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Unveiling the underlying mechanism for the matching effect between construal level and message frames: how and why do matches between gain versus loss frames and construal level enhance persuasion?

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UNVEILING THE UNDERLYING MECHANISM FOR THE MATCHING EFFECT BETWEEN CONSTRUAL LEVEL AND MESSAGE FRAMES: HOW AND WHY DO MATCHES BETWEEN GAIN VERSUS LOSS FRAMES AND CONSTRUAL LEVEL ENHANCE PERSUASION?

by

Yun K. Lee

An Abstract

Of a thesis submitted in partial fulfillment
of the requirements for the Doctor of
Philosophy degree in Business Administration
in the Graduate College of
The University of Iowa

July 2012

Thesis Supervisors: Professor Catherine A. Cole
Assistant Professor Jing Wang

ABSTRACT

The current research investigates *how* and *why* consumers' construal levels and the appeals framed either by gains or losses jointly influence persuasion. The findings across four experiments indicate that matching high-level construals with gain frames and low-level construals with loss frames leads to a) higher intentions to engage in cholesterol lowering behavior (experiment 1), b) more favorable brand attitudes (experiment 2), c) greater willingness to donate to an environmental organization (experiment 3), and d) higher buying intentions for a brand (experiment 4). It seems that these outcomes occur because matches between construal level and message frames encourage people to pay attention to the information they evaluate (experiments 1 ~4), and this enhanced attention induces greater perceptions of processing fluency, which in turn leads to positive attitudes (experiments 2~4). Further, this research demonstrates that an adequate amount of cognitive resources is required for this matching effect to occur (experiment 4). The current research contributes to the construal level, message framing, and matching literatures by unveiling the specific mechanism underlying the matching relationship between construal level and gain versus loss frames on persuasion and by identifying a boundary condition for it. This research also has managerial implications for marketing managers and policymakers in that it suggests a strategic way to use construal level and message frames to enhance marketing communication and advertising effectiveness.

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CERTIFICATE OF APPROVAL

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PH.D. THESIS

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I would like to dedicate this Doctoral dissertation to my husband, Ho, who has supported and encouraged me each step of the way over a number of years, and to my precious daughter, Grace, who has understood and helped her busy mom a lot and independently well managed her own academic and daily life.

Success is going from failure to failure with undiminished enthusiasm.

Winston Churchill

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ABSTRACT

The current research investigates *how* and *why* consumers' construal levels and the appeals framed either by gains or losses jointly influence persuasion. The findings across four experiments indicate that matching high-level construals with gain frames and low-level construals with loss frames leads to a) higher intentions to engage in cholesterol lowering behavior (experiment 1), b) more favorable brand attitudes (experiment 2), c) greater willingness to donate to an environmental organization (experiment 3), and d) higher buying intentions for a brand (experiment 4). It seems that these outcomes occur because matches between construal level and message frames encourage people to pay attention to the information they evaluate (experiments 1 ~4), and this enhanced attention induces greater perceptions of processing fluency, which in turn leads to positive attitudes (experiments 2~4). Further, this research demonstrates that an adequate amount of cognitive resources is required for this matching effect to occur (experiment 4). The current research contributes to the construal level, message framing, and matching literatures by unveiling the specific mechanism underlying the matching relationship between construal level and gain versus loss frames on persuasion and by identifying a boundary condition for it. This research also has managerial implications for marketing managers and policymakers in that it suggests a strategic way to use construal level and message frames to enhance marketing communication and advertising effectiveness.

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CHAPTER 1: INTRODUCTION

In developing communication materials, marketing managers may attempt to persuade people to adopt an action either by emphasizing the purposes of the target action or by describing how to undertake the target action. For example, the American Dental Association (ADA) lists five reasons to have teeth professionally cleaned in a recent direct mail piece. In contrast, QSP, Inc., a magazine fundraiser for schools, stresses three easy ways you can raise money for your school with QSP's help.

Literature pertaining to construal level proposes that people use high-level construals to specify an action in terms of its purpose, but use low-level construals to describe an action as its process (for a review, see Liberman and Trope 1998 and Trope, Liberman, and Wakslak 2007). High-level construals emphasize values of an action's end-state, that is, why or with what effect one acts. Thus abstract and global features of an attitude target are represented at this level. In contrast, low-level construals focus on the means or resources used to reach the end-state of an action, that is, how or with what process one acts. Thus more concrete and local features of an attitude object are conveyed at this level. According to this construal level theory, consumers would construe the ADA's message, which emphasizes the purpose of having your teeth professionally cleaned, under high-level construals, but the QSP's message, which emphasizes how you can raise money for your school, under low-level construals. An interesting question arises about how these messages should be framed to enhance persuasive effectiveness. Should the ADA highlight benefits people may gain by professionally taking care of their teeth (a gain frame) or benefits they may lose by not cleaning their teeth professionally (a loss frame)? Would it be more persuasive for QSP,

Inc. to address appeals focusing on the positive benefits people may gain by following the three easy ways to help the school (a gain frame) or the negative consequences people may experience if they don't follow the specific steps (a loss frame)? Would consumers draw different preferences and judgments from gain- versus loss-framed messages depending on the level at which they construe the framed messages? If so, why and how?

The premise on which the present research proceeds is that the level at which an individual construes a persuasive message determines the persuasive effectiveness of its gain-versus loss-framed appeals. According to the literature on message framing, gain-framed appeals emphasize desirable end states that would result from benefits gained, whereas loss-framed appeals emphasize undesirable end states that would result from benefits lost (Lee and Aaker 2004; Rothman and Salovey 1997). My view is that increased persuasiveness occurs when an individual processes a gain-framed message at a high-level construal, but a loss-framed message at a low-level construal. Further, I hypothesize that these outcomes occur because construing information at high- versus low-level construals leads individuals to selectively attend to gain- versus loss-framed messages, and this enhanced attention induces positive evaluations. I refer to these predictions as the attention mechanism of the matching effect between construal level and message frames. This perspective has yet to be investigated directly. Its consequences as well as the specific mechanism underlying these consequences are still to be unveiled. Thus, the current research addresses this gap and tests the proposed theory across four experiments. I also investigate how this attention mechanism of the matching effect is related to processing fluency. Previous research has found that processing fluency

mediates the matching effect between construal level and its relevant features (e.g., Kim, Rao, and Lee 2009; Lee, Keller, and Sternthal 2010; White, MacDonnell, and Dahl 2011).

In what follows, I provide a discussion of the relevant literature, from which I derive predictions. I then report four sets of studies conducted to examine the proposed theory, and conclude with a discussion of the findings and implications of the research.

CHAPTER 2: THEORETICAL BACKGROUND

2.1. Construing Information at Different Levels of Mental Construal

Construal level theory (CLT) posits that the same attitude object or event can be represented at different levels of mental construals (Trope, Liberman, and Wakslak 2007), and preferences and decisions shift systematically as a direct consequence of activating different mental construals (Fujita et al. 2008). High-level construals entail constructing abstract and global conceptualization from available information in judgment, whereas low-level construals involve constructing concrete and local conceptualization from it. Therefore, individuals using high-level construals represent attitude objects or events by their abstract, essential features. In contrast, individuals using low-level construals represent attitude objects or events by their concrete, incidental features. For example, research has shown that people utilizing high- versus low-level construals are more likely to represent attitude objects in terms of their prototypical versus peripheral features (Liberman, Sagristano, and Trope 2002), tend to organize behaviors in terms of general (e.g., talented) versus concrete (e.g., musical) traits (Nussbaum, Trope, and Liberman 2003), and identify actions in terms of desirability (i.e., superordinate ends reflecting why aspects of an action) versus feasibility (subordinate means to an end reflecting how aspects of an action; Liberman and Trope 1998). Thus high-level construals enhance the impact of primary, abstract features of objects and events, whereas low-level construals enhance the impact of incidental, concrete features of objects and events in judgment. For example, individuals using high-level construals tend to base their decisions on superordinate concerns of desirability (i.e., the valence of an action's end state), whereas

individuals using low-level construals tend to base their decisions on subordinate concerns of feasibility (i.e., the ease or difficulty of reaching the end state; Liberman and Prope 1998). Similarly, individuals are also more likely to make choices that involve primary, goal-relevant concerns versus incidental, goal-irrelevant concerns when they represent attitude objects at high- versus low-level construals (Trope and Liberman 2000).

The notable concept of construal level is that different levels of mental construals selectively include relevant information and exclude irrelevant features of an attitude object or event (Fujita et al. 2006a). Therefore, high-level construals preferentially capture abstract and primary features of an attitude object and extract the gist from it by emphasizing a few primary and defining aspects of events. In low-level construals, alternatively, this tendency of high-level construals abstracting schematic, decontextualized gist is omitted and replaced by a tendency to selectively attend to an attitude object conveying more concrete and unstructured secondary features which include rich and thorough details and subordinate and incidental aspects of an attitude target (Wakslak and Trope 2009).

This cognitive distinction which distinguishes between two forms of mental representation is consistent with action identification theory (AIT) (Vallacher and Wegner 1989). According to AIT, an action can be represented in a cognitive hierarchy, from abstract, high-level construals that specify why or with what effect one acts to concrete, low-level construals that specify how one acts. For example, consider a person brushing his teeth. A person using low-level construals represents the action of brushing teeth as a way to do it, such as moving a brush around one's mouth, tilting a toothbrush at a 45 degree angle to gums, wiggling a brush on the bristle tips, brushing along the gum

line, and so on, while a person using high-level construals considers the activity of brushing teeth in terms of a reason to do it, such as preventing tooth decay. When moving from high to low mental construals, it is notable that the high-level construal, "a reason to do it," disregards its unique and specific features and involves an implicit decision about which features are central or irrelevant to the activity. In contrast, conceptualizing the same activity of brushing teeth at a low-level construal, "the physical process or a way of brushing teeth," omits such central and primary features that are perceived as less important to the concrete and contextualized construction and thus links the activity with a more specific sets of events, focusing on subordinate and incidental features that are not highlighted in the high-level representation.

Research on construal level has suggested that construal levels can be induced by situational factors or determined by individual differences. For examples, studies testing the concept of construal level have shown that construal level can be primed as abstract and concrete mindsets (Freitas, Gollwitzer, and Trope 2004), activated by generating superordinate categories (e.g., animal) versus subordinate exemplars (e.g., poodle) for a series of everyday objects (Fujita et al. 2006a), and determined by various dimensions of psychological distances such as space (e.g., Fujita et al. 2006b), social distance (e.g., Idson and Mischel 2001), temporal distance (e.g., Fujita et al. 2008), and hypotheticality (e.g., Wakslak et al. 2006). There are also individual differences in the chronic tendency to utilize high or low-level construals which systematically predict construal dependent judgment and choice (Freitas, Salovey, and Liberman, 2001; Levi, Freitas, and Salovey 2002; Vallacher &Vallacher & Wegner, 1985, 1987, 1989). Considered next is how high- versus low-level construals are related to gain versus loss frames.

2.2. The Relationship between Construal Level and Gain versus Loss Frames

A gain versus loss frame means framing equivalent information in terms of potential gains versus potential losses (Levin and Gaeth 1988; Levin, Gaeth, and Schreiber 2002; Levin, Schnittjer, and Thee 1988). In gain frames, positive, desirable end states that would result from benefits which might be gained are highlighted, whereas in loss frames, negative, undesirable end states that would result from benefits which might be lost are emphasized (Detweiler et al. 1999; Lee and Aaker 2004; Rothman and Salovey 1997).

People tend to vigilantly steer away from undesirable end states, but they tend to eagerly veer towards desirable end states (Higgins 2000, 2002; Lee and Aaker 2004). In situations with a negative, undesirable end state, feasibility concerns which reflect "how aspects" of an action would be heightened, whereas in situations with a positive, desirable end state, desirability concerns which reflect "why aspects" of an action would be heightened. This is because it might be crucial for people in situations with an undesirable end state to consider specific means of action alternatives by which they can increase a chance to avoid the undesirable end state. By using low-level construals, they may need to concentrate on local details of the means in considerations and adopt concrete processing of action alternatives, so that the undesirable end state can be avoided. In contrast, considering specific means of action alternatives by "how terms" may not be sufficient for people in situations with a desirable end state. Eagerly striving to gain a desirable end state might profit from taking abstract considerations of why the end state should be attained. By using high-level construals, they may need to engage in

broader and more flexible thinking which goes beyond local details and consider the general value of the end state. Next I review recent findings which support these perspectives about the relationship between construal level and gain versus loss frames.

2.3. Indirect Evidence for a Link between Construal Level and Gain versus Loss Frames

A closer look at the message framing literature offers some insight about the proposed relationship between gain versus loss frames and different levels of mental construal. For example, previous research has demonstrated that people process loss-framed messages in-depth and in more detail, whereas they process gain-framed messages less deeply and in less detail (Maheswaran and Meyers-Levy 1990; Block and Keller 1995; Shiv et al. 1997). These findings are consistent with the previous research showing that participants who perceive salient negativity are more likely to process information diagnostically than comparable ones who perceive salient positivity (Fiske 1980; Kanouse 1984; Kanouse and Hanson 1972). Similarly, there are studies demonstrating that when people are faced with negative consequences, the scope of perceptual attention is narrowed, and thus they tend to focus on local details of information, whereas when people are faced with positive consequences, their perceptual attention becomes broadened, thereby they are more likely to focus on global details of information (Derryberry and Reed 1998; and Derryberry and Tucker 1994). Processing information in-depth, focusing on local details are the features of low-level construals, and processing information less deeply, focusing on global details of information are the features of high-level construals. Thus, these are the findings which provide support for the proposed relationship between construal level and gain versus loss frames.

Evidence congenial with the hypothesized link between construal level and messages frames was also reported by Förster and Higgins (2005; study 2). The authors showed that when participants involving in local processing of a target stimulus (e.g, finding local letters making global letters such as *H*s or *L*s making an *F* or a *T*) were presented with a scenario about losses (i.e. thinking of what they would lose by not choosing a mug), they assigned a mug a higher price than participants who were presented with a scenario about gains (i.e., thinking of what they would gain by choosing the mug). In contrast, participants involving in global processing of a target stimulus (e.g., finding global letters made up of local letters such as an *H* or an *L* made up of *F*s or *T*s) assigned the mug a higher price, when they were presented with a scenario about gains than they were presented with a scenario about losses. Focusing on local details and concrete surroundings of a structure reflects low-level construals which preferentially represent concrete and specific features of an attitude object, and focusing on the global primacy of whole units of a structure reflects high-level construals which preferentially represent abstract and general features of an attitude object. Therefore, these results support the view that using high-level construals might be more effective to process gain-framed messages, whereas using low-level construals might be more effective to process loss-framed messages.

Lee, Keller and Sternthal (2010; study 2) also reported the results supporting the proposed link between construal level and gain versus loss frames. They had participants imagine that they had just lost in the fourth round of playing in a game show and assigned them to two regulatory focus conditions. Half of the participants were presented with a scenario emphasizing potential losses: “If you pick Alternative A, you will have to

give up $800 worth of prizes. If you pick Alternative B, there is a 2/3 probability that you will lose all $1200 worth of prizes, and a 1/3 probability that you will not lose any of the $1200 worth of prizes." The other half of the participants were presented with a scenario emphasizing potential gains: "If you pick Alternative A, you will keep $400 worth of the prizes. If you pick Alternative B, there is a 2/3 probability that you will not win any of the $1200 worth of prizes and a 1/3 probability that you will win all $1200 worth of prizes." Next, in a seemingly unrelated study, participants were asked to complete the Behavioral Identification Form (BIF: Vallacher and Wegner 1989). BIF is a 25-item dichotomous questionnaire which was initially designed to measure individuals' chronically different level of construal. Individuals are given two descriptions of an action (e.g., eating), one that reflects high-level construals (e.g., getting nutrition) and the other that reflects low-level construals (e.g., chewing and swallowing) and asked to choose one that best describes the action for them. Participants who were given the scenario focusing on potential gains were more likely to construe the behaviors at a low level than participants who were given the scenario focusing on potential losses, and the reverse was true.

Chandran and Menon (2008; study 3) provides additional support for the proposed relationship between construal level and gain versus loss frames. They demonstrated that participants who were exposed to a message framed in terms of negativity (i.e., succumbing to a disease) expressed higher intentions to see a doctor when the occurrence of a disease was framed as every day than every year, but participants who were exposed to a message framed in terms of positivity (i.e., averting a disease) were more likely to see a doctor when the occurrence of a disease was framed as every year

than every day. To the extent that the temporal framing of every year (every day) induces people to use high- versus low-level construals, these results also provide support for the hypothesized link between construal level and gain versus loss frames, such that gain-framed messages facilitate global and abstract processing of information and loss-framed messages stimulate local and concrete processing of information. This link between construal level and gain versus loss frames has also been reported by White et al. (2011). For example, in their study 2, the authors showed that construing information in a distant future is more compatible with gain frames, whereas construing information in a proximal future is more compatible with loss frames. Since increasing versus decreasing the temporal distance of attitude objects promotes the activation of high- versus low-level construals, White et al.'s (2011) studies suggest that there is a corresponding relationship between construal level and gain versus loss frames.

On the basis of this indirect evidence, I suggest that processing gain- versus loss-framed messages under high- versus low-level construals matches the manner in which consumers mentally represent an attitude object or event. Conversely, processing gain-framed messages under low-level construals and loss-framed messages under high-level construals does not match the way that consumers mentally represent information in evaluative judgments. This is because gain frames emphasize the global and abstract elements of information processing which are the features of high-level construals, and loss frames highlight the local and concrete elements of information processing which are the features of low-level construals. I posit that the match or mismatch between construal level and gain versus loss frames likely has an impact on the success of gain- versus loss-framed messages. Next, I discuss this proposition by reviewing previous studies that

document how the match between construal level and its relevant features influences evaluations of an attitude target.

2.4. The Effects of the Match between Construal Level and Its Relevant Features

When people process information that contains the elements which are consistent with a construal level by which they mentally represent the information in evaluations, they are more likely to favorably evaluate an attitude target. Recent research offers evidence that matching different levels of mental construal with their relevant features enhances reaction time (Förster and Higgins 2005, study 1), willingness to pay (Förster and Higgins 2005, study 2; Mogilner, Aaker and Pennington 2008, study 2), perceived importance of goals (Pennington and Roese 2003), purchase intentions (Mogilner, Aaker and Pennington 2008, study 3), risk perceptions (Chandran and Menon 2004, study 3), political persuasions (Kim, Rao, and Lee 2009), brand attitudes (Fujita et al. 2008, study 2; Lee, Keller, and Sternthal 2010, studies 3 and 4; Mogilner, Aaker and Pennington 2008, study 3), performance on anagram tasks (Lee, Keller, and Sternthal 2010, study 3), willingness to donate (Fujita et al. 2008; study 3), and recycling behaviors (White et al. 2011).

These outcomes have been observed across different operationalizations of the match between different levels of mental construal and their relevant features. For example, Fujita et al. (2008; study 2) showed that participants using high-level construals are more favorable towards a course when the course descriptions stress primary goal-relevant features (e.g., fair grading, clear lectures, helpful professors, interesting course material, interesting, reading, and comprehensive coverage of material), whereas those

using low-level construals are more favorable toward the course when the course descriptions emphasizes secondary goal-irrelevant features (e.g., quality of lecture hall facilities, use of Blackboard educational software, frequent use of audiovisuals, opportunity to meet and interact with other students, lack of weekly discussion sections, and an absence of term papers). Kim, Rao, and Lee (2010) demonstrated that when a voter's decision is temporally distant, "why" laden appeals are more persuasive, whereas when the decision is temporally proximal, "how" laden appeals are more persuasive. And Lee, Keller, and Sternthal (2010) found that there is a fit between construal level and regulatory focus, and this fit from construal leads to more favorable brand attitudes (studies 3 and 4). They reported that prevention-focused participants evaluated a brand more favorably at low-level construals, whereas promotion-focused participants displayed more favorable brand attitudes at high-level construals. In their experiments, high- versus low-level construals were manipulated by emphasizing a target brand's abstract and desirability features (e.g., "speed, portability, reliability" and "the portable memory that keeps your knowledge base at your fingertips wherever you go") versus concrete and feasibility features (e.g., "lets you store and retrieve data quickly and reliably wherever you go" and "an MP3 player with an ear jack port that allows you to listen to your favorite songs").

