?

Unattractive   1   2   3   4   5   6   7   Attractive

How confident are you in having made the best choice?

Not at all confident   1   2   3   4   5   6   7   Extremely
confident

Imagine that you and your friends have decided to go for a dinner at a fine restaurant. You are considering the following alternatives. Which one of these would you choose?

	Food quality (Rating scale 1-10)	Atmosphere (Rating scale 1-10)	Average queuing time (minutes)	Driving Distance (minutes)	Price per person ($)
Restaurant A	10	6	20	15	40
Restaurant B	8	8	20	15	40
Restaurant C	6	10	20	15	40

I would choose restaurant _____

How would you evaluate restaurant A?

Unattractive   1   2   3   4   5   6   7   Attractive

How would you evaluate restaurant B?

Unattractive   1   2   3   4   5   6   7   Attractive

How would you evaluate restaurant C?

Unattractive   1   2   3   4   5   6   7   Attractive

How confident are you in having made the best choice?

Not at all confident   1   2   3   4   5   6   7   Extremely
confident

This set of questions asks you HOW FREQUENTLY specific events actually occur or have occurred in your life. Please indicate your answer to each question by circling the appropriate number below it.

Compared to most people, are you typically unable to get what you want out of life?

1   2   3   4   5
never or seldom   sometimes   very often

Growing up, would you ever "cross the line" by doing things that your parents would not tolerate?

1	2	3	4	5
never or seldom		sometimes		very often

How often have you accomplished things that got you "psyched" to work even harder?

1	2	3	4	5
never or seldom		sometimes		very often

Did you get on your parents' nerves often when you were growing up?

1	2	3	4	5
never or seldom		sometimes		very often

How often did you obey rules and regulations that were established by your parents?

1	2	3	4	5
never or seldom		sometimes		very often

Growing up, did you ever act in ways that your parents thought were objectionable?

1	2	3	4	5
never or seldom		sometimes		very often

Do you often do well at different things that you try?

1	2	3	4	5
never or seldom		sometimes		very often

Not being careful enough has gotten me into trouble at times.

1	2	3	4	5
never or seldom		sometimes		very often

When it comes to achieving things that are important to me, I find that I don't perform as well as I ideally would like to do.

1	2	3	4	5
never true		sometimes true		very often true

I feel like I have made progress toward being successful in life.

1	2	3	4	5
certainly false				certainly true

I have found very few hobbies or activities in my life that capture my interest or motivate me to put effort into them

1	2	3	4	5
certainly false				certainly true

THANK YOU VERY MUCH FOR YOUR PARTICIPATION

Appendix 1B: Questionnaire – Study 1 – Prevention Focus

Thank you for your cooperation. We value your responses to this questionnaire. It is important that you answer **ALL** the questions. If at any time you do not know the exact answer, please provide the estimate that best suits your situation.

The goal of this study is to understand consumers' brand preferences. You will, therefore, be asked to make brand choice decisions in various product categories.

In the first part of the questionnaire, we would like to learn more about you. Please **take your time** and give **detailed** answers to the questions below (You may use the back of the page if needed).

SECTION 1

As human beings, we all have certain duties and responsibilities in our lives (the sort of things or tasks which we feel that we MUST do [e.g., paying the bills, getting a job, looking after a sick parent, etc.). Please take a moment and think about your most important duties and responsibilities at this time in your life.
Describe three of them in order of importance, starting by the most important one.

1) Description of my most important current duty or responsibility:

_____

_____

_____

_____

_____

2) Description of my second most important current duty or responsibility:

_____

_____

_____

_____

3) Description of my third most important current duty or responsibility:

_____

_____

_____

_____

Now, close your eyes for thirty seconds and think about times in the past when, **being careful enough has avoided you getting in trouble**. Please describe 3 such episodes in reverse chronological order (i.e., start by the most recent one).

