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# Message Framing and Persuasion: A Message Processing Analysis

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*Previous research has indicated that the way in which a message is framed affects the amount of persuasion it elicits. Various processes have been suggested to account for the differential persuasiveness of negatively (or loss-) framed messages versus positively (or gain-) framed messages. The authors hypothesized that differential processing of negatively and positively framed messages is a factor that contributes to the differential persuasiveness that has been observed. Experiment 1 demonstrated that message frames are consequential in determining the extent to which a message is scrutinized. Experiment 2 provided evidence for a mechanism by which this occurs. Specifically, by manipulating the expected framing and the actual framing of messages, the authors found that either negatively or positively framed messages could lead to more extensive processing, depending on which was less expected.*

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**S**uppose a physician wants to persuade patients to take their medications or a company wants to persuade consumers to try a new product. Should the benefits of taking the medication and using the product or the costs of not taking the medication or using the product be emphasized? Or is the way such information is framed of little importance? The question of message framing effects has engaged several researchers in recent years, and they can agree on at least one thing—it does make a difference how one phrases things.

Although most of the research on framing has focused on the effects of choice framing on decision making (e.g., Kahneman & Tversky, 1979), a few researchers have directly examined the effects of framing on *message-based* persuasion (research that addresses the effects of choice framing [e.g., Levin, Chapman, & Johnson, 1988] or the effects of how a single attribute is framed [e.g., Levin, 1987; Levin & Gaeth, 1988] but contains no persuasive messages is excluded from our review). Several

theoretical perspectives on message framing effects on persuasion have been examined; prospect theory, negativity bias, positive cue, and fear arousal perspectives are described next.

## *Prospect Theory*

Prospect theory (Kahneman & Tversky, 1979) has been widely applied in the decision-making literature on framing effects, and researchers have imported the logic of this theory in an attempt to understand the effects of framing on message-based persuasion. The framing postulate of prospect theory holds that people evaluate information regarding uncertain (risky) alternatives in terms of either potential gains (positive framing) or potential losses (negative framing) and that preferences can be altered by changing the way information is presented. In brief, negative message framing is hypothesized to make risky options seem more desirable. Applying this reasoning to a persuasive message, if the behavior or product advocated in the message represents something risky or uncertain, then a negatively framed message should be more persuasive than a positively framed one. At least two recent studies provide

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some support for this perspective on message framing effects.

Meyerowitz and Chaiken (1987) had female participants read pamphlets regarding breast self-examination (BSE) that were framed in terms of either the benefits of engaging in BSE or the costs of not engaging in BSE. They found that the negatively framed messages were more persuasive than the positively framed ones, leading not only to more positive attitudes toward BSE but also to greater intentions to perform BSE at a 4-month follow-up. The authors suggested that engaging in BSE represented a risky behavior, because doing so entails the risk of learning unwanted news.

A more recent study (Rothman, Salovey, Antone, Keough, & Martin, 1993) extended Meyerowitz and Chaiken's (1987) work by considering the risk involved in a different target behavior. They found in one experiment that among female participants who were ostensibly highly involved in the issue (skin cancer), negatively framed messages were more effective in eliciting detection behaviors (characterized as a high-risk behavior). However, an additional experiment showed that positively framed messages enhanced females' prevention-related behavior (characterized as a low-risk behavior) relative to negatively framed messages.

#### *Negativity Bias Hypothesis*

Another view suggests that negatively framed information might receive different weight in participants' judgments than positively framed information.<sup>1</sup> This would be consistent with several studies in impression formation that have shown negative trait information to exert a disproportionate influence on personality judgments relative to positive trait information (e.g., Anderson & Hubert, 1963; Fiske, 1980; Kline, 1987; Reeder & Brewer, 1979), perhaps because of the novelty of negative information (Levin, Wall, Dolezal, & Norman, 1972). At least one recent study has provided some support for this perspective.

Maheswaran and Meyers-Levy (1990) manipulated the framing of arguments in a message encouraging their undergraduate participants to take a blood test to check their cholesterol level. They also manipulated participants' processing involvement by suggesting that people should become concerned about getting tested either before they were 25 years old (high involvement) or after they were 65 (low involvement). The authors suggested that at least some motivation to process information seems necessary before a negativity bias weighting effect could take place. Consistent with their predictions, Maheswaran and Meyers-Levy found that negative frames were more persuasive than positively framed messages in their high-involvement condition. When involvement was low, however, they found that

positive frames were more effective than negative frames.