These findings suggest that matching different levels of mental construal with their relevant features leads to favorable evaluations of an attitude target. The mechanisms underlying this matching relationship which affects consumer attitudes, however, are still to be unveiled. Thus, in the next section, I discuss this gap by

documenting why and how the matching relationship between construal level and gain versus loss frames has a persuasive impact.

2.5. The Mechanisms Underlying the Matching Effects between Construal Level and Gain versus Loss Frames

There are two different streams of research which suggest the mechanisms underlying the matching effects between construal level and its relevant features. One is an approach suggesting "attention" as a process by which matching message characteristics with a message recipient's cognitive states influences attitudes and persuasion. The other stream of research provides evidence in support of "processing fluency" as mediator for the matching effects.

Attention refers to conscious focalization and concentration on attitude objects or events by which a subset of relevant information is oriented, filtered, and searched for enhanced processing (James 1890). Considerable research has demonstrated that people attentively process information which sustains their cognitive mental representational states. Drawing from "functional matching theories," functional matching approaches to attitude change and persuasion suggest that people preferentially pay more attention to the information that addresses underlying the functions and features of their cognitive states or tendencies, and this enhanced attention leads to greater attitude change and persuasion (DeBono 1987; Katz 1960; Snyder and DeBono 1985; Fujita et al. 2008; Updegraff et al. 2007; Wheeler et al. 2005). For example, high self-monitors are more attentive to how they are viewed by others, and thus they are more likely to be persuaded by image arguments about a product than quality arguments. In contrast, low self-monitors are not attentive to those concerns, and thus they are more likely to be

persuaded by quality arguments rather than image arguments (Snyder and DeBono 1985; Petty and Wegener 1998). Similarly, Strathman et al. (1994) reported that participants high in consideration for future consequences place more weight on the arguments that stress distant rather than near future outcomes of their decisions and actions, and thus the messages which address their concerns about the consequences about a distant future are more persuasive. And Fujita et al. (2008) demonstrated that people preferentially attend to arguments that highlight primary, abstract features when attitude objects are temporally distant, whereas they pay more attention to the arguments that emphasize incidental, concrete features when attitude objects are temporally near.

People also scrutinize messages that match versus mismatch with their cognitive tendencies and this parallels other findings in persuasion research. For example, Gardner, Pickett, and Brewer (2000) and Petty, Cacioppo, and Sidera (1982) reported that a persuasive message that is consistent with message recipients' self-schema increases motivation to process it and thus enhances memory for the contents of the message. Cesario, Grant, and Higgins (2004) found that participants become more favorable to the message which sustains their self-regulatory goals, and their evaluations of the message are more likely to be shifted by increased attention given to their negative versus positive message-related thoughts. And Lee, Keller, and Sternthal (2010) showed that participants processing a message construed at a level that fits their regulatory focus were more likely to exert greater effort on a subsequent incidental anagram task (study 3) than those who processed a nonfit message. Consistent with these findings, Aaker and Lee (2001) demonstrated that when people process persuasive appeals that are compatible with their self-regulatory goal tendencies, they scrutinize the information to a greater degree and

thus better discern argument strength. Participants' favorable attitudes toward a target brand were formed under the matching conditions, but this matching effect only held when the argument was strong. Similarly, Petty and Wegener (1998) reported that matching the content of a persuasive message to the functional basis of people's attitudes enhances message scrutiny. In particular, in their study 1, the authors demonstrated that high versus low self-monitors were more favorable toward a shampoo when its advertisement used image versus quality appeals, and this matching effect was greater when the argument was strong rather than weak. Congenial with these findings, Fujita et al. (2008, study 3) demonstrated that construing category versus exemplar information in a distant versus near future led participants to donate more, and this matching effect was more pronounced when participants were presented with strong arguments.

2.5.1. Hypothesis 1

As such, people become more attentive to and interested in the situations that are consistent with their cognitive representational states (Higgins 2006; Higgins and Tykocinski 1992), and tend to consider the situations which sustain their cognitive states to be more important and relevant to them (Lee, Aaker, and Gardner 2000). People preferentially pay more attention to and scrutinize the information that contains the features matched with their cognitive states or tendencies, and this enhanced attention to information in evaluations leads to greater attitude change and persuasion (DeBono 1987; Katz 1960; Snyder and DeBono 1985; Fujita et al. 2008; Updegraff et al. 2007; Wheeler et al. 2005). This research dovetails with these functional matching approaches on the matching relationship between construal level and gain versus loss frames by suggesting that high- versus low-level construals facilitates attention to gain- versus loss-framed

messages. When construing information under high- versus low-level construals, people should preferentially attend to messages framed either by gains versus losses, which in turn should enhance persuasive effectiveness. Formally, I hypothesize that:

H1: Individuals using high- versus low-level construals will preferentially attend to gain- versus loss-framed messages, and this enhanced attention will lead to greater persuasion. More specifically,

H1a: Processing matching information (high level and gain frame, low level and loss frame) than mismatching information (high level and loss frame, low level and gain frame) is more likely to enhance attention to the information, and this enhanced attention will induce more favorable attitudes.

Across four experiments, this attention mechanism of the matching effects between construal level and gain versus loss frames is tested.

Attention is not the only factor that has been suggested as a mechanism by which the matching effects occur. There is also evidence that processing fluency serves as a mediator of matching effects (e.g., Kim, Rao, and Lee 2009; Labroo and Lee 2006; Lee and Aaker 2004; Lee, Keller, and Sternthal 2010; Thompson and Hamiton 2006; White et al. 2011). Processing fluency is defined as the perceived ease with which consumers process information (e.g., Jacoby and Dallas 1981). The view is that information that highlights the relevant features of message recipients' cognitive representational states is perceived as easy to process, and this perceived fluency of information processing induces favorable evaluations of an attitude target. For example, Thompson and Hamilton (2006) found that when an ad format is consistent with message recipients' processing mode, processing fluency was increased, and this increased fluency of processing

enhances persuasive effectiveness of the ad message. For example, they asked participants to process a comparative ad eliciting analytic processing modes or a non-comparative ad eliciting imagery-based processing modes, and found that when participants were manipulated to be under analytical processing modes, comparative ads were more persuasive than non-comparative ads, whereas when participants were manipulated to be under imagery-based processing modes, non-comparative ads were more persuasive than comparative ads. Similarly, Lee and Aaker (2004, studies 4a and 4b) reported that participants experience greater processing fluency when gain- versus loss-framed messages are matched with promotion versus prevention focus, and this experience of processing fluency leads to more favorable brand attitudes. Consistent with these findings, Lee, Keller and Sternthal (2010, study 4) demonstrated that when participants review a message construed at a level that is consistent with their regulatory focus, they experience greater processing fluency, and this enhanced processing fluency leads to favorable brand attitudes. Kim, Rao, and Lee (2010) reported that matching abstract, "why" laden appeals with a temporally distant decision and concrete and "how" laden appeals with an imminent future decision leads to perceptions of fluency, and this experience of processing fluency enhances evaluations of the focal stimulus. Another study reported by White et al. (2011, study 3) provides additional evidence for the processing fluency mechanism of the matching effects. The authors found that matching a value-oriented message (e.g., "think about reasons to make a difference) with gain frames and a process-oriented message (e.g., "think about ways to make a difference) with loss frames enhances processing fluency, which in turn induces more positive recycling intentions.

These findings raise the question about the specific process of the matching effects which involves two mediators, attention and processing fluency. It might be possible that people pay attention to the information which is relevant to their cognitive representational state and processing selected relevant information might enhance processing fluency. In many advertising models, attention has been positioned as the first step that consumers go through before making purchase decisions (Lavidge and Steiner l961; Vakratas and Ambler 1999). Attention has been suggested as a necessary initial step to start processing of information in most response hierarchy models (e.g., Strong 1925, p.26; Kotler 1997, p.611; Lavidge and Steiner 1961; Rogers 1962; Vakratas and Ambler 1999). All these models suggest a cognitively attentive stage as the first step to processing advertisement information. More importantly, these models suggest that when people take the cognitively attentive step first and then move on to the next steps (e.g., perceived feelings, and purchase), advertising is perceived as more persuasive and consumers are more likely to buy the brand in the advertisement (Vakratas and Ambler 1999).

2.5.2. Hypothesis 2

Thus, it appears that consumers attend to a message that is consistent with their cognitive states first, and then when they process the attentively selected information relevant to their cognitive mental state, they may feel enhanced processing fluency, which in turn leads to favorable attitudes toward an attitude target. Formally, I hypothesize that:

H2: Consumers using high- versus low-level construals are more likely to pay attention to gain- versus loss-framed appeals, and this enhanced attention

will induce greater perceptions of processing fluency, which then leads to greater persuasion. More specifically,

H2a: Processing matching information (high level, gain frame and low level, loss frame) compared to mismatching information (high level, loss frame and low level, gain frame) is more likely to enhance attention to the information, and then this enhanced attention will stimulate processing fluency that in turn induces more favorable attitudes.

Experiment 3 examines this serial process by which the matches between construal level and message frames affect attitudes.

2.6. Cognitive Resources and the Matching Effects

In the plethora of overabundant marketing messages, attention is a scare resource, because the capacity of information processing is limited. Thus it is often necessary for consumers to filter out irrelevant information and selectively attend to relevant information to enhance processing of information (Davenport and Beck 2002). Extracting irrelevant information and selectively paying attention to the information which is consistent with one's cognitive states may be a task that requires allocating cognitive resources.

2.6.1. Hypothesis 3

This means that the matching effects between construal level and message frames might not occur, if consumers cannot allocate their attentional resources to selectively process information that is relevant to them Therefore, I hypothesize that:

H3: The matching effect between construal level and gain versus loss frames will be more pronounced under high cognitive resources conditions than in low cognitive resources conditions. More specifically,

H3a: Processing matching (high level, gain frame and low level, loss frame) versus mismatching information (high level, loss frame and low level, gain frame) in high cognitive resources conditions is more likely to enhance attention to the information than in low cognitive resources conditions, and then this enhanced attention will stimulate processing fluency that in turn induces more favorable attitudes.

Experiment 4 investigates how cognitive resources affect the process by which the matching effects between construal level and message frames occur.

CHAPTER 3: EXPERIMENTS

3.1. Overview of the Experiments

Three objectives guided the current research. One was to examine the attention mechanism driving the matching relationship between construal level and message frame. In this research, I propose that gain-framed messages highlight the features of high-level construals, and loss-framed messages highlight the features of low-level construals, and thus individuals using high-level construals preferentially pay attention to gain-framed messages, whereas individuals using low-level construals preferentially pay attention to loss-framed messages. Therefore, matching high-level construals with gain frames and low-level construals with loss frames heighten participants' attention to the information they evaluate, and this heightened attention enhances persuasiveness of a message. To test this prediction, two approaches were followed. One was to examine the mediating role of attention on the matching effect by measuring the extent to which participants feel that they pay attention to the information they evaluate (experiments 1-4). The other approach was to earn direct evidence of the proposed attention mechanism of the matching effect. This purpose was fulfilled by two means. One was by presenting participants with strong versus weak arguments in experiment 3 and the other was by depleting cognitive resources in experiment 4. The prediction is that if individuals processing matches (i.e., processing gain-framed messages at high-level construals and loss-framed messages at low-level construals) are encouraged to pay attention to the information they evaluate, they should be better to discern different quality of arguments than individuals processing mismatches (i.e., processing gain-framed messages at low-level construals and loss-framed messages at high-level construals). This prediction is

tested in experiment 3 by examining the impact of argument strength on the relationship between construal level and gain- versus loss-framed messages. Another way to attain direct evidence of the proposed attention mechanism underlying the matching effect was by depleting participants' cognitive resources. The prediction was that if participants' cognitive resources are depleted, they may not be able to allocate their resources to pay attention to the matches to evaluate, and thus the matching effect should disappear under depleted condition. This idea is tested in experiment 4 by examining how cognitive resources influence participants' evaluations of gain- versus loss-framed appeals in high- versus low-level construals.

Another objective of this research was to examine how processing fluency which has been previously found as an important mediator underlying the matching effect involving construal level (e.g., Kim, Rao, and Lee 2009; Lee, Keller, and Sternthal 2010; White, MacDonnell, and Dahl 2011) plays a role in the proposed attention mechanism. For this purpose, the relationship between processing fluency and attention mediating the matching effect between construal level and message frames is examined in experiments 2-4.

The third objective was to increase the generalizability of the matching effect explained by the proposed attention mechanism and the robustness of the findings across experiments. Therefore, the predictions are tested on different dependent variables in different contexts using different operationalizations of construal level across four experiments. In each experiment, to investigate the impact of different levels of mental construal in processing gain- versus loss-framed messages, participants' high- versus low-level construals was manipulated using different methods and the messages framed

either by gains or losses were presented to participants. In experiment 1, the proposed attention mechanism of the matching effect between construal level and message frames was tested in a health-related communication context. Construal level was manipulated within the stimuli by emphasizing why- (high levels) versus how-laden (low levels) appeals which advocate taking a diagnostic blood test for heart disease prevention and these appeals were framed either by gains or losses. Then participants' attitudes toward the health message and behavioral intentions to take the diagnostic blood test were examined. In experiment 2, abstract (high levels) versus concrete (low levels) mindsets were induced to manipulate high- versus low-level construals. Then participants were provided with gain- versus loss-framed advertisement for a fictitious brand in an advertising context, and their brand attitudes were examined. In experiment 3, construal level was manipulated through a donation target in a fundraising message for a wildlife conservation organization by constructing arguments that either referred to a superordinate category of the donation target (high levels) or subordinate, specific exemplar (low levels). The taglines of the message were framed either by gains or losses and participants were asked to evaluate the message and indicate their willingness to donate. Finally, in experiment 4, construal level was manipulated by instructing participants to solve category versus exemplar questions. Participants were then presented with an advertisement for Welch's Grape Juice in which appeals were framed either by gains or losses and asked to indicate their buying intentions.

Support for the proposed attention mechanism underlying the matching effect between construal level and gain- versus loss-framed messages would make an important theoretical contribution to better understand how gain- versus loss-framed messages are

processed in high- versus low-level construals and how it affects persuasion. Support for the hypothesis predicting the mediating role of attention for the matching effect would indicate that gain- versus loss-framed appeals highlight the features of high- versus low-level construals, and thus using different levels of construals systematically changes which types of messages are made accessible and relevant in evaluations, and thus influence the success of persuasive appeals framed either by gains or losses.

The results supporting the proposed attention mechanism underlying the matching effect would also have important practical implications by suggesting the matching mechanism between construal level and message frames as strategies for inducing consumers' attention to marketing communications. Marketing managers would be able to attract consumer attention to a communication target by matching high-level construals with gain frames and low-level construals with loss frames.

3.2. Experiment 1. Attention, Construal Level and Gain versus Loss Frames

Experiment 1 tests the hypothesis that individuals using high-level construals preferentially attend more to gain-framed messages, whereas individuals using low-level construals preferentially attend more to loss-framed messages. Thus gain-framed messages should be more persuasive, when the gain-framed messages are processed at high-level construals. In contrast, loss- framed messages should be more persuasive, when the loss-framed messages are processed at low-level construals. To test this theory, participants were asked to read background information about heart disease and appeals advocating a diagnostic blood test. Construal level was manipulated within the message by emphasizing *why* people need to take a diagnostic blood test (i.e., high-level construal) versus

how people can take the test with the descriptions of specific procedures for it (i.e., low-level construal). I then framed these appeals in terms of gains versus losses. My prediction is that participants presented with why-laden appeals which prompt high-level construals would perceive that gain-framed appeals are more effective and would indicate higher intentions to take the diagnostic blood test, whereas the opposite would be found for those presented with how-laden appeals which highlight a low-level construal. I predict that this matching effect between construal level and gain versus loss frames occurs because participants preferentially attend to gain- versus loss-framed appeals when they use high- versus low-level construals to represent information.

3.2.1. Method

A total of 113 students at the University of Iowa participated in the study for partial course credit. Participants were randomly assigned to one of the four conditions in a 2 (construal level: high vs. low) × 2 (message frame: gain vs. loss) between-subjects design. Participants were told that the study pertained to their attitudes toward health related issues. Participants were provided with background information describing the role of cholesterol in the development of heart disease which was adapted from American Heart Disease Association website (http://www.americanheart.org/presenter.jhtml?identifier=1200000) to heighten external validity. They were then asked to read appeals advocating a diagnostic blood test that would enable individuals to identify their cholesterol level and thus their risk of heart disease. To manipulate construal level, I drew on prior research (Kim, Rao, and Lee 2009; Trope and Liberman 2003; Vallacher and Wegner 1985) and varied the message orientation either by why-laden or how-laden appeals. Modified from Maheswaran and Meyers-Levy (1990), why-laden, high-level appeals were manipulated by emphasizing

four reasons describing why people need to take a diagnostic blood test. Modified from eHow.com (http://www.ehow.com/how_2107662_get-blood-test.html), how-laden, low-level appeals were manipulated by emphasizing four steps to take the blood test. These two different types of arguments invoking different levels of mental construals were varied in whether they are gain- versus loss-framed (See Appendix A for the full stimuli). Participants were then asked to evaluate the message on three 7-point scales (*1 = not at all persuasive, not at all effective, not at all informative ~ 7 = very persuasive, very effective, very informative*) and indicate their intentions to take the blood test on two 7-point scales (*how likely are you to take the blood test, how willing are you to take the blood test; 1 = not at all likely, not at all willing ~ 7 = very likely, very willing*;). Participants then indicated the extent to which they paid attention to the information they reviewed (*1 = not at all ~7 = very much*).

Next, participants completed several manipulation check questions. Adapting the procedures used by Meyerowitz and Chaiken (1987) and Block and Keller (1995), manipulated gain- versus loss-framed messages were checked. On four 7-point scales (*1 = not at all ~ 7 = very much*), participants were asked to indicate the extent to which they thought that the health appeals stressed the positive (negative) implications of following (not following) the recommendations. They were also asked to indicate the degree to which they thought that the health appeals stressed important health benefits which might be gained (lost) by following (not following) the recommendations.

To check manipulated mental construal levels, participants were asked to complete a Behavioral Identification Form questionnaire (BIF; Vallacher and Wegner 1989, see Appendix B). The BIF is a 25-item dichotomous questionnaire that was

initially designed to assess individual differences in action identification tendencies at lower or higher level across many action domains. In this BIF, individuals are asked to choose one of two descriptions of the same behavior (e.g., climbing a tree), one that comprises higher-level construals related to why considerations (e.g., getting a good view) and the other that comprises lower-level construals related to how considerations (e.g., holding on to branches). Past research has shown that situational manipulation of individuals' mindsets to prompt high- versus low-level construals also systematically influences responses to the BIF questions (e.g., Agrawal and Wan 2009, experiments 1 and 2; Fujita et al. 2006; Liberman and Trope 1998, study 1). Following this past research, the efficacy of the construal level manipulation was assessed by using the BIF. The number of higher-level alternatives chosen was averaged for each participant to form a BIF score. Thus, higher BIF scores indicate higher construal levels.

3.2.2. Results and Discussion

Manipulation Checks. To check the efficacy of construal level manipulation, participants' responses on the BIF questionnaire were subjected to binary coding (*high-level construal = 1; low-level construal = 0*), and each participant's responses across the 25 items were summed to provide a BIF score. The results of a 2 (construal level) × 2 (message frame) ANOVA on the BIF score yielded only a main effect of construal level (F (1, 109) = 5.41, $p < .03$). Participants who evaluated why-laden appeals were more likely to construe the behaviors at a more abstract, high level (M = 14.19) than participants who evaluated how-laden appeals (M = 12.97).