1) Description of the most recent episode when being careful enough has avoided me getting in trouble:

_____

_____

_____

_____

_____

_____

2) Description of the second most recent episode when being careful enough has avoided me getting in trouble:

_____

_____

_____

_____

_____

_____

3) Description of the third most recent episode when being careful enough has avoided me getting in trouble:

_____

_____

_____

_____

_____

_____

You are: Male_____   Female_____

Your age is: _____

SECTION 2 (Same as Appendix 1A)

SECTION 1 (Same as Appendices 1A and 1B)

SECTION 2

In the following section, you will be asked to make several choice decisions among various products, based on the information provided in this questionnaire.

Each choice situation consists of three brands, described on some of their important attributes. The ratings on these attributes come from a reputable consumer magazine.

Some attributes are rated using a scale from 1 to 10, in which 1 indicates poor quality and 10 indicates superior quality. Other attributes are described by their actual value (for example, price is described in dollars).

In addition to your choices, this study seeks to understand the reasons for the choices. Thus, after reviewing each of the choice scenarios, but **before making selections and rating options, please write the key reason(s) for choosing one option over the others**

Imagine that you are shopping for toothpaste. You are considering the three brands described below.

Before entering your choice, briefly explain why you are selecting the option that you intend to choose:

_____

_____

_____

_____

	Breath-freshening effectiveness (Rating scale 1-10)	Tooth-whitening effectiveness (Rating scale 1-10)	Cavity-fighting effectiveness (Rating scale 1-10)	Price ($)
Brand A	8	6	8	2.99
Brand B	7	7	8	2.99
Brand C	6	8	8	2.99

I would buy brand _____

How would you evaluate brand A?

Unattractive   1   2   3   4   5   6   7   Attractive

How would you evaluate brand B?

Unattractive   1   2   3   4   5   6   7   Attractive

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How would you evaluate brand C?

Unattractive   1   2   3   4   5   6   7   Attractive

How confident are you in having made the best choice?

Not at all confident   1   2   3   4   5   6   7   Extremely
confident

Imagine that you are shopping for a bike helmet. You are considering the three brands described below.

Before entering your choice, briefly explain why you are selecting the option that you intend to choose:

_____

_____

_____

_____

	Impact[1] (Rating scale 1-10)	Retention[2] (Rating scale 1-10)	Ventilation[3] (Rating scale 1-10)	Ease of use[4] (Rating scale 1-10)	Price ($)
Brand A	8	9	9	6	45
Brand B	8	9	7	8	45
Brand C	8	9	6	8	45

[1] = how well the helmet absorbs energy in impact tests
[2] = how well the straps, buckles, and other hardware meet standard strength criteria
[3] = how well air flows through the helmet
[4] = how easily the helmets straps, buckles and other hardware can be adjusted

I would buy brand _____

How would you evaluate brand A?

Unattractive   1   2   3   4   5   6   7   Attractive

How would you evaluate brand B?

Unattractive   1   2   3   4   5   6   7   Attractive

How would you evaluate brand C?

Unattractive   1   2   3   4   5   6   7   Attractive

How confident are you in having made the best choice?

Not at all confident   1   2   3   4   5   6   7   Extremely
confident

Imagine that you are shopping for an electric grill. You are considering the three brands described below.

Before entering your choice, briefly explain why you are selecting the option that you intend to choose:

_____

_____

_____

_____

	Cooking quality[1] (Rating scale 1-10)	Cooking area (square inches)	Convenience[2] (Rating scale 1-10)	Cooking speed[3] (Rating scale 1-10)	Price ($)
Brand A	10	128	8	6	100
Brand B	10	128	6	8	100
Brand C	10	128	5	7	100

[1] = evaluation of the appearance of the food and, when appropriate, juiciness
[2] = primarily, ease of cleaning, but also includes time for setup and storage
[3] = time required to grill various foods after preheating the grill

I would buy brand _____

How would you evaluate brand A?

Unattractive   1   2   3   4   5   6   7   Attractive

How would you evaluate brand B?

Unattractive   1   2   3   4   5   6   7   Attractive

How would you evaluate brand C?

Unattractive   1   2   3   4   5   6   7   Attractive

How confident are you in having made the best choice?

Not at all confident   1   2   3   4   5   6   7   Extremely
confident

Imagine that you and your friends have decided to go for a dinner at a fine restaurant. You are considering the three options described below.