#### *Cue Effects*

Maheswaran and Meyers-Levy (1990) suggested that positively framed messages were more persuasive for their uninvolved participants because of a simple cue effect: The positively framed messages were received more favorably simply because the positive wording led to more positive associations with the attitude issue. A few other studies also suggest that framing can have such cue effects.

Robberson and Rogers (1988) compared positively and negatively framed messages promoting exercise, and also varied the focus of the arguments (they focused on either the health or self-esteem benefits of exercise). The only significant framing effect (on a measure of behavioral intentions) indicated that positively framed self-esteem messages elicited more favorable intentions than negatively framed self-esteem messages.

The Rothman et al. (1993) study described earlier also contains some data that can be interpreted as support for the notion of the simple positive cue. Specifically, male participants, who were purportedly less involved in the skin cancer issue than were the female participants, showed a preference for the positively framed message in one of their two experiments. However, message framing had no effects on males in their other experiment.

#### *Fear Arousal Hypothesis*

Negatively framed information, to the extent that it focuses on things that are lost by not engaging in a behavior, might also arouse more fear than messages that focus on gains from engaging in a behavior and thus might be more persuasive for this reason. However, a study by Meyerowitz and Chaiken (1987) found no differences between negatively and positively framed messages on their measures of fear arousal, suggesting that the fear arousal interpretation was not plausible. This null effect of framing on fear arousal was replicated by Maheswaran and Meyers-Levy (1990), and the fear hypothesis is further weakened by findings showing that fear does not mediate the persuasive effects of threatening communications (see Rogers, 1983).

Nevertheless, a variety of perspectives on message framing effects have garnered some tentative support. It appears that there is no single, uniform manner in which message framing affects persuasion but, rather, a variety of processes that can co-occur. Surprisingly, one mechanism that has yet to be explored is that the framing of a message could affect the extent to which the substantive information in the message is processed. In the following sections, we describe this previously unexamined per-

spective on message framing effects in persuasion, provide a conceptual background for this hypothesis, and report two experiments designed to assess the viability of our account.

#### *A Message Processing Analysis of Framing Effects*

The elaboration likelihood model (Petty & Cacioppo, 1986) suggests that variables can affect persuasion in a number of ways. They can serve as peripheral cues, they can serve as persuasive arguments, or they can affect the extent or direction of message elaboration (see Petty & Cacioppo, 1986). In the present research, we were interested in determining how message framing might serve the latter function, affecting the extent to which people elaborate, or systematically process (Chaiken, 1980), a message.

There are at least two reasons to hypothesize that negatively framed messages would be processed more carefully than positively framed messages. First, recent evidence suggests that negative information is more attention grabbing in general and that it receives greater scrutiny than positive information (Ditto & Lopez, 1992; Homer & Yoon, 1992; Pratto & John, 1991). Another possibility is that negatively framed messages might be more likely to violate people's expectancies. That is, as suggested by Meyerowitz and Chaiken (1987) with respect to BSE information, people may be more accustomed to seeing arguments phrased in positive (gain) terms rather than negative (loss) terms. Recent research clearly suggests that when information in a message violates expectations, it is subject to greater scrutiny (e.g., Baker & Petty, 1994; Maheswaran & Chaiken, 1991; Maheswaran, Mackie, & Chaiken, 1992). Note, however, that there may be some instances in which people expect negatively framed information; this point is addressed directly in Experiment 2.

So far, no research has directly examined the possibility that message framing can influence the extent to which people scrutinize a persuasive message. Although gross cognitive responses and argument recall have been used in past research to assess the extent of message processing, these measures have important weaknesses (see e.g., Eagly & Chaiken, 1993). A method that has proven quite useful in gauging the extent of message processing involves varying the strength of message arguments (Petty, Wells, & Brock, 1976). This manipulation involves creating parallel versions of a persuasive appeal that differ in terms of the cogency of message arguments. When message scrutiny is high, people's attitudes should be more influenced by the quality of the arguments in the message than when message scrutiny is low (for reviews of research using this manipulation, see Eagly & Chaiken, 1993; Petty & Cacioppo, 1986). Thus, if negative framing increased message processing

over positive framing, a Framing  $\times$  Argument Quality interaction should be observed such that attitudes are more influenced by the quality of the arguments in the message when the arguments are framed in a negative rather than a positive manner.

#### EXPERIMENT 1

Our first experiment was designed to address the heretofore unrecognized possibility that differences in message scrutiny may indeed emerge as a function of message framing. We had undergraduate participants read an article encouraging recycling and manipulated the framing of the message arguments. We also manipulated the quality of message arguments as a means of assessing differences in message processing.