To check the efficacy of the manipulation of message frame, the items to measure positive versus negative implications of the message and perceived benefits to be gained

versus lost were averaged to create a Gain Index (r = .69, p < .001) and a Loss Index (r = .78, p < .001). Then a 2 (construal level) × 2 (message frame) × 2 (frame check index) mixed-design ANOVA, with the frame check index as a repeated measure, was conducted on the perceived benefits of the message. The results yielded only an interaction effect between message frame and frame check Index (F (1, 109) = 186.69, p < .001). Participants indicated that gain-framed appeals emphasized positive benefits that might be gained by following the recommendations of the message ($M_{positivegain}$ = 4.0, $M_{negativeloss}$ = 3.1; t(54) = -10.26, p < .001), whereas loss-framed appeals emphasized negative benefits that might be lost by not following the recommendations ($M_{positivegain}$ = 3.2, $M_{negativeloss}$ = 4.1; t(57) = 12.55, p < .001). These results suggest that our manipulations of construal level and message frames were successful.

To check the efficacy of construal level manipulation, participants' responses on the BIF questionnaire were subjected to binary coding (*low-level construal = 0; high-level construal = 1*), and each participant's responses across the 25 items were summed to provide a BIF score. The results of a 2 (construal level) × 2 (message frame) ANOVA on the BIF score yielded only a main effect of construal level (F (1, 109) = 5.41, p < .03). Participants who evaluated why-laden appeals were more likely to construe the behaviors at a more abstract, high level (M = 14.19) than participants who evaluated how-laden appeals (M = 12.97).

Perceived Effectiveness. A 2 (message frame) × 2 (construal level) ANOVA on the Effectiveness Index (α = .93) revealed the predicted interaction (F(1, 109) = 14.48, p < .001). As hypothesized, participants in the why-laden appeals condition reported that when the appeals were gain-framed, the message was more effective than when were they

loss-framed (M_{gain} = 5.30, M_{loss} = 4.17; F(1, 56) = 7.91, p < .005). Conversely, participants in the how-laden appeals condition reported that when the appeals were loss-framed, the message was more effective than when were they gain-framed (M_{gain} = 4.12, M_{loss} = 5.29; F(1, 53) = 6.65, p < .02; see Figure C1).

Behavioral Intentions. A 2 (message frame) × 2 (construal level) ANOVA on the Behavioral Intention Index (r = .78) also revealed the predicted interaction (F(1, 109) = 8.56, p < .005). As expected, participants in the why-laden appeals condition reported greater willingness to take the diagnostic blood test, when the appeals were gain-framed, than when were they loss-framed (M_{gain}= 5.30, M_{loss} = 4.59; F(1, 56) = 4.34, p < .05). Conversely, participants in the how-laden appeals condition reported greater willingness to take the test, when the appeals were loss-framed than when were they gain-framed (M_{gain} = 4.44, M_{loss} = 5.36; F(1, 53) = 4.17, p < .05; see Figure C2).

Mediating Role of Attention. The proposed theory is that the matching effect between construal level and message frame would occur because participants using high- versus low-level construals preferentially pay more attention to gain- versus loss-framed information. To test this theory, participants were asked to report how much they paid attention to the information they evaluated. It was expected that participants who evaluate matching (high-level construal and gain frame, low-level construal and loss frame) versus mismatching (high-level construal and loss frame, low-level construal and gain frame) information would pay more attention to the information in evaluations, and report more positive reactions toward the message. This prediction was examined by following bootstrapping procedures with bias-corrected confidence estimates (Hayes 2012, model 4, p. 23; Preacher and Hayes 2008).To facilitate the direct interpretation of the results, the

two independent variables (i.e., construal level and message frame) were re-coded as matching versus mismatching. Matching was coded as 1 and mismatching was coded as 0. Analyses and bootstrap estimates based on 5,000 bootstrap samples indicated that the total effect of matching on perceived persuasiveness (β = 1.13, t = 3.97, p < .001) and behavioral intentions (β = .78, t = 2.90, p < .001) became nonsignificant (perceived effectiveness: β = .37, t = 1.53, p > .13; behavioral intentions: β = .39, t = 1.46, p > .15), when attention was included in the model. Further, the indirect effect of matching through attention was significant on perceived effectiveness (β = .75 with 95% CI = .41 to 1.15) and behavioral intentions (β = .39 with 95% CI = .16 to .74; see Figures C3 and C4). The normal theory tests for indirect effects further confirmed the mediating role of attention for the matching effects on perceived persuasiveness (z = 3.61, p < .001) and behavioral intentions (z = 2.79, p < .005).

These findings support the proposed attention mechanism of the matching effects between construal level and message frame. The results of experiment 1 demonstrated that individuals using high-level construals preferentially pay attention to gain-framed information, whereas individuals using low-level construals preferentially attend to loss-framed information, and this preferential attention facilitated by matches induces positive reactions toward an attitude target. In other words, this means that matching versus mismatching high- versus low-level construals with gain- versus loss frames encourages individuals to pay more attention to the information they evaluate, and in turn has greater persuasive impact on attitudes. These predictions were supported by the results demonstrating the mediating role of attention for the matching effect on perceived effectiveness and behavioral intentions. Participants who represented the health appeals

in high-level construals reported that they paid more attention to the information they evaluated, when they evaluated gain-framed appeals than when did they evaluate loss-framed appeals, and the opposite was true for those who used low-level construals to represent the health information. The results further confirmed that this enhanced attention led to greater perceived effectiveness of the message and higher willingness to take the diagnostic blood test.

In experiment 2, I examine how processing fluency influences the attention mechanism of the matching effect. Previous research has found that processing fluency is an important mediator of the matching effect between temporal distance and message orientation (Kim, Rao, and Lee 2009), construal level and regulatory focus (Lee, Keller, and Sternthal 2010), and mindsets and message frame (White, MacDonnell, and Dahl 2011). Thus, by exploring the role that processing fluency plays in the attention model of the matching effect, experiment 2 attempts to further understand the process underlying the matching effect. Another change made in experiment 2 was manipulating construal level out of the stimuli and test the proposed theory in a different context to enhance the generalizability of the proposed attention mechanism of the matching effect.

3.3. Experiment 2. Attention, Processing Fluency, and the Matching Effects

Two objectives guided the design of experiment 2. The first objective was to better understand the role processing fluency played in the attention mechanism of the matching effect. For this purpose, participants' subjective perceptions of processing fluency were measured. The other objective was to enhance the generalizability of the proposed attention mechanism of the matching effects on persuasion. To achieve this

goal, construal level manipulation was performed out of the stimuli, by priming different mindsets (i.e., abstract vs. concrete), and the proposed theory was tested in an advertising context. The primary predictions were that participants representing information at high-level construals under the abstract mindset condition would report greater experience of attention and processing fluency when they evaluate gain-framed information than when do they evaluate loss-framed information. In contrast, participants using low-level construals to represent information under the concrete mindset condition would report greater experience of attention and processing fluency when they evaluate loss-framed information than when they evaluate gain-framed information. This enhanced attention and processing fluency under the matching versus mismatching condition would induce favorable evaluations. Testing whether the matching effects occurred through the attention to processing fluency path or the processing fluency to attention path would enrich understanding of the mechanism underlying the effects.

3.3.1. Method

A total of 112 students at the University of Iowa participated in the study for partial course credit. They were randomly assigned to one of the condition of a 2 (construal level: high vs. low) × 2 (message frame: gain vs. loss) between-subjects design. For construal level manipulation, we primed participants' mindset to be abstract or concrete. Participants were asked to write about their thoughts on *why* they need to improve and maintain health (high-level construal) versus *how* they can improve and maintain health (low-level construal) (Freitas et al. 2004; see Appendix D).

Next, in a seemingly unrelated study, participants were presented with a message advertising a fictitious laser print brand, Printing-Pro, of which ad appeals were framed in

terms of gains versus losses. Half of the participants were exposed to gain-framed appeals with the headline, "Enjoy our Printing-PRO for great looking documents and web-page printing!" followed by subheadlines emphasizing features of the product in terms of gains (e.g, "Affordable everyday printing! Get up to three times more black pages!"). The remaining participants were exposed to loss-framed appeals with the headline, "Don't miss out on our Printing-PRO for great looking documents and web-page printing!" and subheadlines describing the features of the product in terms of losses (e.g., "Affordable everyday printing! Don't lose a chance to get up to three times more black pages!"). Both ads showed a picture of the Printing-Pro laser printer (See Appendix E).

Participants were asked to review the ad and to evaluate the brand using a four item, 7-point scale (*1 = not at all favorable, bad, dislike, negative ~ 7 = favorable, good, like, positive*). They were also asked to indicate how much attention they paid to the information they evaluated (*1 = not at all ~ 7 = very much*). Processing fluency was measured by asking participants to indicate their agreement (*1 = strongly disagree ~ 7 = strongly agree*) with three statements regarding their perceived ease of processing the information in the message (*easy to process, difficult to understand, easy to comprehend*).

Next, participants completed several manipulation check questions. Manipulated gain- versus loss-framed messages were checked on a four item, 7-point scale (*1 = not at all ~ 7 = very much*; *Please indicate the extent to which you think that the advertisement message stressed the positive (negative) implications of using (not using) Printing-Pro, Please indicate the degree to which you think that the advertisement message stressed what might be gained (lost) by using (not using) Printing-Pro*). As in Experiment 1,

manipulated mental construal levels were checked through Behavioral Identification Form (BIF) questionnaire and the number of higher-level alternatives chosen was averaged for each participant to form a BIF score.

In addition, other potential factors which might affect or underlie the matching effects between construal level and message frame were measured. Participants completed an 11-item regulatory focus questionnaire (Higgins et al. 2001), engagement measures (Camacho et al. 2003; Lee, Keller, and Sternthal 2010; Malaviya and Sternthal 2009) which asked participants to indicate how they felt while they were reviewing the information (*felt right, felt wrong; 1 = not at all ~ 7 = a lot*), and mood measures (Ahluwalia and Burnkrant 2004) which asked participants to indicate how much they experienced negative (*sad, frustrated)* and positive moods (*happy, good*) while they were reviewing the information (*1 = not at all ~ 7 = a lot*). Upon completion of the questionnaire including demographic measures, participants were debriefed and dismissed.

3.3.2. Results and Discussion

Manipulation Checks. To check the efficacy of construal level manipulation, participants' responses on the BIF questionnaire were subjected to binary coding (*high-level construal = 1; low-level construal = 0*), and each participant's responses across the 25 items were summed to provide a BIF score. Thus, higher BIF scores indicate higher construal levels. The results of a 2 (construal level) × 2 (message frame) ANOVA on the BIF score yielded only a main effect of construal level (F (1, 108) = 4.53, $p < .05$). Participants who wrote their thoughts about why people need to improve and maintain health were more likely to construe the behaviors at a more abstract, high level (M =

13.53) than participants who wrote their thoughts about who people can improve and maintain health (M = 11.88).

To check the efficacy of the manipulation of message frame, the items to measure positive versus negative implications and perceived benefits to be gained versus lost of using versus not using Printing Pro were averaged to create a Gain Index (r = .89, p < .001) and a Loss Index (r = .91, p < .001). Then a 2 (construal level) × 2 (message frame) × 2 (frame check index) mixed-design ANOVA, with the frame check index as a repeated measure, was conducted on the perceived benefits of the message. The results yielded only an interaction effect between message frame and frame check Index (F (1, 108) = 115.91, p < .001). Participants indicated that gain-framed advertisement emphasized positive benefits that might be gained by using Printing Pro ($M_{positivegain}$= 4.94, $M_{negativelos}s$ = 3.03; t(52) = -10.89, p < .001), whereas loss-framed appeals emphasized negative benefits that might be lost by not using Printing Pro ($M_{positivegain}$= 3.29, $M_{negativeloss}$ = 4.97; t(58) = 8.23, p < .001). These results suggest that the manipulations of construal level and message frames were successful.

Brand Attitudes. A 2 (message frame) × 2 (construal level) ANOVA on the Attitude Index (α = .97) revealed the predicted interaction (F(1, 108) = 14.89, p < .001). As hypothesized, participants primed to think abstractly at high-level construals were more favorable toward the brand, when the advertisement messages were gain-framed, than when were they loss-framed (M_{gain} = 5.11, M_{loss} = 4.11; F(1, 53) = 7.81, p < .01). Conversely, participants primed to think concretely at low-level construals were more favorable toward the brand, when the advertisement messages were loss-framed than

when were they gain-framed (M_{gain} = 4.16, M_{loss} = 5.07; $F(1, 55) = 7.07$, $p = .01$; see Figure F1).

Mediating Role of Attention. The attention mechanism of the matching effect between construal level and message frame was examined by following bootstrapping procedures with bias-corrected confidence estimates (Hayes 2012, model 4, p. 23; Preacher and Hayes 2008). The two independent variables (i.e., construal level and message frame) were re-coded as matching versus mismatching to facilitate the direct interpretation of the results. Matching was coded as 1 and mismatching was coded as 0. Analyses and bootstrap estimates based on 5,000 bootstrap samples indicated that the total effect of matching on brand attitudes ($\beta = .96$, $t = 3.89$, $p < .001$) became nonsignificant ($\beta = .33$, $t = 1.34$, $p > .18$), when attention was included in the model. Further, the indirect effect of matching through attention was significant on brand attitudes ($\beta = .62$ with 95% CI = .32 to 1.05; see Figures F2). The normal theory tests for indirect effects further confirmed the mediating role of attention for the matching effects on brand attitudes ($z = 3.82$, $p < .001$).

Mediating Role of Fluency. The mediating role of fluency of the matching effect on brand attitudes was also examined by following bootstrapping procedures with bias-corrected confidence estimates (Hayes 2012, model 4, p. 23; Preacher and Hayes 2008). As in previous analyses, matching was coded as 1 and mismatching was coded as 0. Analyses and bootstrap estimates based on 5,000 bootstrap samples indicated that the total effect of matching on brand attitudes ($\beta = .96$, $t = 3.89$, $p < .001$) became nonsignificant ($\beta = .09$, $t = .85$, $p > .39$), when fluency was included in the model. Further, the indirect effect of matching through processing fluency was significant on

brand attitudes (β = 1.05 with 95% CI = .60 to 1.47; see Figures F3). The normal theory tests for indirect effects further confirmed the mediating role of processing fluency for the matching effects on brand attitudes (z = 4.54, p < .001).

These results show that attention and processing fluency are both mediators for the matching effects between construal level and message frame on attitudes. However, it is not clear yet about the specific process involving these two mediators for the matching effects. The findings obtained in Experiments 1 and 2 indicate that individuals using high- versus low-level construals preferentially attend to gain- versus loss-framed messages, and thus when they process matching information, they pay more attention to the information they evaluate than when they process mismatching information. This enhanced attention given to the matching versus mismatching information may heighten the perceptions of fluency at the stage of information processing, and in turn lead to positive evaluations. In the next section of the analyses, this prediction is tested, by investigating the process through the paths of attention to processing fluency which may underlie the matching effect. Testing the process of the matching effect which involves the paths through processing fluency to attention is also performed to identify the specific mechanism underlying the matching effect between construal level and message frame.

Attention → Fluency or Fluency → Attention? Process Test. Testing the process underlying the matching effects between construal level and message frame with two mediators was conducted by PROCESS (Hayes 2012, model 6, p. 25), following the Hayes, Preacher, and Myers (2010) guidelines based on the bootstrapping procedures of bias-corrected confidence estimates with 5,000 bootstrap samples. As in previous analyses, independent variables were re-coded as matching = 1 and mismatching = 0.

PROCESS analyses testing the paths through attention to processing fluency as serial multiple mediators indicated that the total effect of matching on brand attitudes (β = .96, t = 3.89, p < .001) became nonsignificant (β = .11, t = .98, p > .33), when the serial mediators, attention and processing fluency were included in the model. Further, the indirect effect of matching through the paths of attention to processing fluency was significant on brand attitudes (β = .59 with 95% CI = .33 to .97; see Figures F4). However, the indirect effect of matching through the paths of processing fluency to attention was not significant on brand attitudes (β = -.01 with 95% CI = -.03 to .07).

These findings support the proposed attention mechanism of the matching effects between construal level and message frame. The results of experiment 1 demonstrated that individuals using high-level construals preferentially pay attention to gain-framed information, whereas individuals using low-level construal preferentially attend to loss-framed information, and this preferential attention facilitated by matches induces positive reactions toward an attitude target. In other words, this means that matching versus mismatching high- versus low-level construals with gain- versus loss frames encourages individuals to pay more attention to the information they evaluate, and in turn has greater persuasive impact on attitudes. These predictions were supported by the results demonstrating the mediating role of attention for the matching effect on perceived effectiveness and behavioral intentions. Participants who represented the health appeals in high-level construals reported that they paid more attention to the information they evaluated, when they evaluated gain-framed appeals than when they evaluated loss-framed appeals, and the opposite was true for those who used low-level construals to represent the health information. The results further confirmed that this enhanced

attention led to greater perceived effectiveness of the message and higher willingness to take the diagnostic blood test.

These results provide further evidence for the attention mechanism of the matching effect. Replicating prior findings (Lee and Aaker 2004; Lee, Keller, and Sternthal 2010; White et al. 2011), we showed that matches led to more fluent processing of the message and more favorable brand attitudes. More importantly, we demonstrated that people pay more attention to the message they evaluate, when they process information construed at a level that matches with a particular message frame emphasized by gains or losses, and that increased attention stimulates processing fluency, thus influencing brand attitudes. These results indicate that the effect of matching between construal level and message frame may occur through different paths depending on whether some enhancement of attention is possible or not. I predict that, based on the dual mediation model of attention and processing fluency found in experiment 3, when people cannot pay attention to the matching information they evaluate, the matching effect may occur through processing fluency, but not attention. We examine this implication in experiment 4.

Potential Variables. In all the analyses, potential variables which might influence or underlie the matching effects were also considered. Promotion and prevention focus scores, positive (r = .70) and negative (r = .77) moods, and engagement (r =.75) were included as covariates in the analyses. The interaction effect between construal level and message frame remained significant, even when all these covariates were included in the analyses. These variables were also examined as mediators for the matching effects. None of these variables, however, were significantly predicted by the interaction between

construal level and message frame (promotion focus, $p > .77$; prevention focus, $p > .88$; engagement, $p > .75$; negative mood, $p > .57$; positive mood, $p > .29$). These findings indicate that participants' regulatory focus, engagement, and mood do not account for the predicted matching effect and its processes.

Replicating the results of Experiment 1, the findings obtained in Experiment 2 demonstrated that individuals using high-level construals preferentially attend to gain-framed messages, whereas individuals using low-level construals preferentially attend to loss-framed messages, and thus when they process matching information, they pay more attention to the information they evaluate and exhibit more favorable attitudes toward an attitude target. It was found that processing fluency is also an important mediator of the matching effect. Participants under the matching condition felt greater perceptions of information processing fluency than those under the mismatching condition, and these enhanced perceptions of fluency led to positive evaluations of the target brand. More importantly, the results of Experiment 2 showed that the paths from attention to fluency are the processes underlying the matching effects on brand attitudes. Evaluating the advertisement of Printing Pro under the matching condition encouraged participants to pay more attention to the information in the advertisement, and this enhanced attention given to the matching information led to greater perceptions of information processing fluency, which in turn induced favorable evaluations of Printing Pro.