Before entering your choice, briefly explain why you are selecting the option that you intend to choose:

_____

_____

_____

_____

	Food quality (Rating scale 1-10)	Atmosphere (Rating scale 1-10)	Average queuing time (minutes)	Driving Distance (minutes)	Price per person ($)
Restaurant A	10	6	20	15	40
Restaurant B	8	8	20	15	40
Restaurant C	6	10	20	15	40

I would choose restaurant _____

How would you evaluate restaurant A?

Unattractive   1   2   3   4   5   6   7   Attractive

How would you evaluate restaurant B?

Unattractive   1   2   3   4   5   6   7   Attractive

How would you evaluate restaurant C?

Unattractive   1   2   3   4   5   6   7   Attractive

How confident are you in having made the best choice?

Not at all confident   1   2   3   4   5   6   7   Extremely confident

---

This set of questions asks you HOW FREQUENTLY specific events actually occur or have occurred in your life. Please indicate your answer to each question by circling the appropriate number below it.

Compared to most people, are you typically unable to get what you want out of life?

1	2	3	4	5
never or seldom		sometimes		very often

Growing up, would you ever "cross the line" by doing things that your parents would not tolerate?

1	2	3	4	5
never or seldom		sometimes		very often

How often have you accomplished things that got you "psyched" to work even harder?

1	2	3	4	5
never or seldom		sometimes		very often

Did you get on your parents' nerves often when you were growing up?

1	2	3	4	5
never or seldom		sometimes		very often

How often did you obey rules and regulations that were established by your parents?

1	2	3	4	5
never or seldom		sometimes		very often

Growing up, did you ever act in ways that your parents thought were objectionable?

1	2	3	4	5
never or seldom		sometimes		very often

Do you often do well at different things that you try?

1	2	3	4	5
never or seldom		sometimes		very often

Not being careful enough has gotten me into trouble at times.

1	2	3	4	5
never or seldom		sometimes		very often

When it comes to achieving things that are important to me, I find that I don't perform as well as I ideally would like to do.

1	2	3	4	5
never true		sometimes true		very often true

I feel like I have made progress toward being successful in life.

1	2	3	4	5
certainly false				certainly true

I have found very few hobbies or activities in my life that capture my interest or motivate me to put effort into them

1	2	3	4	5
certainly false				certainly true

You are: Male_____   Female_____

Your age is: _____

THANK YOU VERY MUCH FOR YOUR PARTICIPATION

Appendix 3A: Questionnaire – Study 3 – Asymmetric Dominance Structure

Thank you for your cooperation. We value your responses to this questionnaire. It is important that you answer **ALL** the questions. If at any time you do not know the exact answer, please provide the estimate that best suits your situation.

SECTION 1

The goal of this study is to understand consumers' brand preferences. You will be asked to make brand choice decisions in various product categories, based on the information provided.

Each choice situation consists of three brands, described on some of their important attributes. The ratings on these attributes come from a reputable consumer magazine.

Some attributes are rated using a scale from 1 to 10, in which 1 indicates poor quality and 10 indicates superior quality. Other attributes are described by their actual value (for example, price is described in dollars).

Imagine that you are shopping for a sunscreen. You are considering the three brands described below.

	UVA protection* (Rating scale 1-10)	UVB protection* (Rating scale 1-10)	Price ($)
Brand A	9	6	7.99
Brand B	8	7	7.99
Brand C	6	7	7.99

* = UVA and UVB are two radiation wavelengths produced by the sun which may damage the skin.

I would buy brand _____

How would you evaluate brand A?

Unattractive   1   2   3   4   5   6   7   Attractive

How would you evaluate brand B?

Unattractive   1   2   3   4   5   6   7   Attractive

How would you evaluate brand C?

Unattractive   1   2   3   4   5   6   7   Attractive

How confident are you in having made the best choice?

Not at all confident   1   2   3   4   5   6   7   Extremely confident

---

Imagine that you are shopping for a bottle of wine. You are considering the three brands described below.