#### *Methods*

*Participants and design.* Participants were 60 undergraduate students enrolled in introductory psychology classes at Ohio State University. They arrived in groups of two to seven and received partial course credit in return for their participation. They were randomly assigned to the conditions of a 2 (message framing: positive vs. negative)  $\times$  2 (argument quality: strong vs. weak) factorial design.

*Procedure.* Participants were informed that the experiment concerned the effects of personality on evaluations of written communications. They were asked to read a message that encouraged increased recycling. This message was approximately 135 words in length and was framed in terms of either the benefits of increased recycling or the costs of not recycling. In addition, the message consisted of either five strong or five weak arguments. For example, a negatively framed strong argument was that "failing to recycle increases the burden on our nation's landfills, which are already up to 75% of maximum capacity in some areas." The same argument was presented in a positive frame to other participants—for example, "recycling reduces the burden on our nation's landfills, which are already up to 75% of maximum capacity in some areas." The weak versions of these arguments suggested that landfills were up to 25% of capacity in some areas.

As was indicated earlier, if people carefully scrutinize the substance of a message, they should be more persuaded by strong arguments than by weak arguments. The more people process a message, the greater this difference should be; the less they scrutinize the message, the smaller this difference should be. This analysis assumes that processing is relatively *objective*, meaning that no biasing factors are operating that might make people especially motivated or able to reject or accept the message (see Petty & Cacioppo, 1986).

Following receipt of the appropriate message, participants rated their attitudes toward recycling on three 7-point scales (ranging from 1 = *Bad* to 7 = *Good*; 1 = *Foolish* to 7 = *Wise*, and 1 = *Harmful* to 7 = *Beneficial*). After indicating their attitudes, participants were asked to list the thoughts they had while reading the message (see Petty & Cacioppo, 1979). We coded any statements that were favorable toward recycling as proarguments and any unfavorable thoughts as counterarguments and created an index of net thoughts by subtracting counterarguments from proarguments. The thought-listing data provide another means for assessing message processing. As is the case with overall attitudes, strong arguments should elicit more positivity in thought content than weak arguments, and hence greater message processing would lead to a greater difference between strong and weak arguments on our thought index. Thus, if negatively framed messages elicit greater message scrutiny, we would again anticipate a significant interaction between message framing and argument quality on the thought index.

### Results

**Attitudes.** The three attitude items were highly intercorrelated ( $\alpha = .82$ ) and were averaged to form a single index. A 2 (message framing)  $\times$  2 (argument quality) ANOVA on this index indicated support for the processing hypothesis, as a significant Framing  $\times$  Argument Quality interaction emerged,  $F(1, 56) = 5.40, p < .03$  (see Table 1). Simple effects analyses indicated that when the message was framed positively, participants agreed equally with weak ( $M = 6.57$ ) and strong ( $M = 6.31$ ) arguments,  $F(1, 56) = 1.81, ns$ , but when it was framed negatively, participants agreed more with strong ( $M = 6.47$ ) than weak ( $M = 5.87$ ) arguments,  $F = 4.31, p < .05$ . The main effects of message framing and argument quality did not approach significance,  $F_s < 1.50$ .

**Net thoughts.** The same pattern emerged for the data for net thoughts, again supporting the processing hypothesis (see Table 1). The only significant effect was a Framing  $\times$  Argument Quality interaction,  $F(1, 56) = 4.21, p < .05$ . Strong arguments ( $M = 1.21$ ) elicited greater positivity in thoughts than weak arguments ( $M = 0.37$ ) when the message was framed in terms of the costs of not recycling,  $F(1, 56) = 4.34, p < .05$ , but thoughts did not differ as a function of argument quality when the message was framed positively ( $M_s = 0.75, 1.21$ , respectively, for strong and weak arguments),  $F < 1$ . Again, the main effects of message framing and argument quality were not significant,  $F_s < 1$ .

**Correlations between net thoughts and attitudes.** As a further test of the notion that participants exposed to negatively framed messages engaged in more careful message

**TABLE 1: Mean Levels of Message Agreement and Net Polarity of Message Elaborations for Participants Exposed to Positively or Negatively Framed Messages Containing Either Weak or Strong Arguments, Experiment 1**

Condition	Message Agreement <sup>a</sup>	Net Elaborations
Positive framing, weak arguments ( $n = 14$ )	6.57 (0.42)	1.21 (1.58)
Positive framing, strong arguments ( $n = 16$ )	6.31 (0.60)	0.75 (0.93)
Negative framing, weak arguments ( $n = 14$ )	5.87 (0.91)	0.37 (1.50)
Negative framing, strong arguments ( $n = 16$ )	6.47 (0.79)	1.21 (0.81)