Taken together, the results of Experiments 1 and 2 provide evidence that high- versus low-level construals affect persuasion processes through attention given to gain- versus loss-framed messages. Further, Experiment 2 demonstrated that heightened attention by matches between construal level and message frame enhances information

processing fluency, and thus leads to positive reactions toward an attitude target. However, neither study provides any direct evidence of the proposed attention mechanism that high- versus low-level construals facilitate attention to gain- versus loss-framed messages. Further, subjective attention measured by self-repots in Experiments 1 and 2 may limit the validity of the proposed attention mechanism underlying the matching effects. Therefore, Experiment 3 attempts to obtain direct evidence of the attention mechanism of the matching effects by presenting participants with strong versus weak arguments and measuring their impact on attitudes. My prediction is that participants under the matching condition should be more sensitive to the strength of arguments, since their attention is more heightened by matches than those under the mismatching condition. Heightened attention to any given argument should be reflected in greater sensitivity to the strength of that argument (e.g., Chaiken et al. 1996; Petty and Cacioppo 1986; Petty and Wegner 1998). Experiment 3 tests this hypothesis.

3.4. Experiment 3. Attaining Direct Evidence for the Attention Mechanism of the Matching Effects

The objectives of experiment 3 were to earn direct evidence of the proposed attention mechanism underlying the matching effects between construal level and message frame and to replicate the matching effects which occur through the paths of attention to processing fluency on willingness to help in a charity communication context. To achieve these goals, participants were presented with strong versus weak arguments of a charitable message. To manipulate high- versus low-level construals, the donation target was referred as a superordinate category (e.g., North Atlantic Right Whales) or subordinate, specific exemplar (e.g., Simoon, a North Atlantic Right Whale).

Gain versus loss frames were constructed by framing the taglines of the message in terms of gains or losses. It is predicted that participants' willingness to donate should be more sensitive to argument strengths when the donation target is referred as a superordinate category (high-level construal) versus subordinate exemplar (low-level construal) under gain- versus loss-framed taglines of the message.

3.4.1. Method

A total of 145 students at the University of Iowa participated in the study for partial course credit. They were randomly assigned to one of the conditions of a 2 (construal level: high vs. low) × 2 (message frame: gain vs. loss) × 2 (argument strength: strong vs. weak) between-subjects design. Adapted from Fujita et al. (2008), participants were told that a wildlife conservation organization wanted to get feedback about a material to be used in a fundraising campaign. They were then presented with a description of a wildlife conservation fundraising campaign. Manipulating high- versus low-level construals was performed by presenting the wildlife conservation organization as dedicated to protecting North Atlantic Right whales in general (high-level construal) or a specific North Atlantic Right whale, named Simoon (low-level construal). Strong versus weak arguments were manipulated within the fundraising message. The appeals of the fundraising message included four strong versus weak arguments. Argument strength was manipulated by strongly or weakly endorsing the donation target and the fundraiser. Message frame was manipulated by framing the taglines of the message either by gains or losses (e.g., *Get (versus Don't lose) a chance to help and save Simoon (or North Atlantic Right whales)*; see Appendix G). Then participants were asked to indicate how likely they were willing to donate (*1 = not at all likely ~ 7 = very likely*), how much attention they

paid to the information they evaluated (*1 = not at all ~ 7 = very much*), and their agreement (*1 = strongly disagree ~ 7 = strongly agree*) with three statements regarding their perceived ease of processing the information in the message (*easy to process, difficult to understand, easy to comprehend*).

Next, participants completed several manipulation check questions. Manipulated gain- versus loss-framed messages were checked on a four item, 7-point scale (*1 = not at all ~ 7 = very much*; *Please indicate the extent to which you think that the fundraising message stressed the positive (negative) implications of helping (not helping) Simoon (or North Atlantic Right whales), Please indicate the degree to which you think that the fundraising message stressed what might be gained (lost) by saving (not saving) Simoon (or North Atlantic Right whales)*). Participants were asked to complete a Behavioral Identification Form (BIF) questionnaire to check the efficacy of manipulated construal levels and the number of higher-level alternatives chosen was averaged for each participant to form a BIF score.

To be sure of the efficacy of manipulations for construal level, message frame, and argument strength, a pretest was conducted with total 134 undergraduate students. The results of a 2 (construal level) × 2 (message frame) × 2 (argument strength) ANOVA on the BIF score yielded only a main effect of construal level (F (1, 126) = 10.29, $p <$ .005). Participants who reviewed the fundraising message for North Atlantic Right whales in general were more likely to construe the behaviors at a more abstract, high level (M = 15.39) than those who reviewed the fundraising message for a specific North Atlantic Right whale, Simoon (M = 13.61). Conducting a 2 (construal level) × 2 (message frame) × 2 (argument strength) ANOVA on the perceived argument strength yielded only

a main effect of argument strength (F (1, 126) = 7.73, p < .01). Participants who reviewed the strong message reported stronger perceptions of argument strength of the message (M = 4.44) than those who reviewed the weak message (M = 3.72). The results of a 2 (construal level) × 2 (message frame) × 2 (argument strength) × 2 (frame check index) mixed-design ANOVA, with the frame check index as a repeated measure on the perceived benefits of the message yielded only an interaction effect between message frame and frame check Index (F (1, 126) = 20.15, p < .001). Participants indicated that the gain-framed message emphasized positive benefits that might be gained by saving and helping North Atlantic Right whales or Simoon ($M_{positivegain}$ = 4.33, $M_{negativeloss}$ = 3.59; t(70) = -5.12, p < .001), whereas loss-framed appeals emphasized negative benefits that might be lost by not saving and helping North Atlantic Right whales or Simoon ($M_{positivegain}$ = 3.56, $M_{negativeloss}$ = 4.35; t(62) = 4.59, p < .001). These pretest results suggested that the manipulations of construal level, message frame, and argument strength were successful.

As in Experiment 2, participants also completed an 11-item regulatory focus questionnaire (Higgins et al. 2001), engagement measures (Camacho et al. 2003; Lee, Keller, and Sternthal 2010; Malaviya and Sternthal 2009) which asked participants to indicate how they felt while they were reviewing the information (*felt right, felt wrong; 1 = not at all ~ 7 = a lot*), and mood measures (Ahluwalia and Burnkrant 2004) which asked participants to indicate how much they experienced negative (*sad, frustrated)* and positive moods (*happy, good*) while they were reviewing the information (*1 = not at all ~ 7 = a lot*). Upon completion of the questionnaire including demographic measures, participants were debriefed and dismissed.

3.4.2. Results and Discussion

Manipulation Checks. To check the efficacy of construal level manipulation, participants' responses on the BIF questionnaire were subjected to binary coding (*high-level construal = 1; low-level construal = 0*), and each participant's responses across the 25 items were summed to provide a BIF score. Thus, higher BIF scores indicate higher construal levels. The results of a 2 (construal level) × 2 (message frame) × 2 (argument strength) ANOVA on the BIF score yielded only a main effect of construal level (F (1, 137) = 6.99, $p < .001$). Participants who reviewed the fundraising message for North Atlantic Right whales were more likely to construe the behaviors at a more abstract, high level (M = 15.30) than those who reviewed the fundraising message for a specific North Atlantic Right whale, Simoon (M = 13.87).

Manipulation check for argument strength was conducted by running a 2 (construal level) × 2 (message frame) × 2 (argument strength) ANOVA on the perceived argument strength. The results yielded only a main effect of argument strength (F (1, 137) = 10.78, $p = .001$). Participants who reviewed the strong message reported greater perceptions of argument strength (M = 4.53) than those who reviewed the weak message (M = 3.71).

To check the efficacy of the manipulation of message frame, the items to measure positive versus negative implications and perceived benefits to be gained versus lost of using versus not using Printing Pro were averaged to create a Gain Index ($r = .88$, $p < .001$) and a Loss Index ($r = .83$, $p < .001$). Then a 2 (construal level) × 2 (message frame) × 2 (argument strength) × 2 (frame check index) mixed-design ANOVA, with the frame check index as a repeated measure, was conducted on the perceived benefits of the

message. The results yielded only an interaction effect between message frame and frame check Index (F (1, 137) = 17.21, $p < .001$). Participants indicated that gain-framed advertisements emphasized positive benefits that might be gained by helping and saving North Atlantic Right whales or Simoon ($M_{positivegain}$ = 4.27, $M_{negativeloss}$ = 3.60; t(74) = -4.88, $p < .001$), whereas loss-framed appeals emphasized negative benefits that might be lost by not helping and saving North Atlnatic Right whales or Simoon ($M_{positivegain}$ = 3.56, $M_{negativeloss}$ = 4.24; t(69) = 3.89, $p < .001$). These results suggest that the manipulations of construal level, message frame, and argument strength were successful.

Willingness to Donate. A 2 (message frame) × 2 (construal level) × 2 (argument strength) ANOVA on willingness to donate yield the main effect of argument strength (F(1, 137) = 4.78, $p < .05$). Participants who reviewed the strong message indicated greater willingness to donate than those who reviewed the weak message (M_{strong} = 4.10, M_{weak} = 3.59). This main effect was qualified by the two way interaction of construal level and message frame (F(1, 137) = 6.96, $p < .005$). Participants under the high-level construal condition reported that they were more willing to donate when they were presented with the messages using gain-framed taglines than when were they presented with the messages using loss-framed taglines (M_{gain} = 3.50, M_{loss} = 4.15; F(1, 74) = 3.84, p = .054). In contrast, participants under the low-level construal condition reported that they were more willing to donate when they were presented with the messages using loss-framed taglines than when were they presented with the messages using gain-framed taglines, but it was only directionally significant (M_{gain} = 3.63, M_{loss} = 4.0; F(1, 67) = 1.19, p = .28). This two-way interaction was qualified by the predicted three way interaction (F(1, 137) = 4.78, $p < .001$) of construal level, message frame, and argument

strength. The matching effect between construal level and message frame on willingness to donate was not significant under the weak argument condition ($F < 1$), but was significant under the strong argument condition ($F(1, 61) = 13.80$, $p < .001$). Participants were more willing to donate when they were presented with the high-level message using gain-framed taglines ($M_{gain} = 4.74$, $M_{loss} = 3.40$; $F(1, 34) = 7.46$, $p < .05$) and the low-level message using loss-framed taglines ($M_{gain} = 4.86$, $M_{loss} = 3.40$; $F(1, 29) = 6.36$, $p < .02$).

To test the main hypothesis, the data were re-coded as matching (gains and high levels, losses and low levels) and mismatching (gains and low levels, losses and high levels). The primary prediction was that participants who reviewed the matching message should be more sensitive to argument strength than those who reviewed the mismatching message, since evaluating matching versus mismatching message heightens message recipients' attention toward the message in evaluations. The results of a 2 (message matching: matching vs. mismatching) × 2 (argument strength: strong vs. weak) between-subjects ANOVA on willingness to donate yielded significant argument strength ($M_{strong} = 4.09$, $M_{weak} = 3.60$; $F(1, 141) = 4.80$, $p < .05$) and message matching ($M_{matching} = 4.15$, $M_{mismatching} = 3.55$; $F(1, 141) = 7.08$, $p < .01$) main effects. Central to the hypothesis, these main effects were qualified by the predicted two-way interaction ($F(1, 141) = 11.96$, $p < .001$). As expected, planned contrasts indicated that participants under the matching condition were more sensitive to argument strength. When they were presented with the matching messages supported by weak arguments, they were less willing to donate than when were they presented with the matching messages supported by strong arguments ($M_{matching,strong} = 4.79$, $M_{matching, weak} = 3.51$; $F(1, 72) = 13.08$, $p < .001$). Mismatches

supported by strong versus weak arguments, however, did not vary in participants' willingness to donate ($M_{mismatching,strong}$ = 3.41, $M_{mismatching,\ Weak}$= 3.69; $F(1, 69) = 1.06$, $p >$ .30; see Figure H1). These results indicate that when participants evaluated the matching information, they paid more attention to the information in the message and thus they were better able to recognize messages supported by strong versus weak arguments than when they evaluated the mismatching information. This heightened attention, therefore, enhanced participants' willingness to donate, when the matching information was supported by strong arguments, but not when it was supported by weak arguments. However, participants' willingness to donate did not vary across strong versus weak argument conditions, when participants evaluated mismatching information. Evaluations of mismatching information did not enhance participants' attention to the information, and thus participants were not good at recognizing messages supported by strong versus weak arguments. Mismatching messages did not enhance participants' attention to the information in the message and in turn did not influence their willingness to donate.

Mediating Roles of Attention and Fluency. To confirm the mediating roles of attention and processing fluency of the matching effects on willingness to donate were conducted. The attention mechanism of the matching effect between construal level and message frame was examined by following bootstrapping procedures with bias-corrected confidence estimates based on the Preacher and Hayes (2008) and Hayes (2012, model 4, p. 23) guidelines. Analyses and bootstrap estimates based on 5,000 bootstrap samples indicated that the total effect of matching on willingness to donate (β = .52, t = 2.19, $p <$ .03) became nonsignificant (β = -.05, t = -.23, $p >$ .81), when attention was included in the model. Further, the indirect effect of matching through attention was significant (β =

.57 with 95% CI = .29 to .94; see Figures H2). The normal theory tests for indirect effects further confirmed the mediating role of attention for the matching effects on willingness to donate ($z = 3.79$, $p < .001$).

The mediating role of fluency of the matching effect on willingness to donate was also examined by following bootstrapping procedures with bias-corrected confidence estimates (Hayes 2012, model 4, p. 23). Analyses and bootstrap estimates based on 5,000 bootstrap samples indicated that the total effect of matching on willingness to donate (β = .52, $t = 2.19$, $p < .05$) became nonsignificant ($\beta = -.06$, $t = -.65$, $p > .51$), when processing fluency was included in the model. Further, the indirect effect of matching through processing fluency was significant on willingness to donate (β = .58 with 95% CI = .17 to 1.99; see Figures H3). The normal theory tests for indirect effects further confirmed the mediating role of processing fluency for the matching effects on willingness to donate ($z = 2.67$, $p < .01$).

Mediated Moderation. Further insight was gained by assessing whether the mediating influence of attention and fluency of the matching effects on willingness to donate was moderated by argument strength. Following the Muller, Judd, and Yzerbyt (2005) and the Hayes (2011, model 8, p. 31) guidelines, the predicted two separate conceptual models of mediated moderation involving attention and processing fluency as mediators were tested. The results of bias corrected bootstrapping procedures based on 5000 bootstrap samples indicated that the total effect of message matching by argument strength ($\beta = 1.56$, $t = 3.46$, $p < .001$) became nonsignificant, when attention ($p > .12$) and processing fluency ($p > .18$) were included in the model. Further, the indirect effects of message matching by argument strength through attention (β = .91 with 95% CI = .45 to

.1.59) and processing fluency (β = .1.29 with 95% CI = .52 to .2.17) on willingness donate were significant, when the main effects of message matching and argument strength were controlled. These results indicate that both attention and processing fluency are mediators for the matching effect between construal level and message frame, and the influences of attention and processing fluency between message matching and willingness to donate were moderated by argument strength.

Process Test. Testing for the process underlying the matching effects between construal level and message frame with two mediators was conducted by PROCESS (Hayes 2012, model 6, p. 25), following the Hayes, Preacher, and Myers (2010) guidelines based on the bootstrapping procedures of bias-corrected confidence estimates with 5,000 bootstrap samples. PROCESS analyses testing the paths through attention to processing fluency as serial multiple mediators indicated that the total effect of message matching by argument strength on willingness to donate (β = 1.24, t = 4.66, $p < .001$) became nonsignificant (β = .004, t = .03, $p > .97$), when the serial mediators involving the paths of attention to processing fluency were included in the model. Further, the indirect effect of message matching by argument strength through the paths of attention to processing fluency was significant on willingness to donate (β = .77 with 95% CI = .45 to .1.19; see Figures H4). However, the indirect effect of message matching by argument strength through the paths of processing fluency to attention was not significant on willingness to donate (β = .04 with 95% CI = -.004 to .14).

Potential Variables. As in Experiment 2, potential variables which might influence or underlie the matching effects were also considered in analyses. Promotion and prevention focus scores, positive (r = .76) and negative (r = .73) moods, and

engagement (r = .75) were included as covariates in the analyses. The interaction effect between construal level and message frame remained significant, even when all these covariates were included in the analyses. These variables were also examined as mediators for the matching effects. None of these variables, however, were significantly predicted by the interaction of construal level by message frame by argument strength (promotion focus, $p > .26$; prevention focus, $p > .66$; engagement, $p > .49$; negative mood, $p > .58$; positive mood, $p > .71$). These findings indicate that participants' regulatory focus, engagement, and mood do not account for the predicted matching effects and its processes.

The results of Experiment 3 provide direct evidence in support of the attention mechanism of the matching effects between construal level and message frame. Participants construing information at abstract, high levels indicated greater willingness to donate when they evaluated gain-framed messages, whereas participants construing information at concrete, low levels indicated greater willingness to donate when they evaluated loss-framed messages. More important, participants were better able to discern argument strength under matching versus mismatching condition, and this attention heightened in evaluations of matching information enhanced participants' willingness to donate. These results are consistent with the notion that individuals preferentially attend to gain- versus loss-framed messages when high- versus low-level construals are activated. Replicating findings from Experiment 2, the results of Experiment 3 demonstrated that evaluating matching messages heightens individuals' attention, and this enhanced attention leads to greater perceptions of information processing fluency which in turn induces greater willingness to help.

In the results reported in Experiments 1-3, it appears that participants using high- versus low-level construals presumably had sufficient cognitive resources to allocate available resources to preferentially attend to gain- versus loss-framed messages and thus could distinguish matching information supported by strong versus weak arguments. This means that under conditions of reduced capacity, such as states of cognitive load, the matching effects between construal level and message frame may disappear, because people may not be able to discern matching versus mismatching information, and it may be hard for them to pay attention to the information which needs to be evaluated. Thus, in experiment 4, the role of cognitive resources moderating the relationship between message matching (high-level construal and gain frame, low-level construal and loss frame) and attitudes is examined to further understand under which condition the matching effects occur.

3.5. Experiment 4. Cognitive Resources and the Matching Effects

The main objective of Experiment 4 was to identify a condition under which the matching effects between construal level and message frame might be affected. The findings in previous experiments suggest that individuals preferentially pay more attention to gain- versus loss-framed messages, when they use high- versus low-level construals, and this enhanced attention given to the matching information stimulates fluent processing and thus positive evaluations. This attentional control to preferentially attend to the information (e.g., gain- or loss-framed messages) which matches cognitive structures (e.g., high- or low- level construals) activated to process information may require cognitive resources. Without an adequate amount of cognitive resources, the perceptual filtering process to determine which information is relevant to the activated

level of construal might not be possible, thus diminishing or eradicating the persuasive impact of matches between construal level and message frame. This prediction is consistent with the proposed attention mechanism of the matching effect. When individuals' attentional resources are limited in use under states of cognitive load, the matching effect should disappear. Experiment 4 tests this influence of cognitive resources moderating the relationship between matches and attitudes and tries to provide further evidence of the mechanisms underlying the matching effects.

The second objective was to examine an alternative mechanism, biased elaborative processing, which might underlie the matching effects. That is, individuals using high- versus low-level construals may elaborately process gain- versus loss-framed information, and this elaboration may bias their evaluations in a particular direction (Chaiken and Maheswaran 1994; Petty et al. 1993). To test this possibility, an additional measure, the extent to which participants processed differently framed information depending on their activated construal level, was included. The extent of information processing was measured by the time participants spent reviewing gain- versus loss-framed messages.

The third objective of Experiment 4 was to enhance the robustness of the findings through different operationalizations of construal level manipulations. To achieve this goal, a manipulatation of high- versus low-level construals was performed by presenting participants with category (high-level construal) versus exemplar (low-level construal) questions (Fujita et al. 2006a). Participants' cognitive resources were then varied by asking them to memorize 2- or 10-digit numbers and recall them at the end of the experiment (Drolet and Luce 2004; Monga and John 2008, see study 3). After these

seemingly unrelated two tasks, participants were presented with a gain- versus loss-framed advertisement of Welch's Grape Juice and asked to evaluate it.