	Body[1] (Rating scale 1-10)	Complexity[2] (Rating scale 1-10)	Price ($)
Brand A	8	6	19
Brand B	7	7	19
Brand C	6	7	19

[1] = the perception of texture and weight of the wine in the mouth
[2] = the perception of multiple layers and nuances of bouquet and flavor

I would buy brand _____

How would you evaluate brand A?

Unattractive   1   2   3   4   5   6   7   Attractive

How would you evaluate brand B?

Unattractive   1   2   3   4   5   6   7   Attractive

How would you evaluate brand C?

Unattractive   1   2   3   4   5   6   7   Attractive

How confident are you in having made the best choice?

Not at all confident   1   2   3   4   5   6   7   Extremely confident

---

Imagine that you are shopping for a mouth wash. You are considering the three brands described below.

	Germ-Killing effectiveness (Rating scale 1-10)	Decay-preventing effectiveness (Rating scale 1-10)	Price ($)
Brand A	9	6	4.50
Brand B	7	8	4.50
Brand C	6	8	4.50

I would buy brand _____

How would you evaluate brand A?

Unattractive   1   2   3   4   5   6   7   Attractive

How would you evaluate brand B?

Unattractive   1   2   3   4   5   6   7   Attractive

How would you evaluate brand C?

135

Unattractive   1   2   3   4   5   6   7   Attractive

How confident are you in having made the best choice?

Not at all confident   1   2   3   4   5   6   7   Extremely
confident

Imagine that you and your friends have decided to go for a dinner at a fine restaurant. You are considering the three options described below.

	Food quality (Rating scale 1-10)	Atmosphere (Rating scale 1-10)	Driving Distance (minutes)	Price per person ($)
Restaurant A	9	6	15	40
Restaurant B	7	7	15	40
Restaurant C	5	7	15	40

I would choose restaurant _____

How would you evaluate restaurant A?

Unattractive   1   2   3   4   5   6   7   Attractive

How would you evaluate restaurant B?

Unattractive   1   2   3   4   5   6   7   Attractive

How would you evaluate restaurant C?

Unattractive   1   2   3   4   5   6   7   Attractive

How confident are you in having made the best choice?

Not at all confident   1   2   3   4   5   6   7   Extremely
confident

SECTION2

Consumers buy and consume products for different purposes. These purposes can be divided into two general goals:
1) Expecting, obtaining, increasing, or creating a **positive** outcome (e.g., I buy and consume chocolate because I expect to have a pleasurable (positive) experience).
2) Avoiding, reducing, or eliminating an existing or a potential **negative** outcome (e.g., I buy an alarm system to avoid getting robbed (negative experience)).

For each of the product categories, included in this questionnaire, we would like to know the extent to which your purpose for buying such products is to achieve a positive outcome versus to avoid a negative outcome. Please distribute 100 points between the two general goals for each product.

	My goal is to achieving a positive outcome	My goal is to avoid a negative outcome	Total
When buying a sunscreen			100
When buying a bottle of wine			100
When buying a mouth wash			100
When going to a fine restaurant			100

This set of questions asks you HOW FREQUENTLY specific events actually occur or have occurred in your life. Please indicate your answer to each question by circling the appropriate number below it.

Compared to most people, are you typically unable to get what you want out of life?

1	2	3	4	5
never or seldom		sometimes		very often

Growing up, would you ever "cross the line" by doing things that your parents would not tolerate?

1	2	3	4	5
never or seldom		sometimes		very often

How often have you accomplished things that got you "psyched" to work even harder?

1	2	3	4	5
never or seldom		sometimes		very often

Did you get on your parents' nerves often when you were growing up?

1	2	3	4	5
never or seldom		sometimes		very often

How often did you obey rules and regulations that were established by your parents?

1	2	3	4	5
never or seldom		sometimes		very often

Growing up, did you ever act in ways that your parents thought were objectionable?

1	2	3	4	5
never or seldom		sometimes		very often

Do you often do well at different things that you try?

1	2	3	4	5
never or seldom		sometimes		very often

Not being careful enough has gotten me into trouble at times.

1	2	3	4	5
never or seldom		sometimes		very often

When it comes to achieving things that are important to me, I find that I don't perform as well as I ideally would like to do.