NOTE: Standard deviations in parentheses.

a. Message agreement was measured on scales ranging from 1 to 7; higher numbers indicate higher levels of agreement.

processing than participants reading positively framed messages, we assessed the correlations between participants' net thoughts and their postmessage attitudes. A high correlation between the polarity of message thoughts and postmessage attitudes is thought to reflect a greater degree of elaboration-based persuasion or systematic message processing (cf. Chaiken, 1980; Petty & Cacioppo, 1979). The results of this analysis also supported the hypothesis that negative framing produces greater message processing than does positive framing. Specifically, the net thoughts of participants exposed to negatively framed messages were significantly correlated with their attitudes,  $r(34) = .461, p < .01$ , but the thoughts of participants reading positively framed messages were unrelated to their attitudes,  $r(30) = .05, ns$ . The difference between these correlations was significant, one-tailed  $z = 1.70, p < .05$ .

**Mediational analysis.** To test the hypothesis that participants' message elaborations mediated the effects of argument quality on their postmessage attitudes in the negative-framing condition, we conducted an ANCOVA with net message elaborations as the covariate. Consistent with our hypothesis, the argument quality effect on attitudes was reduced to nonsignificance in this analysis,  $F = 1.51, p > .20$ .

### Discussion

The results of Experiment 1 suggest that message framing can indeed have an impact on message processing. Our analysis advances the literature on framing effects in persuasion by demonstrating a new effect. Specifically, our data suggest that influencing the extent of message scrutiny is another way in which message framing can have an effect on persuasion. When messages are framed negatively, it appears that more processing may result. Attitudes, then, are determined by the

nature of this processing. Attitudes will be relatively favorable to the extent that scrutiny of the message produces favorable thoughts but will be relatively unfavorable to the extent that message scrutiny produces unfavorable thoughts.

It is noteworthy that none of the perspectives on message framing discussed earlier seem capable of accounting for the present data. Prospect theory, the negativity bias perspective, and the peripheral cue perspective can account only for main effects of message framing, not interactions with argument quality. More complex frameworks that predict interactive effects appear not to anticipate them in Experiment 1. For example, Maheswaran and Meyers-Levy (1990) predicted that involvement can moderate framing effects, but involvement was not manipulated in the present design—unless one considers our argument quality manipulation an involvement manipulation, a notion that has no empirical support. Rothman et al. (1993) suggested that the relative riskiness of the advocated behavior can moderate framing effects on behavioral intentions, but we were interested only in attitudes, and the proposed behavior was held constant in our design (i.e., we did not vary how risky the behavior was). Thus it appears that our message processing analysis stands alone in its ability to account for the interaction of message framing and argument quality.

However, it still remains to be seen which of the suggested mechanisms is responsible for the enhanced scrutiny of negatively framed messages. That is, it might be that a negativity bias in participants' attention is responsible for the increased processing of negatively framed messages, or it could be that participants generally expect to receive positively framed information, and the resulting violation of expectancies is what triggers increased processing. We thus designed a second experiment to address the question of what is responsible for the processing effect we observed.

## EXPERIMENT 2

We have suggested two possibilities for why framing a message negatively might induce greater message processing than framing a message positively. First, it might be that negatively framed information in general receives more attention, perhaps owing to its diagnosticity or its undesirability (e.g., Pratto & John, 1991). Negative information might generally be perceived to be more important or significant and thus worthy of greater processing. A second possibility is that the effects of framing are based on expectancies, with the expectancy often being that messages will be framed positively—that is, in terms of benefits rather than costs. If participants expect a message to be negatively framed, however, then this

perspective anticipates greater processing of positively framed messages than negatively framed messages. In the latter instance, the weighting and the expectancy explanations make opposing predictions, providing the opportunity for a critical test. These were the conditions we attempted to create in Experiment 2.

An important additional measure we took in the second experiment was of participants' need for cognition (NC; Cacioppo & Petty, 1982). This scale assesses an individual's likelihood and enjoyment of engaging in effortful thought. We expected that high-NC individuals would process messages to a significant extent regardless of whether the message was framed positively or negatively. In fact, in prior research, high-NC participants have been insensitive to manipulations that influenced the extent of thinking of low-NC individuals (e.g., Priester & Petty, 1995). In particular, to the extent that one frame or another is hypothesized to induce increased processing, high-NC participants should be less likely to exhibit this effect because they are already processing at a high level (i.e., a ceiling effect operates for high-NC participants). Low-NC participants, on the other hand, are likely to be processing at a significantly lower level to begin with, and hence a variable that enhances the extent of processing will produce more noticeable results for low-NC than for high-NC individuals. We divided our sample into low- and high-NC groups on the basis of a median split.