3.5.1. Method

A total of 241 students at the University of Iowa participated in the study for partial course credit. They were randomly assigned to one of the conditions of a 2 (construal level: high vs. low) × 2 (message frame: gain vs. loss) × 2 (cognitive resources: high vs. low) between-subjects design. For construal level manipulation, participants were asked to answer category versus exemplar questions (Fujita et al. 2006a). In this exercise, for example, participants were given a word, "dog." Participants under the high-level construal condition were asked to provide a broader category of the word by completing a fragment sentence, 'Dog is an example of ( ). Participants were expected to respond with a word broadly categorizing the given word, such as "Animal." Participants under the low-level construal condition were also given the word, "dog," but asked to provide a more specific example of the category of "dog," by completing a fragment sentence, "An example of a Dog is ( )." They were expected to answer the question by providing a specific example of a dog, such as "Poodle." Next, in a seemingly unrelated study, participants were asked to memorize 2 (high cognitive resources) or 10 (low cognitive resources) digits numbers and recall them at the end of the study. Participants were then presented with a gain- versus loss-framed advertisement for Welch's Grape Juice and asked to evaluate the advertisement. When they evaluated the ad, the time they spent reviewing the ad was measured. Participants then indicated how likely they were to buy the juice (*1 = not at all likely ~ 7 = very likely*) and how much attention they paid to the information in the advertisement they evaluated (*1 = not*

at all ~ 7 = very much). Processing fluency was also measured by asking participants to indicate their agreement (*1 = strongly disagree ~ 7 = strongly agree*) with three statements regarding their perceived ease of processing the information in the ad (*easy to process, difficult to understand, easy to comprehend*).

Next, in a seemingly unrelated study, participants completed several manipulation check questions. Participants were asked to recall the 2 (vs. 10) digits numbers that they were instructed to memorize at the beginning of the experiment. They were also asked to indicate how much effort they made to remember the numbers in their memory on a 7-point scale (*1=not at all, 7=very much*). Manipulated gain- versus loss-framed messages were checked on a four item, 7-point scale (*1 = not at all ~ 7 = very much*; *Please indicate the extent to which you think that the advertisement stressed the positive (negative) implications of drinking (not drinking) Welch's 100% Grape Juice, Please indicate the degree to which you think that the advertisement stressed what might be gained (lost) by drinking (not drinking) Welch's 100% GrapeJjuice*). Participants also completed a Behavioral Identification Form (BIF) questionnaire and the number of higher-level alternatives chosen was averaged for each participant to form a BIF score.

To check the efficacy of manipulations for construal level, message frame, and cognitive resources, a pretest was conducted with a total of 125 undergraduate students at the University of Iowa. The results of a 2 (construal level) × 2 (message frame) × 2 (cognitive resources) ANOVA on the BIF score yielded only a main effect of construal level (F (1, 117) = 5.02, $p < .03$). Participants who answered category questions were more likely to construe the behaviors at a more abstract, higher level (M = 15.14) than those who answered exemplar questions (M = 13.91). Conducting a 2 (construal level) ×

2 (message frame) × 2 (cognitive resources) MANOVA on the perceived amount of effort participants expended to memorize 2 vs. 10-digit numbers and on the total number of recalled numbers yielded only main effects of cognitive resources (F_{effort} (1, 117) = 23.77, $p < .001$; $F_{totalnumber}$ (1, 117) = 147.49, $p < .001$). Participants who were asked to memorize 10-digit numbers (high load, low resources) reported that they expended a greater amount of effort to memorize the numbers (M_{effort} = 4.54) and recalled more numbers ($M_{totalnumber}$ = 7.71) than those who were asked to memorize 2-digit numbers (low load, high resources) (M_{effort} = 3.00; $M_{totalnumber}$ = 1.84). The results of a 2 (construal level) × 2 (message frame) × 2 (cognitive resources) × 2 (frame check index) mixed-design ANOVA, with the frame check index as a repeated measure on the perceived benefits of the message yielded only an interaction effect between message frame and frame check Index (F (1, 121) = 20.15, $p < .001$). Participants indicated that the gain-framed message emphasized positive benefits that might be gained by dinking the juice ($M_{positivegain}$ = 4.70, $M_{negativeloss}$ = 3.28; t(59) = 7.38, $p < .001$), whereas loss-framed appeals emphasized negative benefits that might be lost by not drinking the juice ($M_{positivegain}$ = 3.19, $M_{negativeloss}$ = 5.05; t(64) = 9.66, $p < .001$). These results suggested that the manipulations of construal level, message frame, and argument strength were successful.

As in previous experiments, Participants also completed an 11-item regulatory focus questionnaire (Higgins et al. 2001), engagement measures (Camacho et al. 2003; Lee, Keller, and Sternthal 2010; Malaviya and Sternthal 2009) which asked participants to indicate how they felt while they were reviewing the information (*felt right, felt wrong; 1 = not at all ~ 7 = a lot*), and mood measures (Ahluwalia and Burnkrant 2004)

which asked participants to indicate how much they experienced negative (*sad, frustrated)* and positive moods (*happy*, *good*) while they were reviewing the information (*1 = not at all ~ 7 = a lot*). Upon completion of the questionnaire including demographic measures, participants were debriefed and dismissed.

3.5.2. Results and Discussion

Manipulation Checks. To check the efficacy of construal level manipulation, participants' responses on the BIF questionnaire were subjected to binary coding (*high-level construal = 1; low-level construal = 0*), and each participant's responses across the 25 items were summed to provide a BIF score. Thus, higher BIF scores indicate higher construal levels. The results of a 2 (construal level) × 2 (message frame) × 2 (cognitive resources) ANOVA on the BIF score yielded only a main effect of construal level (F (1, 232) = 7.06, $p < .008$). Participants who answered category questions were more likely to construe the behaviors at a more abstract, higher level (M = 14.91) than those who answered exemplar questions (M = 13.87).

To check the efficacy of manipulated high versus low cognitive resources, a 2 (construal level) × 2 (message frame) × 2 (cognitive resources) MANOVA on the perceived amount of effort participants expended to memorize 2 vs. 10-digit numbers and on the total number of recalled numbers were conducted. The results yielded only main effects of cognitive resources (F_{effort} (1, 232) = 30.09, $p < .001$; $F_{totalnumber}$ (1, 232) = 234.73, $p < .001$). Participants who were asked to memorize 10-digit numbers (high load, low resources) reported that they expended more effort to memorize the numbers (M_{effort} = 4.10) and recalled more numbers ($M_{totalnumber}$ = 7.26) than those who were asked to memorize 2-digit numbers (low load, high resources) (M_{effort} = 2.95; $M_{totalnumber}$ = 1.69).

To checks the efficacy of the manipulation of message frame, the items to measure positive versus negative implications and perceived benefits to be gained versus lost of drinking the juice were averaged to create a Gain Index ($r = .91$, $p < .001$) and a Loss Index ($r = .89$, $p < .001$). Then a 2 (construal level) × 2 (message frame) × 2 (cognitive resources) × 2 (frame checks index) mixed-design ANOVA, with the frame checks index as a repeated measure, was conducted on the perceived benefits of the message. The results yielded only an interaction effect between message frame and frame checks Index (F (1, 137) = 17.21, $p < .001$). Participants indicated that gain-framed advertisement emphasized positive benefits that might be gained ($M_{positivegain} = 4.89$, $M_{negativeloss} = 3.07$; $t(123) = 14.69$, $p < .001$), whereas loss-framed appeals emphasized negative benefits that might be lost ($M_{positivegain} = 3.21$, $M_{negativeloss} = 5.00$; $t(116) = 12.43$, $p < .001$). These results suggest that the manipulations of construal level, message frame, and cognitive resources were successful.

Buying Intentions. A 2 (message frame) × 2 (construal level) × 2 (cognitive resources) ANOVA on buying intentions yielded the main effect of cognitive resources ($F(1, 233) = 5.55$, $p < .02$). Participants under the high resources condition indicated greater buying intentions than those under the low resources condition ($M_{high} = 3.96$, $M_{low} = 3.53$). This main effect was qualified by the two way interaction of construal level and message frame ($F(1, 233) = 5.91$, $p < .016$). Participants under the low-level construal condition reported that they were more willing to buy the brand when they were presented with loss-framed messages than when were they presented with gain-framed messages ($M_{gain} = 3.55$, $M_{loss} = 4.47$; $F(1, 126) = 2.92$, $p = .09$). In contrast, participants under the high-level construal condition reported that they were more willing to buy the

brand when they were presented with gain-framed messages than when were they presented with loss-framed messages, but it was only directionally significant (M_{gain} = 3.89, M_{loss} = 3.54; $F(1, 126) = 2.11$, $p = .14$). This two-way interaction was qualified by the three way interaction ($F(1, 233) = 8.23$, $p < .005$) of construal level, message frame, and cognitive resources. Central to the hypothesis, the interaction between construal level and message frame on buying intentions was not significant under the low resources condition ($p > .73$), but it was significant under the high resources condition ($F(1, 109) = 11.34$, $p < .001$). Planned contrasts indicated that participants using high-level construals were more willing to buy the brand when they were presented with gain-framed messages (M_{gain} = 4.29, M_{loss} = 3.45; $F(1, 55) = 6.05$, $p < .02$), whereas participants using low level construals were more willing to buy the brand when they were presented with loss-framed messages (M_{gain} = 4.61, M_{loss} = 3.50; $F(1, 56) = 5.59$, $p < .005$; see Figure J1).

Mediating Roles of Attention, Fluency, and the Extent of Information Processing. Following the Preacher and Hayes (2008) and Hayes (2012, model 4, p. 23) guidelines, the mediating roles of attention and processing fluency ($\alpha = .97$) of the matching effects on buying intentions were conducted by bootstrapping procedures with bias-corrected confidence estimates. Analyses and bootstrap estimates based on 5,000 bootstrap samples indicated that the total effect of matching on buying intentions ($\beta = 42$, $t = 2.24$, $p < .03$) became nonsignificant ($\beta = -.08$, $t = -.46$, $p > .64$), when attention was included in the model. Further, the indirect effect of matching through attention was significant ($\beta = .49$ with 95% CI = .28 to .75; see Figure J2). The normal theory tests for indirect effects further confirmed the mediating role of attention for the matching effects on buying intentions ($z = 4.41$, $p < .001$).

The mediating role of fluency of the matching effect on buying intentions was also examined by following bootstrapping procedures with bias-corrected confidence estimates (Hayes 2012, model 4, p. 23). Analyses and bootstrap estimates based on 5,000 bootstrap samples indicated that the total effect of matching on buying intentions (β = .50, t = 2.25, $p < .05$) became nonsignificant (β = -.08, t = -1.32, $p > .19$), when processing fluency was included in the model. Further, the indirect effect of matching through processing fluency was significant on buying intentions (β = .49 with 95% CI = .16 to .86; see Figure J3). The normal theory tests for indirect effects further confirmed the mediating role of processing fluency for the matching effects on buying intentions (z = 2.83, $p < .01$).

To examine an alternative mechanism, elaborative processing, which may underlie the matching effects between construal level and message frame, mediation analyses were conducted to see whether the matching effects on buying intentions were mediated by participants' extent of elaborative processing. Analyses and bootstrap bias-corrected confidence estimates based on 5,000 bootstrap samples (Preacher and Hayes 2008; Hayes 2012, model 4, p. 23) indicated that the total effect of matching on buying intentions (β = .42, t = 2.25, $p < .03$) remained significant (β = .36, t = 1.95, p = .05), when information processing time was included in the model. Further, the indirect effect of matching through information processing time was not significant on buying intentions (β = .06 with 95% CI = -.002 to .19). Further, the normal theory tests showed that the indirect effect of matching through information processing time on purchase intentions was not significant (β = .06, z = 1.39, $p < .17$). These results suggest that the matching effects between construal level and message frame were not mediated by the extent of

information processing, but by subjective experiences of attention and processing fluency.

Mediated Moderation. Further insight was gained by assessing whether the mediating influences of attention and fluency of the matching effects on buying intentions were moderated by cognitive resources. Following the Muller, Judd, and Yzerbyt (2005) and the Hayes (2011, model 8, p. 31) guidelines, the predicted two separate conceptual models of mediated moderation involving attention or processing fluency as a mediator were tested. The results of bias corrected bootstrapping procedures based on 5000 bootstrap samples indicated that the total effect of message matching by cognitive resources (β = 1.04, t = 2.85, $p < .005$) became nonsignificant, when attention ($p > .56$) and processing fluency ($p > .53$) were included in the model. Further, the indirect effects of message matching by cognitive resources through attention (β = .85 with 95% CI = .45 to .1.32) and processing fluency (β = .96 with 95% CI = .28 to .1.64) on buying intentions were significant, while the main effects of message matching and cognitive resources were controlled. These results indicate that both attention and processing fluency are mediators for the matching effects between construal level and message frame, and the influences of attention and processing fluency between message matching and buying intentions were moderated by cognitive resources.

Process Test. Testing the process underlying the matching effects between construal level and message frame with two mediators was conducted by PROCESS (Hayes 2012, model 6, p. 25), following the Hayes, Preacher, and Myers (2010) guidelines based on the bootstrapping procedures of bias-corrected confidence estimates with 5,000 bootstrap samples. PROCESS analyses testing the paths through attention to

processing fluency as serial multiple mediators indicated that the total effect of message matching by cognitive resources on buying intentions (β = .93, t = 4.34, p < .001) became nonsignificant (β = -.09, t = -1.1, p > .26), when the serial mediators involving the paths of attention to processing fluency were included in the model. Further, the indirect effect of message matching by cognitive resources through the paths of attention to processing fluency was significant on buying intentions (β = .58 with 95% CI = .41 to .79; see Figure J4). However, the indirect effect of message matching by cognitive resources through the paths of processing fluency to attention was not significant on buying intentions (β = .02 with 95% CI = -.003 to .07).

Potential Variables. As in previous experiments, potential variables which might influence or underlie the matching effects were also considered in analyses. Promotion and prevention focus scores, positive (r = .76) and negative (r = .72) moods, and engagement (r = .73) were included as covariates in the analyses. The two-way interaction effect between construal level and message frame, and the three-way interaction effect remained significant, even when all these covariates were included in the analyses. These variables were also examined as mediators for the matching effects. None of these variables, however, were significantly predicted by the three-way interaction of construal level, message frame, and cognitive resources (promotion focus, p > .54; prevention focus, p > .78; engagement, p > .55; negative mood, p > .60; positive mood, p > .98). These findings indicate that participants' regulatory focus, engagement, and mood do not account for the matching effects between construal level and message frame and its processes.

These results suggest that cognitive resources are required for the matching effects between construal level and message frames to occur. Individuals construing information at abstract, high levels preferentially attend to gain-framed messages and those construing information at concrete, low levels preferentially attend to loss-framed messages, and this enhanced attention given to the matching information facilitates perceptions of information processing fluency, resulting in greater persuasion. More important, the results of Experiment 4 indicate that people need to allocate cognitive resources to selectively filter and attend to gain- versus loss-framed messages when high- versus low-level construals are activated. Thus, when participants were induced to deplete their cognitive resources, they couldn't pay attention to the matching information, and thus the matching effects disappeared. These results provide further evidence for the attention mechanism underlying the matching effects.

CAHPTER 4: GENERAL DISCCUSION

The current research proposed that construing information at high- versus low-level construals heightens individuals' attention toward gain versus loss frames, and thus influences the strength of persuasiveness of gain- versus loss-framed appeals. More specifically, this research predicts that individuals using high-level construals preferentially attend to gain-framed messages, whereas those using low-level construals preferentially attend to loss-framed messages, and this enhanced attention given toward the matching information induces positive reactions toward an attitude target.

Consistent with this proposed theory of attention mechanism underlying the matching effects between construal level and message frame is the demonstration that individuals pay more attention to matching (high levels, gain frames and low levels, loss frames) than mismatching (high levels, loss frames and low levels, gain frames) information (Experiments 1-2) and those processing matching information are more sensitive to changes in argument strength (Experiment 3). These suggest that using high- versus low-level construals to process information leads to greater attention to gain- versus loss-framed messages, and thus influences the success of message framing.

Experiment 4 further extends the findings from these three experiments by examining the influence of cognitive resources moderating the matching effects on attitudes. Participants with depleted cognitive resources could not pay attention to the information they evaluate, and thus the matching effects disappeared, whereas participants with an adequate amount of cognitive resources could allocate the resources to pay attention to the information they evaluate, thus the matching effects were replicated. These findings also support the attention mechanism of the matching effects

proposing that construal level influences persuasiveness of gain- versus loss-framed messages through preferential attention given to the appeals when high- versus low-level construals are activated. In addition, the data from Experiment 4 show that cognitive resources are required for the matching effects to occur, suggesting that preferentially attending to gain- versus loss-framed appeals depending on an activated construal level is a resource demanding task.

4.1. Theoretical Contributions

This research enriches understanding of why and how the matching effects between construal level and message frame occur. Building on the prior findings showing that high- versus low- level construals selectively attend to their relevant features of an attitude object, thus systematically influence the strength of particular persuasive appeals (Fujita et al. 2006a, 2008; Wakslak and Trope 2009), the results earned across four experiments support the view that matches between construal level and message frame heightens attention to the information in evaluations, which in turn leads to greater persuasion. This attention mechanism underlying the matching effects between construal level and message frame was supported by measuring participants' self-reported subjective attention (Experiments 1-4) under matching versus mismatching conditions and by testing whether participants under matching conditions become more sensitive to the strength of arguments than those under mismatching conditions.

More importantly, the current research offers insights into the specific processes by which matching high- versus low-level construals with gain versus loss frames influences consumer attitudes. By replicating the previous research suggesting that processing fluency mediated the effects of matching high- versus low-level construals

with their relevant features (Kim, Rao, and Lee 2009; Lee, Keller, and Sternthal 2010; White, MacDonnell, and Dahl 2011), the current research showed that enhanced processing fluency is the result of heightened attention to the information in evaluations. The results from Experiments 2-4 demonstrated that evaluating matching information heightens attention, and this heightened attention enhances perceptions of processing fluency, which in turn leads to more favorable attitudes.

What is important to note about the attention to processing fluency path underlying the matching effects is that the matching effect is not through the extent of elaborative information processing. The data from Experiment 4 showed that participants processing matching information spent more time reviewing it than those participants processing mismatching information. However, the results of mediation analyses and process tests indicated that matching effect between construal level and message frame was not mediated by the extent of information processing. In addition, the results of Experiment 4 suggest that cognitive resources are required for this matching effect to occur.