1	2	3	4	5
never true		sometimes true		very often true

I feel like I have made progress toward being successful in life.

1	2	3	4	5
certainly false				certainly true

I have found very few hobbies or activities in my life that capture my interest or motivate me to put effort into them

1	2	3	4	5
certainly false				certainly true

You are: Male_____   Female_____

Your age is: _____

THANK YOU VERY MUCH FOR YOUR PARTICIPATION

Appendix 3B: Questionnaire – Study 3 – Compromise Structure

Thank you for your cooperation. We value your responses to this questionnaire. It is important that you answer **ALL** the questions. If at any time you do not know the exact answer, please provide the estimate that best suits your situation.

SECTION 1

The goal of this study is to understand consumers' brand preferences. You will be asked to make brand choice decisions in various product categories, based on the information provided.

Each choice situation consists of three brands, described on some of their important attributes. The ratings on these attributes come from a reputable consumer magazine.

Some attributes are rated using a scale from 1 to 10, in which 1 indicates poor quality and 10 indicates superior quality. Other attributes are described by their actual value (for example, price is described in dollars).

Imagine that you are shopping for a sunscreen. You are considering the three brands described below.

	UVA protection* (Rating scale 1-10)	UVB protection* (Rating scale 1-10)	Price ($)
Brand A	9	6	7.99
Brand B	8	7	7.99
Brand C	7	8	7.99

* = UVA and UVB are two radiation wavelengths produced by the sun which may damage the skin.

I would buy brand _____

How would you evaluate brand A?

| Unattractive | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Attractive |

How would you evaluate brand B?

| Unattractive | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Attractive |

How would you evaluate brand C?

| Unattractive | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Attractive |

How confident are you in having made the best choice?

| Not at all confident | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Extremely confident |

Imagine that you are shopping for a bottle of wine. You are considering the three brands described below.

	Body[1] (Rating scale 1-10)	Complexity[2] (Rating scale 1-10)	Price ($)
Brand A	8	6	19
Brand B	7	7	19
Brand C	6	8	19

[1] = the perception of texture and weight of the wine in the mouth
[2] = the perception of multiple layers and nuances of bouquet and flavor

I would buy brand _____

How would you evaluate brand A?

Unattractive   1   2   3   4   5   6   7   Attractive

How would you evaluate brand B?

Unattractive   1   2   3   4   5   6   7   Attractive

How would you evaluate brand C?

Unattractive   1   2   3   4   5   6   7   Attractive

How confident are you in having made the best choice?

Not at all confident   1   2   3   4   5   6   7   Extremely confident

---

Imagine that you are shopping for a mouth wash. You are considering the three brands described below.

	Germ-Killing effectiveness (Rating scale 1-10)	Decay-preventing effectiveness (Rating scale 1-10)	Price ($)
Brand A	9	6	4.50
Brand B	7	8	4.50
Brand C	6	9	4.50

I would buy brand _____

How would you evaluate brand A?

Unattractive   1   2   3   4   5   6   7   Attractive

How would you evaluate brand B?

Unattractive   1   2   3   4   5   6   7   Attractive

How would you evaluate brand C?

Unattractive   1   2   3   4   5   6   7   Attractive

How confident are you in having made the best choice?

Not at all confident   1   2   3   4   5   6   7   Extremely
confident

Imagine that you and your friends have decided to go for a dinner at a fine restaurant. You are considering the three options described below.

	Food quality (Rating scale 1-10)	Atmosphere (Rating scale 1-10)	Driving Distance (minutes)	Price per person ($)
Restaurant A	9	6	15	40
Restaurant B	7	7	15	40
Restaurant C	6	9	15	40

I would choose restaurant _____

How would you evaluate restaurant A?

Unattractive   1   2   3   4   5   6   7   Attractive

How would you evaluate restaurant B?

Unattractive   1   2   3   4   5   6   7   Attractive

How would you evaluate restaurant C?

Unattractive   1   2   3   4   5   6   7   Attractive

How confident are you in having made the best choice?

Not at all confident   1   2   3   4   5   6   7   Extremely
confident

SECTION2 (Same as Appendix 3A)