If the increased processing of negatively framed messages that we observed in Experiment 1 is the result of increased attention to negative information in general, then we would expect negatively framed messages to be processed more extensively than positively framed messages regardless of whether participants expect the message to be framed positively or negatively. The increased processing should be more noticeable among low-NC participants, however, resulting in a three-way interaction between message framing, argument quality, and participants' NC.

If, on the other hand, the increased processing of negatively framed messages results from their contrast with participants' expectancies, then we would expect that negatively framed messages would be processed more extensively than positively framed ones only when people expect the message to be positively framed. When participants anticipate that the message will be framed negatively, this perspective predicts that positively framed messages will elicit greater scrutiny than negatively framed messages, because the positively framed message would now be the one that conflicted with participants' expectations. The interactive effects on processing of message framing and expectancies should be most obvious among low-NC individuals, leading to a significant four-way interaction between expectancy,

framing, argument quality, and NC on measures of participants' attitudes.

A pair of parallel, competing hypotheses can be generated with respect to the net valence of participants' message thoughts. The negativity bias hypothesis would again anticipate the specific three-way interaction described previously, whereas the expectancy violation hypothesis anticipates the specific four-way interaction described previously.

### Methods

**Participants and design.** A total of 118 undergraduates enrolled in introductory marketing classes at Ohio State University participated in the experiment in return for course extra credit. They were assigned to the conditions of a 2 (message expectancy)  $\times$  2 (message framing)  $\times$  2 (argument quality) randomized factorial. As discussed earlier, a median split was performed on participants' NC scores to create a fourth independent variable. NC was assessed in mass testing sessions that preceded the actual experiment by approximately 5 weeks. The median score in this sample using the short NC scale (Cacioppo, Petty, & Kao, 1984) was 64. Participants scoring at the median were assigned to the low-NC group.

**Procedure.** Participants arrived in groups of 10 to 25 and were informed on arrival that the experiment involved the evaluation of several advertisements in the context of a "magazine-like" reading environment. Thus they were told that the ads would be sandwiched between a variety of articles. The target article appeared first in the booklet, followed by dependent measures and several filler materials. After completing the booklet, participants were thanked and debriefed.

The target article consisted of an appeal to participants to take Vitamin K. Two versions of the headline of this article were created. For some participants, it read, "Vitamin K Helps You Live a Longer, Healthier Life." For the remaining participants, the headline read, "Not Taking Vitamin K Can Lead to Illnesses that Shorten Life Span." This constituted our expectancy manipulation. Pretesting had indicated that the former headline led participants to anticipate that the message would outline the benefits of taking Vitamin K, whereas the latter led participants to expect arguments that emphasized the costs of not taking Vitamin K. As in Experiment 1, we created four versions of the message text, resulting from orthogonal manipulations of message framing (positive vs. negative) and the quality of the arguments (weak vs. strong). As an example, one of the positively framed, weak arguments was that "studies have shown that taking Vitamin K decreases your risk of heart ailments by over 0.1 percent." The same argument, presented in a negative frame, read, "studies have shown that not taking Vitamin K increases your risk of heart ailments by over

0.1 percent." The parallel strong arguments were as follows: "studies have shown that taking Vitamin K decreases your risk of heart ailments by over 10 percent" (positive frame), and "studies have shown that not taking Vitamin K increases your risk of heart ailments by over 10 percent" (negative frame).

After reading the articles, participants were asked to indicate their attitudes toward Vitamin K on three 9-point scales (ranging from 1 = *Bad* to 9 = *Good*; 1 = *Foolish* to 9 = *Wise*; and 1 = *Harmful* to 9 = *Beneficial*). Next, participants were asked to list all the thoughts they had while reading the message. These thought-listing data were coded as either promessage or antimessage, and an index of net thoughts was constructed by subtracting the number of antimessage thoughts from the number of promessage thoughts, as in Experiment 1.

Several additional measures were taken. As a check on the expectancy manipulation, participants were asked to respond to the question "I expected to read primarily about . . ." on a 9-point scale ranging from 1 (*Reasons why taking Vitamin K is good*) to 9 (*Reasons why not taking Vitamin K is bad*). To assess whether participants were aware of the actual framing of the message, an additional item read, "The article contained primarily . . ."; answers could range from 1 (*reasons why taking Vitamin K is good*) to 9 (*reasons why not taking Vitamin K is bad*). A final pair of items assessed participants' perceptions of the quality of message arguments. Participants were asked to respond to the question "How strong were the arguments presented in the article in favor of taking Vitamin K?" on two 9-point scales (ranging from 1 = *Very weak* to 9 = *Very strong*; 1 = *Unconvincing* to 9 = *Convincing*).