This research also extends prior studies on framing effects which have shown mixed results of the effectiveness of gain or loss frames, by demonstrating the effects of gain versus loss frames shifted by the level at which consumers construe the framed messages. Some have shown that gain frames are more persuasive (e.g., Levin and Gaeth 1988; Maheswaran and Meyers-Levy 1990, 2004; Rothman et al. 1993; Shiv, Edell, and Payne 1997, 2004), whereas others have documented that loss frames are more persuasive (e.g., Block and Keller 1995; Kalichman and Coley 1995; Kahneman and Tversky 1981; Maheswaran and Meyers-Levy 1990; Meyerowitz and Chaiken, 1987;

Meyers-Levy and Maheswaran 2004; Rothman and Salovey 1997; Shiv, Edell, and Payne 1997, 2004). Although literatures on message framing have suggested moderators for the effectiveness of gain versus loss framed messages such as cognitive elaboration (Shiv, Edell, and Payne 1997, 2004), personal relevance (Maheswaran and Meyers-Levy 1990; Meyers-Levy and Maheswaran 2004; Rothman et al. 1993), perceived efficacy (Block and Keller 1995), risky implications (Meyers-Levy and Maheswaran 2004), or risk-seeking behaviors (Meyerowitz and Chaiken, 1987), the patterns of framing effects and the process underlying the persuasive effects of message frames have remained ambiguous and equivocal (Kim, Rao, and Lee 2009; Lee, Keller, and Sthernthal 2010; White, MacDonnell, and Dahl 2011). One issue which deserves further investigation is that these mixed results of the effectiveness of gain or loss frames might arise from a perceived psychological distance between a message recipient and a target message in evaluations which prompts different levels of construal. For example, Meyerowitz and Chaiken (1987) found that women who received a negatively framed pamphlet were more favorably disposed toward performing a breast self examination than women who received a positively framed pamphlet. Rothman et al. (1993) found that men who reviewed gain-framed appeals indicated greater intentions to perform behaviors related to detecting skin cancer (e.g., making an appointment to get a skin cancer examination) than those who reviewed loss-framed appeals. In this experiments, men reported lower personal relevance about skin cancer than women. This low level of personal relevance might lead them to use high-level construal to process the information of the message. On the other hand, the high level of personal relevance between women and breast cancer might lead the women participants to perceive a close psychological distance with the

message, and thus encourage them to process the appeals under low-level construals. Future research would benefit from investigating why there have been inconsistent results on the effectiveness of gain or loss frames and whether the mixed results arise from different levels of construals related with a perceived psychological distance between a message recipient and a topic of the message or other issues which prompt high or low-level construals.

Finally, this research extends literature on construal level by identifying gain versus loss frames as features relevant to high- versus low-level construals, which systematically shift consumer attitudes as a direct consequence of activating different levels of mental construal. In particular, this research showed that high-level (versus low-level) construals can enhance willingness to engage in healthy behaviors (Experiment 1), brand attitudes (Experiment 2), willingness to donate to an environmental organization (Experiment 3), and willingness to pay for a brand (Experiment 4), when persuasive appeals are framed by gains (versus losses). In doing so, this research also extends previous findings showing that matching abstract mindsets with gain frames and concrete mindsets with loss frames induces positive conservation behaviors (White, MacDonnell, and Dahl 2011).

4.2. Managerial Contributions

The matching theory suggested in this research is potentially applicable to diverse social and consumption contexts in which persuasive messages are designed to influence consumer attitudes. Marketing managers will be able to draw consumers' attention to a brand or a marketing communication, enhance their perceptions of information

processing fluency, and thus induce more favorable attitudes, by matching high- versus low-level construals with gain- versus loss-framed appeals.

This research is also of potential significance to policymakers and nonprofit marketers. The finding that matching high-level construals with gain frames and low-level construals with loss frames encourages individuals to pay more attention to the information they process is a novel insight regarding persuasive advertising. Marketing managers at nonprofit organizations and policymakers will be able to simulate public attention to political, social, or public health related issues through a strategic way to combine different levels of construal with gain or loss frames.

By strategically combining a particular message frame which matches with the appropriate level of concreteness or abstraction of the persuasive message or a message recipient's construal level, marketers will likely be able to tailor persuasive messages by which they can better communicate with consumers, and thus enhance marketing communication effectiveness.

4.3. Limitations and Future Research

Among the limitations of the current research is that that the findings are limited to attitudinal and behavioral intention measures. Although there are previous studies demonstrating that there is convergent validity between self-reported responses and actual behavior (DeWall et al. 2008; Robinson and Clore 2001; White et al 2011), future research observing actual behavior would enhance the external validity of the matching effects between construal level and message frames.

In addition, there has been an issue that the matching effect tends to become weaker and eventually does not persist over longer periods of time (White et al. 2011).

Previous research has suggested that goal compatibility (Aaker and Lee 2001) and perceived efficacy (White et al. 2011) may lead to more persistent outcomes over time. Future research might profitably explore this issue more closely.

From the results obtained in the current research, it might also be claimed that the matching effects occurred because loss frames which often used more clunky and awkward languages than gain frames might lead participants to process the framed appeals more concretely and locally using low-level construals. However, this claim assumes the main effects of loss-framed messages, whereas the matching effects reported in this research showed interactive relationships between different levels of construal and gain versus loss frames. Therefore, this issue might not limit the current findings. However, further investigation on this issue would increase the robustness of the matching effects between construal level and message frames.

Another issue lies within the possibility that participants might pay attention to the information in the framed messages, because they were favorable toward the framed appeals. To test this possibility, four different sets of mediation analyses were conducted using attention as a dependent variable and attitudes as a mediator across studies. However, none of the results supported the prediction which hypothesizes that attention is the result of favorable attitudes. It might be fruitful, however, to examine cases which involve this process by which the matching effects between construal level and message frames might occur.

Finally, the effects of construal level on persuasion are not necessarily limited solely to message orientation or mindsets. Construal level theory (Liberman et al. 2007; Trope and Liberman 2003) suggests that there are other dimensions of psychological

distance, such as temporal distance, space, social distance, and hypotheticality which have been theorized to have analogous effects on message orientation or mindsets. Further systematic study of psychological distance effects with gain- versus loss-framed appeals on persuasion and attitude change beyond the manipulations of construal level used in current studies promises to be a fruitful line of research.

REFERENCES

Aaker, Jennifer L. (1999), "The Malleable Self: The Role of Self- Expression on Persuasion," *Journal of Marketing Research*, 36 (February), 45–57.

Aaker, Jennifer L. and Angela Y. Lee (2001), " "I" Seek Pleasures and "We" Avoid Pains: The Role of Self-Regulatory Goals in Information Processing and Persuasion," *Journal of Consumer Research*, 28 (June), 33-49.

Agrawal, Nidhi and Echo Wen Wan (2009), "Regulating Risk or Risking Regulation? Construal Levels and Depletion Effects in the Processing of Health Messages," *Journal of Consumer Research*, 36 (10), 448–62.

Ahluwalia, Rohini and Robert E. Burnkrant (2004), "Answering Questions about Questions: A Persuasion Knowledge Perspective for Understanding the Effects of Rhetorical Questions," *Journal of Consumer Research,* 31 (June), 26–42.

Alter, L. Alter and Daniel M. Oppenheimer (2009), "Uniting the Tribes of Fluency to Form a Metacognitive Nation," *Personality and Social Psychology Review*, *13*, 219–235.

Baumeister, Roy F. (1998), "The Self," in *The Handbook of Social Psychology*, ed. Daniel T. Gilbert, Susan T. Fiske, and Gardner Lindzey, New York: McGraw-Hill, 680–740.

Camacho, Christopher J., E. Tory Higgins, and Lindsay Luger (2003), "Moral Value Transfer from Regulatory Fit: What Feels Right *Is* Right and What Feels Wrong *Is* Wrong," *Journal of Personality and Social Psychology*, 84 (March), 498–510.

Chaiken, S., and Durairaj Maheswaran (1994), "Heuristic Processing Can Bias Systematic Processing: Effects of Source Credibility, Argument Ambiguity, and Task importance on Attitude Judgment," *Journal of Personality and Social Psychology*, 66, 460–473.

Chaiken, Shelly, Roger Giner–Sorolla, and Serena Chen (1996), "Beyond Accuracy: Defense and Impression Motives in Heuristic and Systematic Information Processing," in *The Psychology of Action: Linking Cognition and Motivation to Behavior*, eds. Peter M. Gollwitzer and John A. Bargh, New York, NY: Guilford Press, 15, 212–52.

Chandran, Sucharita and Geeta Menon (2004), "When a Day Means More than a Year: Effects of Temporal Framing on Judgments of Health Risk" *Journal of Consumer Research*, 31 (September), 375-89.

DeBono, Kenneth G. (1987), "Investigating the social-adjustive and value expressive functions of attitudes: Implications for persuasion processes," *Journal of Personality and Social Psychology*, 52 (2), 279–287.

Derryberry, D. and M. A. Reed (1998), "Anxiety and Attentional Focusing: Trait, State, and Hemispheric Influences," *Personality and Individual Differences*, 25, 745–61.

Derryberry, D. and D. M. Tucker (1994), "Motivating the Focus of Attention," in *Heart's Eye: Emotional Influences in Perception and Attention*, eds. PmM. Niedenthal and S. Kitayama, New York: Academic Press, 167-96.

Detweiler, J. B., B. T. Bedell, Peter Salvoey, E. Pronin, Alexander J. Rothman (1999), "Message Framing and Sunscreen Use: Gain-Framed Messages Motivate Beachgoers" *Health Psychology*, 18, 189-96.

Davenport, T.H. and J. C. Beck, J.C. (2002), *The Attention Economy: Understanding the Currency of Business*, Boston, MA: Harvard Business School Press.

DeWall, C. N., R. F. Baumeister, M. T. Gailliot, M. T., and J. K. Maner (2008), "Depletion Makes the Heart Grow Less Helpful: Helping as a Function of Self-Regulatory Energy and Genetic Relatedness," *Personality and Social Psychology Bulletin*, 34, 1653−62.

Drolet, A., and M. F. Luce (2004), "The Rationalizing Effects of Cognitive Load on Emotion–Based Trade–Off Avoidance," *Journal of Consumer Research*, 31 (1), 63−77.

Fiske, Susan T. (1980), "Attention and Weight in Person Perception: The Impact of Negative and Extreme Behavior," *Journal of Personality and Social Psychology*, 38 (6), 889–906.

Freitas, Antonio L., Peter Gollwitzer, and Yaacov Trope (2004), "The Influence of Abstract Mindsets on Anticipating and Guiding Others' Self–regulatory Efforts," *Journal of Experimental Psychology*, 40, 739–52.

Freitas, Antonio L., Peter Salovey, and Nira Liberman (2001), "Abstract and Concrete Self–evaluative goals," *Journal of Personality and Social Psychology*, 80, 410–412.

Fujita, Kentaro, Tal Eyal, Shelly Chaiken, Yaacov Trope, and Nira Liberman (2008), "Influencing Attitudes Toward Near and Distant Objects," *Journal of Experimental Social Psychology*, 44, 562–72.

Fujita, Kentaro, Yaacov Trope, Nira Liberman, and Maya Levin–Sagi (2006a), "Construal Levels and Self–Control," *Journal of Personality and Social Psychology*, 90 (3), 351–67.

Fujita, Kentaro, Marlone D. Henderson, Juliana Eng, Yaacov Trope, and Nira Liberman (2006b), "Spatial Distance and Mental Construal of Social Events," *Psychological Science*, 278–82.

Gardner, Wendi L., Cynthia L. Pickett, and Marilynn b. Brewer (2000), "Social Exclusion and Selective Memory: How the Need to Belong Affects Memory," *Personality and Social Psychology Bulletin*, 26 (April), 486–96.

Grier, Sonya A. and Rohit Deshpande (2001), "Social Dimensions of Consumer Distinctiveness: The Influence of Social Status on Group Identity and Advertising Persuasion," *Journal of Marketing Research*, 38 (May), 216–24.

Hayes, Andrew F. (2012), "PROCESS: A Versatile Computational Tool for Observed Variable Moderation, Mediation, and Conditional Process Modeling." *Manuscript Submitted for Publication.*

Hayes, Andrew F., Kristopher J. Preacher, & T.A Myers. (2010), "Mediation and the Estimation of Indirect Effects in Political Communication Research," in E. P. and R. Lance Holbert, eds, *Sourcebook for political communication research: Methods, measures, and analytical techniques.* New York: Routledge.

Higgins, E. Tory (1997), "Beyond Pleasure and Pain," *American Psychologist*, 52 (December), 1280–1300.

——— (2002), "How Self–regulation Creates Distinct Values: The Case of Promotion and Prevention Decision Making," *Journal of Consumer Psychology*, 12, 177–91.

——— (2000), "Making a Good Decision: Value from Fit," *American Psychologist*, 55 (November), 1217–30.

——— (1987), "Self–Discrepancy: A Theory Relating Self and Affect," *Psychological Review*, 94 (July), 319–40.

——— (2006), "Value from Hedonic Experience and Engagement," *Psychological Review*, 113, 439–60.

———, Lorraine C. Idson, Antonio L. Freitas, Scott Spiegel, and Daniel C. Molden (2003), "Transfer of Value from Fit," *Journal of Personality and Social Psychology*, 84 (June), 1140–53.

——— and Orit Tykocinski (1992), "Self–Discrepancies and Biographical Memory: Personality and Cognition at the Level of the Psychological Situations," *Personality and Social Psychological Bulletin*, 18 (October), 181–92.

Idson, Lorraine Chen and W. Mischel (2001), "The Personality of Familiar and Significant People: The Lay Perceiver as a Social–Cognitive Theorist," *Journal of Personality and Social Psychology*, 80, 585–596.

James, William (1890), *The Principles of Psychology*, New York: Dover Publications.

Kanouse, David E. (1984), "Explaining Negativity Biases in Evaluation and Choice Behavior: Theory and Research," in *Advances in Consumer Research*, Vol. 11, ed. Thomas C. Kinear, Provo, UT: Association for Consumer Research, 703-8.

Kanouse, David E. and L. Reid Hanson Jr. (1972), *Negativity in Evaluations*, New York: General Learning Press.

Katz, Daniel (1960), "The functional approach to the study of attitudes," *Public Opinion Quarterly*, 24 (2), 163–204.

Kim, Hakkyun, Akshay R. Rao, and Angela Y. Lee (2009), "It's Time to Vote: The Effect of Matching Message Orientation and Temporal Frame on Political Persuasion," *Journal of Consumer Research*, 35 (April), 877–89.

Kotler, Philip (1997), *Marketing Management: Analysis, Planning and Control*, 9th ed. Englewood Cliffs, NJ: Prentice Hall.

Labroo, Aparna and Angela Y. Lee (2006), "Between Two Brands: A Goal Fluency Account of Brand Evaluation," *Journal of Marketing Research*, 43 (August), 374–85.

Lavidge, Robert J. and Gary A. Steiner (l961), "A Model for Predictive Measurements of Advertising Effectiveness," *Journal of Marketing*, 25 (October), 59–62.

Lavine, Howard. and Mark Snyder (1996), "Cognitive Processing and the Functional Matching Effect in Persuasion: The Mediating Role of Subjective Perceptions of Message Quality ," *Journal of Experimental Social Psychology*, 32, 580–604.

Lee, Angela Y. and E. Tory Higgins (2009), "The Persuasive Power of Regulatory Fit," in *Frontiers of Social Psychology: Social Psychology of Consumer Behavior*, ed. Michaela Wa¨nke, New York: Psychology Press, 319–33.

Lee, Angela Y., and Jennifer L. Aaker (2004), "Bringing the Frame Into Focus: The Influence of Regulatory Fit on Processing Fluency and Persuasion," *Journal of Personality and Social Psychology*, 86 (2), 205–18.

Lee, Angela Y., Jennifer L. Aaker, and Wendi L. Gardner (2000), "The Pleasures and Pains of Distinct Self-Construals: The Role of Interdependence in Regulatory Focus," *Journal of Personality and Social Psychology*, 78 (June), 1122–34.

Lee, Angela Y., Punam Anand Keller, and Brian Sternthal (2010), "Value from Regulatory Construal Fit: The Persuasive Impact of Fit between Consumer Goals and Message Concreteness," *Journal of Consumer Research*, 36 (February), 735–47.

Levi, S. R., Antonio L. Freitas, and P. Salovey (2002), "Construing Action Abstractly and Blurring Social Distinctions: Implications for Perceiving Homogeneity Among, But Also Empathizing with and Helping, Others." *Journal of Personality and Social Psychology*, 83, 1224–1238.

Levin, Irwin P. and Gary J. Gaeth (1988), "Framing of Attribute Information before and after Consuming the Product," *Journal of Consumer Research*, 15 (December), 374–78.

Levin, Irwin P., Gary J. Gaeth, and Judy Schreiber (2002), "A New Look at Framing Effects: Distribution of Effect Sizes, Individual Differences, and Independence of Types of Effects," *Organizational Behavior and Human Decision Processes*, 88 (1), 411–29.

Levin, Irwin P., S. K. Schnittjer, and S. L. Thee (1988), "Information Framing Effects in Social and Personal Decisions," *Journal of Experimental Social Psychology*, 24, 520–29.

Liberman, Nira, Michael D. Sagristano and Yaacov Trope (2002), "The Effect of Temporal Distance on Level of Mental Construal," *Journal of Experimental Social Psychology*, 38, 523–34.

Liberman, Nira, and Yaacov Trope (1998), "The Role of Feasibility and Desirability Considerations in Near and Distant Future Decisions: A Test of Temporal Construal Theory," *Journal of Personality and Social Psychology*, 75 (1), 5–18.

Maheswaran, Durairaj and Joan Meyers–Levy (1990), "The Influence of Message Framing and Issue Involvement," *Journal of Marketing Research*, 27 (August), 361–67.

Malaviya, Prashant and Brian Sternthal (2009), "Parity Product Features Can Enhance or Dilute Brand Evaluation: The Influence of Goal Orientation and Presentation Format," *Journal of Consumer Research*, 36 (June), 112–21.

Meyerowitz, Beth E. and Shelly Chaiken (1987), "The Effect of Message Framing on Breast Self-Examination Attitudes, Intentions, and Behavior," *Journal of Personality and Social Psychology*, 52 (March), 500–10.

Meyers–Levy, Joan and Durairaj Maheswaran (2004), "Exploring Message Framing Outcomes When Systematic, Heuristic, or Both Types of Processing Occur," *Journal of Consumer Psychology*, 14 (1 & 2), 159–67.

Mogilner, Cassie, Jennifer L. Aaker, and Ginger L. Pennington (2008), "Time Will Tell: The Distant Appeal of Promotion and Imminent Appeal of Prevention," *Journal of Consumer Research*, 34 (February), 670–81.

Monga, A. B. and D.R. John (2008), "When Does Negative Brand Publicity Hurt? The Moderating Influence of Analytic versus Holistic Thinking," *Journal of Consumer Psychology*, 18, 320−32.

Muller, Dominique, Charles M. Judd, and Vincent Y. Yzerbyt (2005), "When Moderation is Mediated and Mediation is Moderated," *Journal of Personality and Social Psychology*, Vol. 89 (6), 852–63.

Nussbaum, S., Yaacov Trope, and Nira Liberman (2003), "Creeping Dispositionism: The Temporal Dynamics of Behavior Prediction," *Journal of Personality and Social Psychology*, 84, 485–97.

Petty, Richard E. and Duane T. Wegener (1998), "Matching versus Mismatching Attitude Functions: Implications for Scrutiny of Persuasive Messages," *Personality and Social Psychology Bulletin*, 24 (3), 227–240.

Petty, R. E., David W. Schumann, Steven A. Richman, and Alan J. Strathman (1993), "Positive Mood and Persuasion: Different Roles for Affect under High and Low Elaboration Conditions," *Journal of Personality and Social Psychology*, 64, 5–20.

Petty, Richard E. and John T. Cacioppo (1986), "The Elaboration Likelihood Model of Persuasion," in *Advances in Experimental Social Psychology*, ed. Leonard Berkowitz, New York: Academic Press, 123–205.

Petty, Richard E., John T. Cacioppo, and Joseph A. Sidera (1982), "The Effects of salient Self-Schema on the Evaluation of Proattitudinal Editorials: Top-Down versus Bottom-Up Message Processing," *Journal of Experimental Social Psychology*, 18 (4), 324–38.

Petty, Richard E., S. Christian Wheeler, and George Y. Bizer (2000), "Attitude Functions and Persuasion: An Elaboration Likelihood Approach to Matched versus Mismatched Messages," in *Why We Evaluate: Functions of Attitudes*, ed. Gregory R. Olson and James M. Olson, Mahwah, NJ: Erbaum, 133–62.

Petty, Richard E. and Duane T. Wegener (1998), "Matching versus mismatching attitude functions: Implications for scrutiny of persuasive messages," *Personality and Social Psychology Bulletin*, 24 (3), 227–240.

Preacher, Kristopher J. and Andrew F. Hayes (2008), "Asymptotic and Resampling Strategies for Assessing and Comparing Indirect Effects in Multiple Mediator Models," *Behavior Research Methods*, 40 (August), 879–91.

Robinson, M. D., and G. L. Clore (2001), "Simulation, Scenarios, and Emotional Appraisal: Testing the Convergence of Real and Imagined Reactions to Emotional Stimuli," *Personality and Social Psychology Bulletin*, 27, 1520–32.

Rogers, Everett M. (1962), *Diffusion of Innovation.* New York: The Free Press.

Rothman, Alexander J. and Peter Salvoey (1997), "Shaping Perceptions to Motivate Healthy Behavior: The Role of Message Framing," *Psychological Bulletin*, 121, 3–19.

Rothman, Alexander J. and Peter Salvoey, Carol Antone, Kelli Keough, and Chloe Drake Martin (1993), "The Influence of Message Framing on Intentions to Perform Health Behaviors," *Journal of Experimental Social Psychology*, 29, 408–33.

Shiv, Baba, Julie A. Edell, and John W. Payne (1997), "Factors Affecting the Impact of Negatively and Positively Framed Ad Messages," *Journal of Consumer Research*, 24 (3), 285–94.

Shiv, Baba, Julie A. Edell, and John W. Payne (2004), "Does Elaboration Increase or Decrease the Effectiveness of Negatively versus Positively Framed Messages," *Journal of Consumer Research*, 31 (6), 199–208.

Snyder, Mark and Kenneth G. DeBono (1985), "Appeals to image and claims about quality: Understanding the psychology of advertising," *Journal of Personality and Social Psychology*, 49 (3), 586–597.

Strathman, A., F. Gleicher, D. S. Boninger, and C. S. Edwards (1994), "The Consideration of Future Consequences: Weighing Immediate and Distant Outcomes of Behavior," *Journal of Personality and Social Psychology*, 66, 742–752.

Strong, Edward K., Jr. (1925). "Theories of Selling," *Journal of Applied Psychology*, 9 (February), 75–86.

Thompson, Debora Viana and Rebecca W. Hamilton (2006), "The Effects of Information Processing Mode on Consumers' Responses to Comparative Advertising," *Journal of Consumer Research*, 32 (March), 530–40.

Trope, Yaacov and Nira Liberman (2000), "Temporal Construal and Time–Dependent Changes in Preference," *Journal of Personality and Social Psychology*, 79 (6), 876–89.

——— (2003), "Temporal Construal," *Psychological Review*, 110 (3), 403–21.

Trope, Yaacov, Nira Liberman, and Cheryl Wakslak (2007), "Construal Levels and Psychological Distance: Effects on Representation, Prediction, Evaluation, and Behavior," *Journal of Consumer Psychology*, 17 (2), 83–95.

Updegraff, John A., David K. Sherman, Faith S. Luyster, and Traci L. Mann (2007), "The effects of message quality and congruency on perceptions of tailored health communications," *Journal of Experimental Social Psychology*, 43 (2), 249–257.

Vakratsas, Demetrios and Tim Ambler (1999), "How Advertising Works: What Do We Really Know?" *Journal of Marketing*, 63 (1), 26–43.

Vallacher, Robin R. and Daniel M. Wegner (1985), *A Theory of Action Identification*, Hillsdale, NJ: Erlbaum.

——— (1987), "What Do People Think They Are Doing? Action Identification and Human Behavior," *Psychological Review*, 94 (January), 3–15.

——— (1989), "Levels of Personal Agency: Individual Variation in Action Identification," *Journal of Personality and Social Psychology*, 57 (October), 660–71.

Wakslak, Cheryl J. and Yaacov Trope (2009), "Cognitive Consequences of Affirming the Self: The Relationship between Self–Affirmation and Object Construal," *Journal of Experimental Social Psychology*, 45, 927–32.

Wakslak, Cheryl J., Yaacov Trope, Nira Liberman, and Rotem Alony (2006), "Seeing the Forest When Entry Is Unlikely: Probability and the Mental Representation of Events," *Journal of Experimental Psychology*, 135 (4), 641–53.

Wang, Jing and Angela Y. Lee (2006), "The Role of Regulatory Focus in Preference Construction," *Journal of Marketing Research*, 43 (February), 28–38.

Wheeler, S. Christian, Richard E. Petty, and George Y. Bizer (2005), "Self-schema matching and attitude change: Situational and dispositional determinants of message elaboration," *Journal of Consumer Research*, 31 (March), 787–97.

White, Katherine, Rhiannon MacDonnell, and Darren W. Dahl (2011), "It's the Mind–Set That Matters: The Role of Construal Level and Message Framing in Influencing Consumer Efficacy and Conservation Behaviors," *Journal of Marketing Research*, 48 (June), 472–85.

Zhao, Xinshu, John G. Lynch Jr., and Qimei Chen (2010), "Reconsidering Baron and Kenny: Myths and Truths about Mediation Analysis," *Journal of Consumer Research*, 37 (August), 197–206.

APPEXDIX A. STIMULI USED FOR EXPERIMENT 1

High- versus *Low-Level* Appeals Framed by Gains versus *Losses*

Every day, a significant number of people succumb to heart disease in the United States. High blood cholesterol is one of the main risk factors of heart disease. High blood cholesterol can put people at a higher risk for developing heart disease. If so, what are the roles of cholesterol in the development of heart disease?

BLOOD CHOLESTEROL

Cholesterol is a waxy substance produced by the liver or consumed in certain foods. It is needed by the body, and the liver makes enough for the body's needs. When there is too much cholesterol in the body, it is deposited in arteries, including those of the heart. This can lead to narrowing of the arteries, heart disease, and other complications.

HEART DISEASE PREVENTION: WHAT YOU CAN DO

DIAGNOSTIC BLOOD TEST

To prevent heart disease, the first thing you can do is taking a diagnostic blood test.

- **WHY1*:*** By taking (not taking) a diagnostic blood test, you can (fail to) find out your current cholesterol level. ***(STEP1:*** *Check your schedule for your diagnostic blood test. If you know (don't know) your schedule, you can (fail to) take the blood test at your most convenient time.)*
- **WHY2*:*** And if you take (don't take) the test, you'll acquire (fail to acquire) important information pertinent to a major risk factor leading to heart attacks. ***(STEP2:*** *Get the phone number of the closest local clinic around your house and call the clinic. Then (If not,) you can (fail to) make an appointment for the blood test screening.)*
- **WHY3:** Because your current cholesterol level can significantly affect your health both today and later in life, you'll obtain (fail to obtain) important information about the status of your health, if you take (don't take) advantage of the opportunity to find out what your cholesterol level is. ***(STEP3:*** *Go to the clinic on your appointment date. Then (If not,) you can (fail to) proceed to the final step.)*
- **WHY4:** Remember that you stand to gain (lose) important health, if you take (don't take) the initiative to learn what your current cholesterol count is. ***(STEP4:*** *If you take (don't take) these simple steps, you will (fail to) obtain your blood test results within 1~2 weeks. Remember that, with (without) these simple steps, you can get (lose) a chance to prevent heart disease.)*

APPEXDIX B. THE BEHAVIOR IDENTIFICATION FORM

Behavior and Opinions Questionnaire

We would like to know how you think about certain behaviors. Any behavior can be identified in many ways. For example, one person might describe a behavior as "typing a paper", while another might describe the behavior as "pushing keys". Yet another person might describe the behavior as "expressing thoughts". We are interested in your FIRST IMPRESSION as to what different behaviors mean to you. Below you will find a list of behaviors and two different ways in which the behavior might be identified. Please select the one that best describes the behavior for you. There are no right or wrong answers.

1. Making a list
_____ a. Getting organized
_____ b. Writing things down
2. Reading
_____ a. Following lines of print
_____ b. Gaining knowledge
3. Joining the Army
_____ a. Helping the Nation's defense
_____ b. Signing up
4. Washing clothes
_____ a. Removing odors from clothes
_____ b. Putting clothes into the machine
5. Picking an apple
_____ a. Getting something to eat
_____ b. Pulling an apple off a branch
6. Chopping down a tree
_____ a. Wielding an axe
_____ b. Getting firewood
7. Measuring a room for carpeting
_____ a. Getting ready to remodel
_____ b. Using a yardstick
8. Cleaning the house
_____ a. Showing one's cleanliness
_____ b. Vacuuming the floor
9. Painting a room
_____ a. Applying brush strokes
_____ b. Making the room look fresh
10. Paying the rent
_____ a. Maintaining a place to live
_____ b. Writing a check
11. Caring for houseplants
_____ a. Watering plants
_____ b. Making the room look nice
12. Locking a door
_____ a. Putting a key in the lock
_____ b. Securing the house
13. Voting
_____ a. Influencing the election
_____ b. Marking a ballot
14. Climbing a tree
_____ a. Getting a good view
_____ b. Holding on to branches
15. Filling out a personality test
_____ a. Answering questions
_____ b. Revealing what you're like
16. Toothbrushing
_____ a. Preventing tooth decay
_____ b. Moving a brush around in one's mouth
17. Taking a test
_____ a. Answering questions
_____ b. Showing one's knowledge
18. Greeting someone
_____ a. Saying hello
_____ b. Showing friendliness
19. Resisting temptation
_____ a. Saying "no"
_____ b. Showing moral courage
20. Eating
_____ a. Getting nutrition
_____ b. Chewing and swallowing
21. Growing a garden
_____ a. Planting seeds
_____ b. Getting fresh vegetables
22. Traveling by car
_____ a. Following a map
_____ b. Seeing countryside
23. Having a cavity filled
_____ a. Protecting your teeth
_____ b. Going to the dentist
24. Talking to a child
_____ a. Teaching a child something
_____ b. Using simple words
25. Pushing a doorbell
_____ a. Moving a finger
_____ b. Seeing if someone's home

APPEXDIX C. FIGURES FOR EXPERIMENT 1 RESULTS

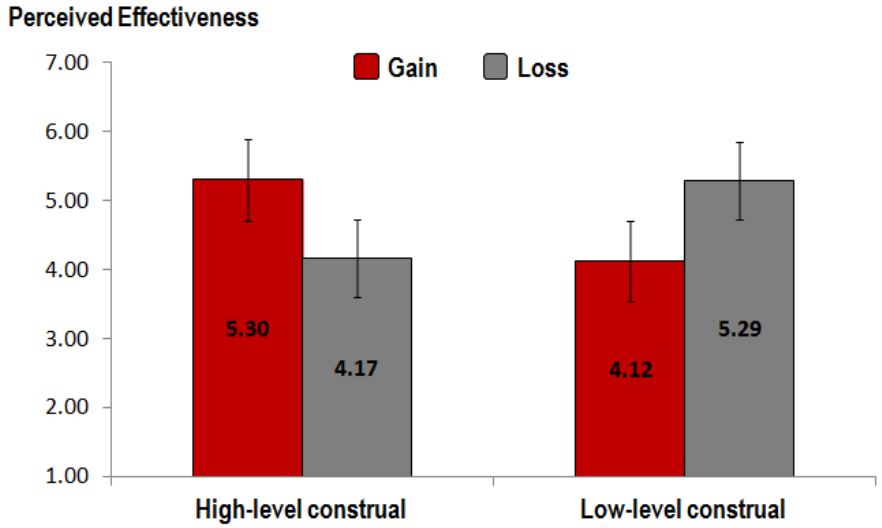


Figure C1. Experiment 1: Perceived Persuasiveness as a Function of Construal Level and Message Frame

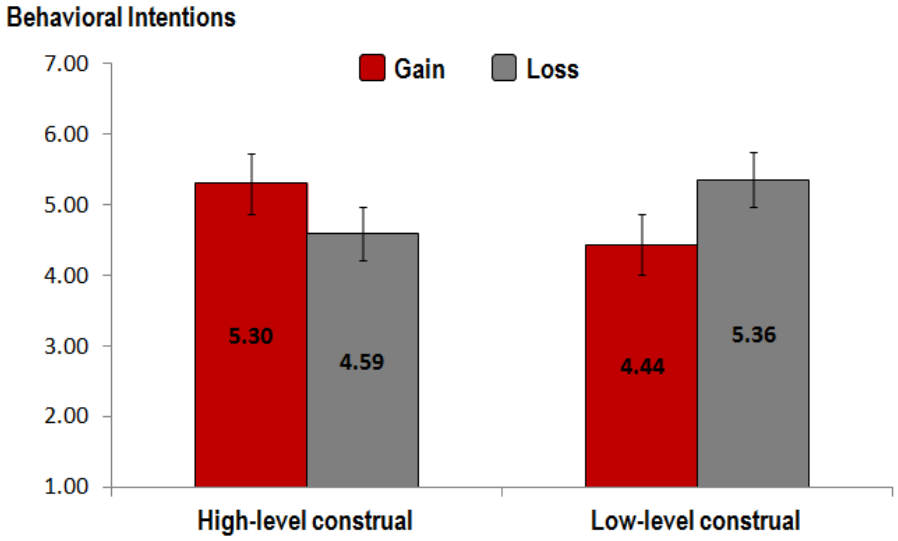


Figure C2. Experiment 1: Behavioral Intentions as a Function of Construal Level and Message Frame

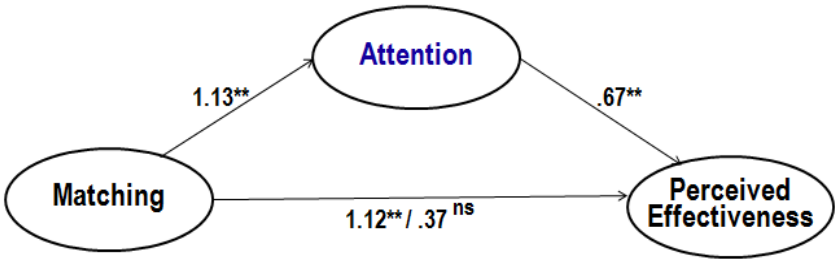


Figure C3. Experiment 1: Attention as a Mediator of the Matching Effect on Perceived Effectiveness

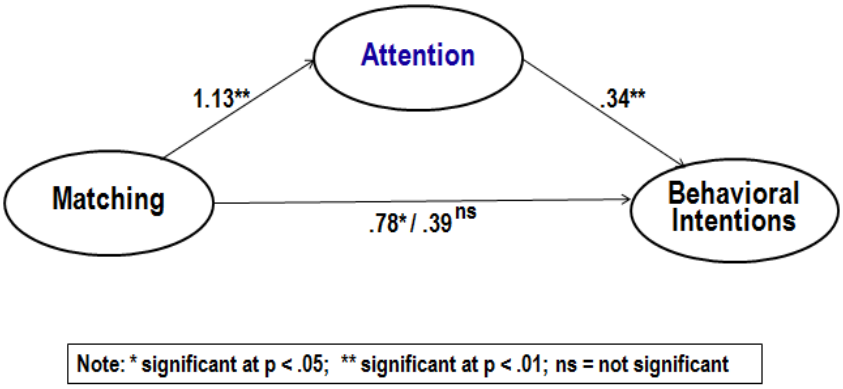
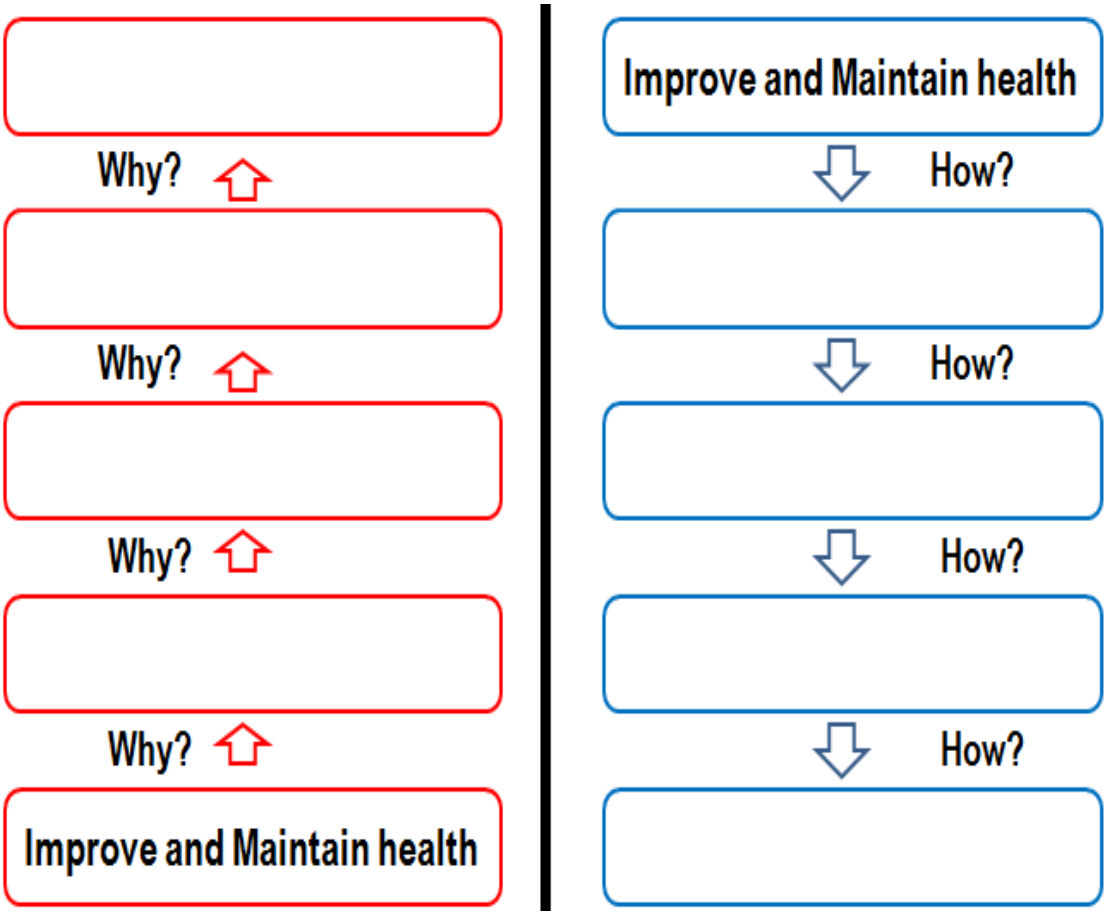


Figure C4. Experiment 1: Attention as a Mediator of the Matching Effect on Behavioral Intentions

APPEXDIX D. DIAGRAM USED TO MANIPUATE MINDSETS IN EXPERIMENT 2



APPEXDIX E. STIMULI USED FOR EXPEIRMENT 2

Gain- versus Loss-Framed Stimuli

APPEXDIX F. FIGURES FOR EXPERIMENT 2 RESULTS

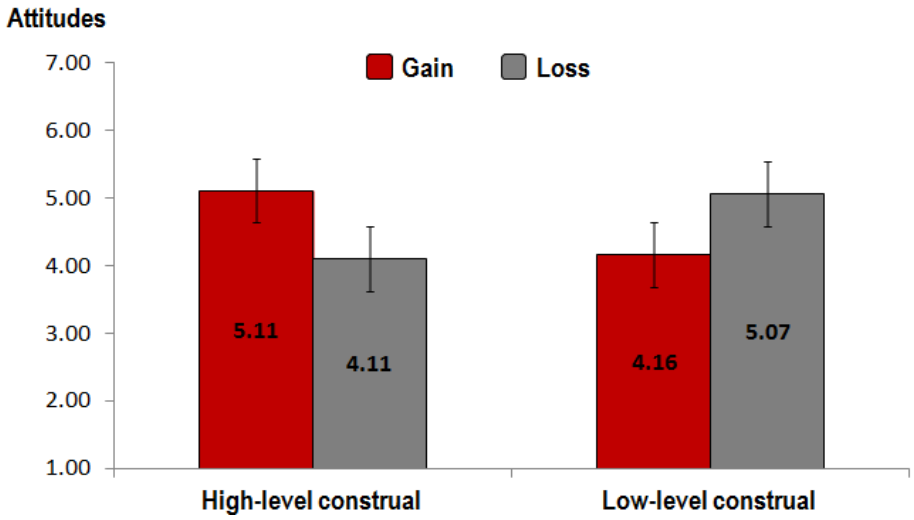


Figure F1. Experiment 2: Attitudes as a Function of Construal Level and Message Frame