### Results

#### MANIPULATION CHECKS

**Framing expectancy.** Responses to the manipulation check item on the expectancy manipulation were subjected to a 2 (framing expectancy)  $\times$  2 (message framing)  $\times$  2 (argument quality)  $\times$  2 (NC) ANOVA. This analysis yielded a significant effect of framing expectancy,  $F(1, 102) = 18.96$ ,  $p < .001$ , which indicated that our manipulation was successful. Participants who read the headline that emphasized the benefits of taking Vitamin K were more likely to expect the message to also emphasize the benefits of taking Vitamin K ( $M = 2.33$ ) than were participants who read the negatively framed headline ( $M = 4.35$ ).<sup>2</sup>

**Message framing.** A  $2 \times 2 \times 2 \times 2$  ANOVA was performed on responses to the item asking participants how they had perceived the message actually to be framed. The only significant outcome to emerge from this analysis was a main effect of message framing,  $F(1, 102) = 95.51$ ,  $p < .001$ , which suggested that participants did indeed perceive the positively framed message to focus more on the

benefits of taking Vitamin K ( $M = 1.91$ ) than did the negatively framed message ( $M = 6.28$ ).

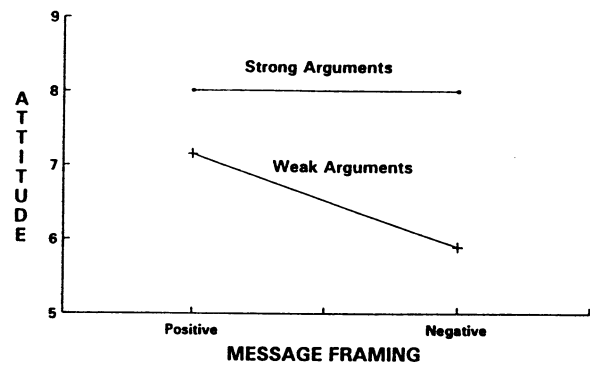
**Argument quality.** The two items assessing participants' perceptions of the quality of message arguments were highly correlated ( $r = .90$ ) and hence were averaged to form a single index. A  $2 \times 2 \times 2 \times 2$  ANOVA of this index yielded a significant main effect of argument quality,  $F(1, 102) = 62.18, p < .001$ , which indicated that strong arguments were indeed perceived as possessing higher quality ( $M = 7.50$ ) than the weak arguments ( $M = 4.50$ ).

A significant interaction also emerged between NC and argument quality,  $F(1, 102) = 6.49, p < .05$ . Consistent with the notion that high-NC participants attend more closely to the quality of message arguments than do low-NC participants, our high-NC participants rated the strong arguments as much more cogent ( $M = 7.79$ ) than the weak arguments ( $M = 3.61$ ). Although low-NC participants also rated the strong arguments ( $M = 6.25$ ) as more convincing than the weak arguments ( $M = 5.06$ ), the perception of differences between weak and strong arguments was not as great among low-NC participants.

#### ATTITUDES

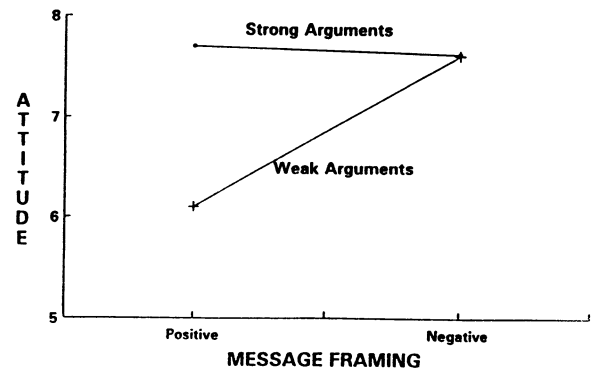
Responses to the three attitudinal inquiries were highly intercorrelated ( $\alpha = .93$ ) and were averaged to form a single index. A 2 (framing expectancy)  $\times$  2 (message framing)  $\times$  2 (argument quality)  $\times$  2 (NC) ANOVA performed on this index revealed several significant outcomes. The main effect of argument quality,  $F(1, 102) = 48.27, p < .001$ , reflects the fact that strong arguments in favor of taking Vitamin K elicited more favorable attitudes toward Vitamin K ( $M = 8.16$ ) than did weak arguments ( $M = 6.07$ ). Also, a significant Argument Quality  $\times$  NC interaction,  $F(1, 102) = 9.93, p < .01$ , reflects the fact that whereas high-NC participants demonstrated a great deal more agreement with strong ( $M = 8.50$ ) than with weak arguments ( $M = 5.45$ ),  $F = 50.64, p < .001$ , this difference was noticeably smaller among low-NC participants, who were also more persuaded by strong arguments ( $M = 7.83$ ) than by weak arguments ( $M = 6.68$ ),  $F = 7.68, p < .05$ .