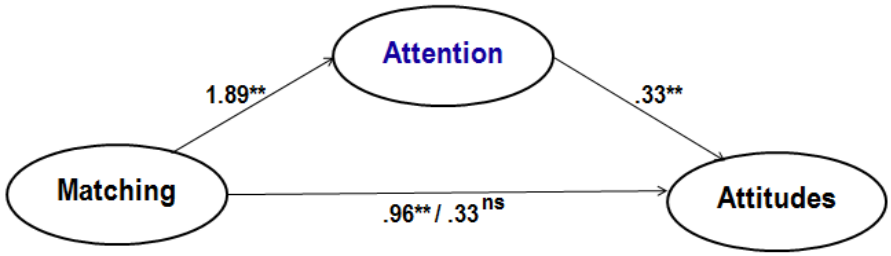


Figure F2. Experiment 2: Attention as a Mediator of the Matching Effect on Attitudes

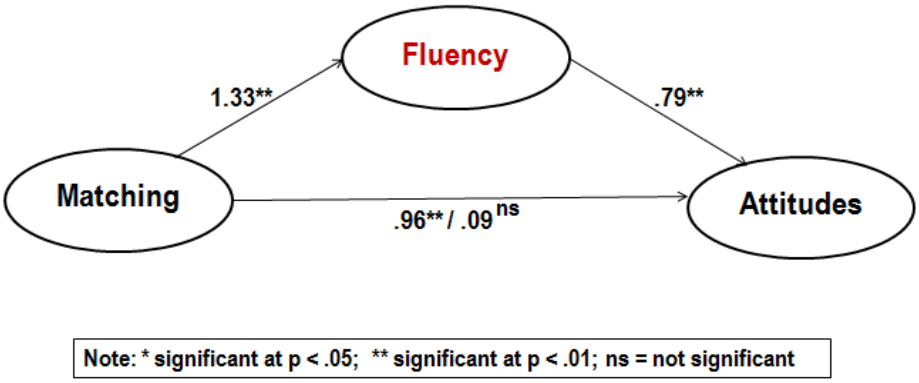


Figure F3.Experiment 2: Processing Fluency as a Mediator of the Matching Effect on Attitudes

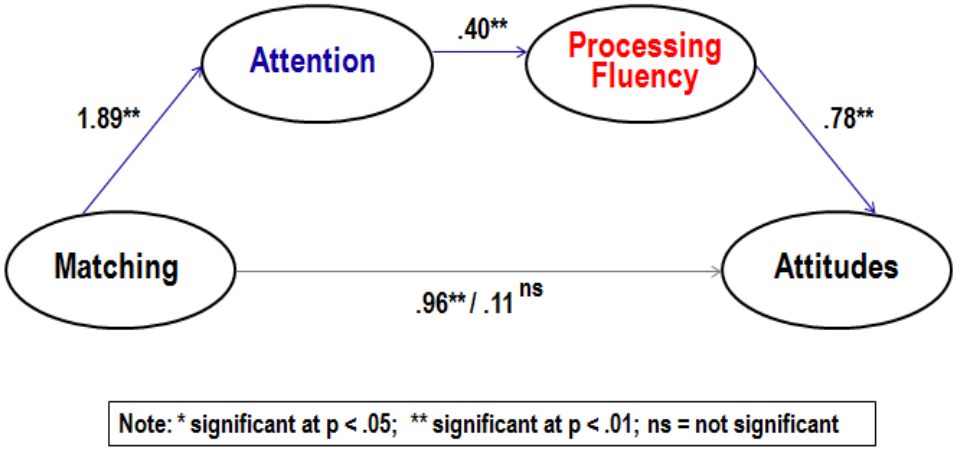


Figure F4. Experiment 2: Attention to Processing Fluency as Serial Multiple Mediators of the Matching Effects

APPEXDIX G. STIMULI USED FOR EXPEIRMENT 3

Gain- Framed, High-Level, Strong Argument Stimuli

Enjoy *Helping & Saving* Right Whales

Right Whale LifeLine

This project is dedicated to protecting North Atlantic Right whales. **Recently, North Atlantic Right whales were found seriously injured by a collision with a ship off the north-eastern seaboard of the US. North Atlantic right whales are one of the most endangered of all great whales with a population of as few as 35 animals.** They tend to come close to land and have been threatened by ship collisions, entanglement in fishing nets, and separation from calving areas because of shipping traffic.

Ocean Wildlife Conservancy has reached significant milestones regarding the protection of this species, including helping drive a shift of the shipping lanes in Canada's Bay of Fundy in 2003, thereby reducing the risk of ship strikes of right whales in Canadian waters by up to 80%. However, collisions in US and other Canadian waters remain a major conservation problem for the species. We need your help to continue our important work to save North American Right whales.

100% of your financial donation goes toward helping and saving North American Right whales.

Get a chance to help and save the North Atlantic Right whales!

Loss- Framed, Low-Level, Weak Argument Stimuli

Don't Miss *Helping & Saving* Simoon

Simoon LifeLine

This project is dedicated to protecting a specific North Atlantic Right whale, named Simoon. **Recently, Simoon was found injured by a collision with a ship off the north-eastern seaboard of the US. Simoon is one of the North Atlantic Right whales with a population of as few as 35,000 animals.** Simoon tends to come close to land and has been threatened by ship collisions, entanglement in fishing nets, and separation from calving areas because of shipping traffic.

Ocean Wildlife Conservancy has reached significant milestones regarding the protection of Simoon, including helping drive a shift of the shipping lanes in Canada's Bay of Fundy in 2003, thereby reducing the risk of ship strikes of Simoon in Canadian waters by up to 80%. However, collisions in US and other Canadian waters remain a major conservation problem for Simoon. We need your help to continue our important work to save the North Atlantic Right whale, Simoon.

50% of your financial donation goes toward helping and saving Simoon.

Don't lose a chance to help and save the North Atlantic Right whale, Simoon!

APPEXDIX H. FIGURES FOR EXPERIMENT 3 RESULTS

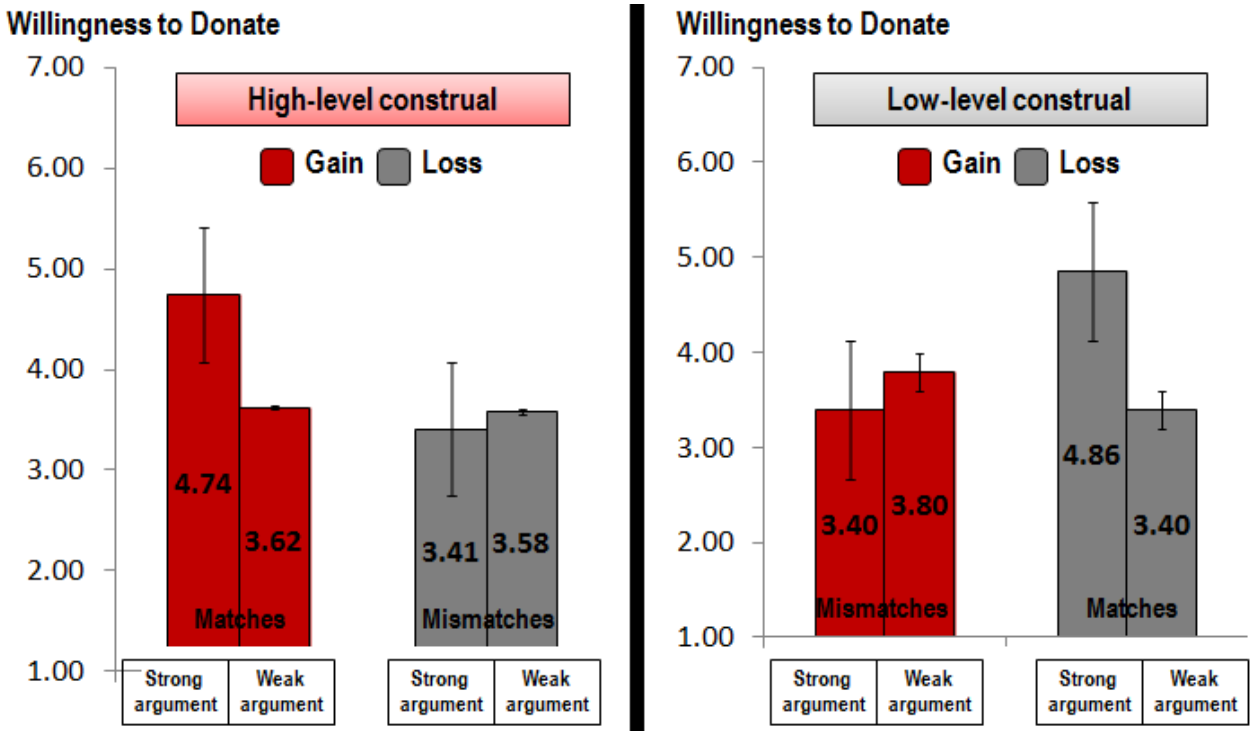


Figure H1. Experiment 3: Willingness to Donate as a Function of Construal Level, Message Frame, and Argument Strength

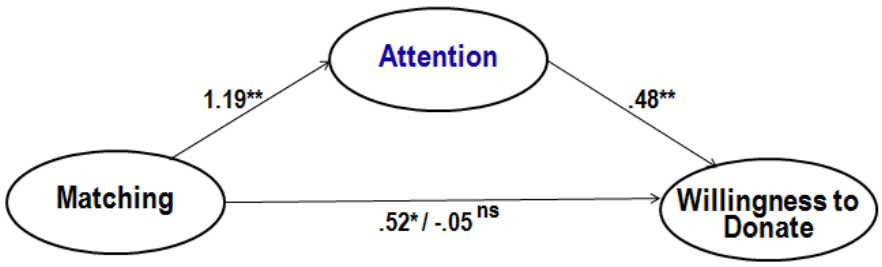


Figure H2. Experiment 3: Attention as a Mediator of the Matching Effect on Willingness to Donate

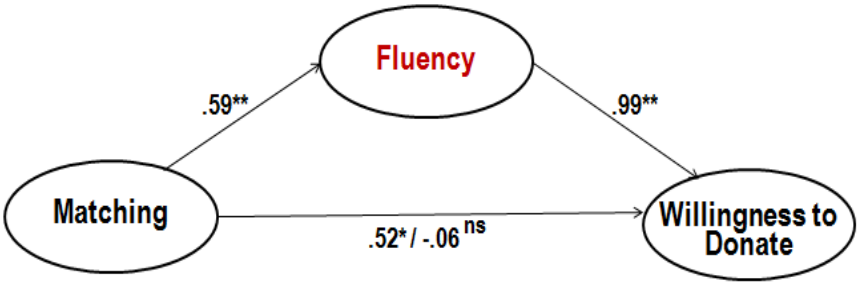


Figure H3. Experiment 3: Processing Fluency as a Mediator of the Matching Effect on Willingness to Donate

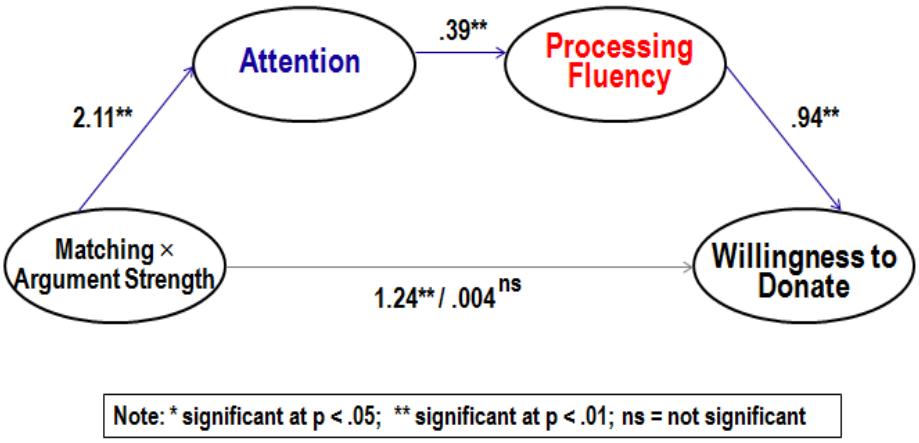


Figure H4. Experiment 3: Attention to Processing Fluency as Serial Multiple Mediators of Message Matching by Argument Strength Effects

APPEXDIX I. STIMULI USED FOR EXPEIRMENT 4

Gain- versus Loss-Framed Stimuli

APPEXDIX J. FIGURES FOR EXPERIMENT 4 RESULTS

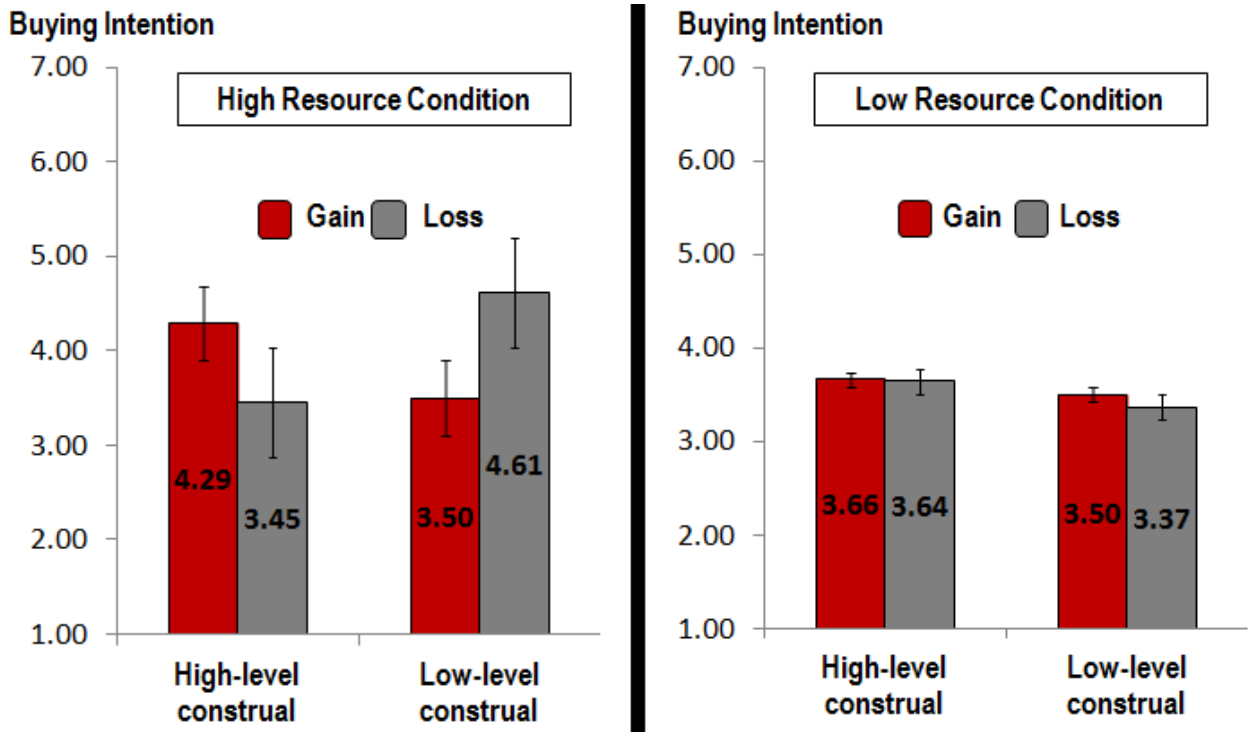


Figure J1. Experiment 4: Buying Intention as a Function of Construal Level, Message Frame, and Cognitive Resources

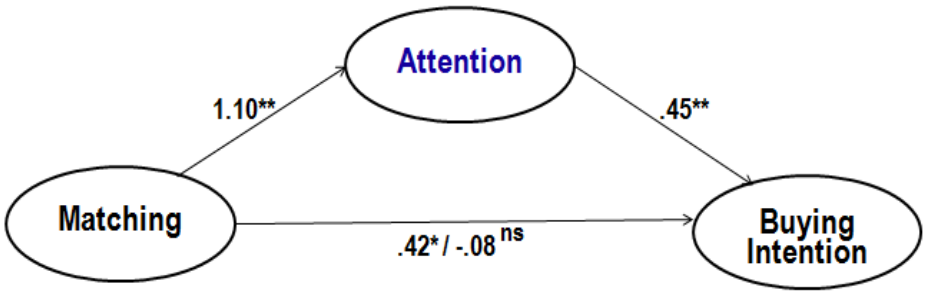


Figure J2. Experiment 4: Attention as a Mediator of the Matching Effect on Buying Intention

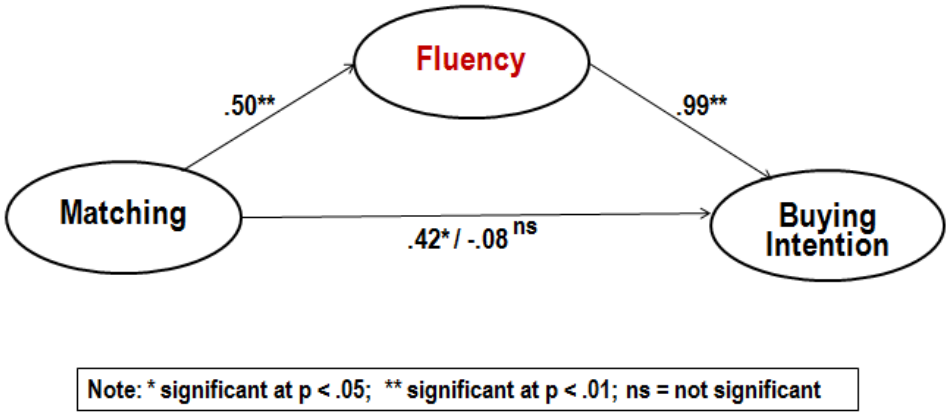


Figure J3. Experiment 4: Processing Fluency as a Mediator of the Matching Effect on Buying Intention

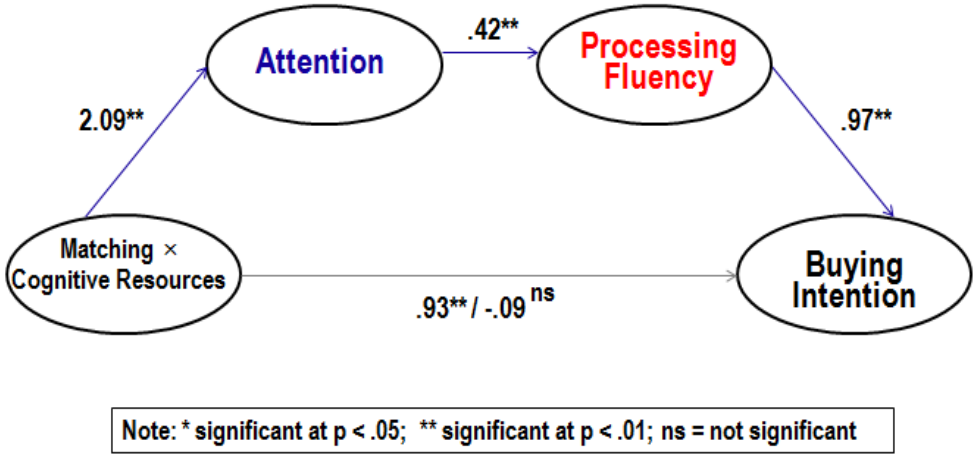


Figure J4. Experiment 4: Attention to Processing Fluency as Serial Multiple Mediators of Message Matching by Cognitive Resources Effects