Finally, and most important, the analysis indicated a significant four-way interaction,  $F(1, 102) = 8.99, p < .01$ , which was examined by conducting separate Framing Expectancy  $\times$  Message Framing  $\times$  Argument Quality ANOVAs for low- and high-NC participants. For high-NC participants, the only significant effect to emerge was the main effect of argument quality,  $F = 59.17, p < .001$ , again indicating that strong arguments ( $M = 8.50$ ) were met with greater agreement than weak arguments ( $M = 5.45$ ). For low-NC participants, two significant effects emerged. The main effect of argument quality was again significant,  $F = 6.39, p < .02$ , but this was qualified by a signifi-



**Figure 1** Attitudes as a function of argument quality and message framing for participants who are low in their need for cognition and who expect a positive frame, Experiment 2.

NOTE: Attitude was measured on scales ranging from 1 to 9; higher numbers indicate higher levels of agreement.



**Figure 2** Attitudes as a function of argument quality and message framing for participants who are low in their need for cognition and who expect a negative frame, Experiment 2.

NOTE: Attitude was measured on scales ranging from 1 to 9; higher numbers indicate higher levels of agreement.

cant Framing Expectancy  $\times$  Message Framing  $\times$  Argument Quality interaction,  $F = 7.68, p < .01$ , that is depicted in Figures 1 and 2.

When low-NC participants expected the message to be framed positively (see Figure 1), the negatively framed message was processed more extensively than the positively framed message. That is, when the message was framed negatively, participants agreed more with strong ( $M = 8.00$ ) than with weak arguments ( $M = 5.89$ ),  $F = 5.19, p < .05$ , but when the message was framed positively, participants agreed equally with weak ( $M = 7.15$ ) and strong ( $M = 8.00$ ) arguments,  $F < 1$ . This result essentially



replicates the findings from Experiment 1. In addition, however, a new effect emerged when participants expected a negatively framed message. Recall that the negativity bias interpretation of the framing/processing effect anticipates that the same pattern observed in Figure 1 would occur regardless of expectancies. On the other hand, the expectancy violation interpretation anticipates that the pattern in Figure 1 would be reversed when participants expect negatively framed information. The results quite clearly favor the latter hypothesis, as low-NC participants agreed equally with weak ( $M = 7.61$ ) and strong ( $M = 7.63$ ) arguments when the message was negatively framed,  $F < 1$ , but agreed more with strong arguments ( $M = 7.70$ ) than weak arguments ( $M = 6.10$ ) when the message was framed positively,  $F = 4.73$ ,  $p < .05$  (see Figure 2). That is, argument quality had a greater impact on attitudes when the message arguments were framed in an unexpected way. When low-NC participants received the framing they expected, argument quality had no impact on attitudes.

One interesting aspect of these data is that overall, message framing seems to be having its effect only in the weak-arguments condition. This may be due to what appears to be a ceiling effect on participants' Vitamin K attitudes; even without processing the message, highly positive attitudes toward a vitamin seem likely, because most people are likely to consider (rightly) that vitamins, being by definition essential to human nutrition, are generally positive. If, indeed, participants were only minimally processing the message in the conditions in which we expected they would not, their high level of agreement (above 7.5 on a 9-point scale) leaves little room for a manipulation to enhance the favorability of their attitudes. The possibility of such ceiling (or floor) effects, of course, is one benefit of including a manipulation of argument quality in research on persuasion. That is, if the baseline tendency is to be mostly positive, then a processing effect would be most apparent in the weak-arguments condition. If the baseline tendency is to be mostly negative, however, processing effects would be more apparent in the strong-arguments condition.

#### NET THOUGHTS

Analyses of the net positivity of participants' thoughts yielded two significant outcomes. First, a main effect of argument quality,  $F(1, 102) = 72.85$ ,  $p < .001$ , reflected the fact that the content of participants' thoughts was more positive when the message contained strong arguments ( $M = 0.67$ ) than weak arguments ( $M = -1.32$ ). Second, an Argument Quality  $\times$  NC interaction effect,  $F(1, 102) = 11.54$ ,  $p < .01$ , suggested that the thoughts of high-NC participants were more sensitive to the quality of arguments than were those of low-NC participants.

High-NC participants' thoughts were highly positive when the arguments were strong ( $M = 1.14$ ) but highly negative when they were weak ( $M = -1.64$ ),  $F = 71.11$ ,  $p < .001$ . The impact of argument quality on thoughts was weaker for low-NC individuals (strong arguments  $M = 0.21$ , weak arguments  $M = -0.99$ ),  $F = 14.86$ ,  $p < .01$ . No other significant effects emerged on the net thoughts index. However, as we describe below, a pattern consistent with the expectancy violation hypothesis emerged when we examined the correlations between participants' net message thoughts and their postmessage attitudes.

#### CORRELATIONS BETWEEN NET THOUGHTS AND ATTITUDES

To further assess the role of participants' cognitive responses, we examined their relationship to participants' attitudes. If participants are engaged in systematic message processing, then the net polarity of their thoughts should be highly correlated with their attitudes. Consistent with the results suggesting that high-NC participants processed the message more effortfully than did low-NC participants, the correlation between net thoughts and attitudes was higher for high-NC participants,  $r(58) = .739$ , than it was for low-NC participants,  $r(60) = .545$ , one-tailed  $z = 1.79$ ,  $p < .05$ .

More germane to our analysis is the pattern of correlations when expectancies are confirmed as opposed to when they are violated. To simplify this analysis and add to our power to detect differences, we combined the cells in which framing expectancies matched the actual message frame (i.e., expectancy-confirmation conditions) and also combined the cells in which expectancies conflicted with the actual message frame (i.e., expectancy-disconfirmation conditions). Separate correlations were calculated for low- and high-NC participants, and the within-cell results are presented in Table 2.

The results suggest that, as hypothesized, the thoughts of low-NC participants who read messages whose actual framing matched that of their respective headlines were less predictive of attitudes than were the thoughts of either high-NC participants or low-NC participants who read messages that were framed inconsistently with their expectations. Indeed, when the low-NC participants in the expectancy-confirmation condition are compared with all other participants, the correlation between their net thoughts and attitudes is significantly lower,  $z = 2.03$ ,  $p < .05$ .

#### MEDIATIONAL ANALYSES

As in Experiment 1, we employed ANCOVAs to test the assumption that under the conditions in which message processing was enhanced, argument quality effects on participants' attitudes were mediated by their message-relevant thoughts. For high-NC participants, the



**TABLE 2: Correlations Between Net Elaborations and Attitudes of Participants Low or High in Need for Cognition and Exposed to Messages Whose Framing Either Confirmed or Disconfirmed Their Expectancies, Experiment 2**

<i>Condition</i>	<i>Need for Cognition</i>	
	<i>Low</i>	<i>High</i>
Framing confirms expectancy	.393* ( <i>n</i> = 29)	.808** ( <i>n</i> = 30)
Framing disconfirms expectancy	.682** ( <i>n</i> = 31)	.693** ( <i>n</i> = 28)

\* $p < .05$ . \*\* $p < .001$ .

argument quality effect remained significant when net message elaborations were included as a covariate, but the magnitude of the effect was substantially reduced. Whereas the argument quality effect accounted for 54.2% of the variance in attitudes in the ANOVA, this effect in the ANCOVA accounted for only 14.7% of the variance, suggesting that the effect was largely mediated by participants' message elaborations. For low-NC individuals, the initially weaker argument quality effect (10.5% of variance) was reduced to nonsignificance in the ANCOVA (0.6% of variance),  $F < 1$ , also indicating that argument quality effects were mediated by message elaborations.<sup>3</sup>

#### GENERAL DISCUSSION

The results of Experiment 2 provide both a replication and an extension of the Experiment 1 results. Recall that our Experiment 1 participants engaged in greater scrutiny of a negatively framed persuasive appeal than a similar, albeit positively framed one. In Experiment 2, this effect was replicated when low-NC participants were led to anticipate positively framed information—that is, negatively framed messages elicited greater message scrutiny than positively framed messages in this context.

Importantly, however, the relative effects on message scrutiny of negative versus positive message frames were reversed for low-NC participants when they were led to expect negatively framed information. What this suggests is that low-NC participants, who typically do not like to exert cognitive effort, engaged in minimal message processing when their expectancies were confirmed but increased their level of message scrutiny when their expectancies about the message were disconfirmed. This result is consistent with other recent investigations that have attempted to create conditions of expectancy confirmation and disconfirmation (e.g., discrepancies between the source and the source's position, see Baker & Petty, 1994; discrepancies between the source and the quality of arguments, see Maheswaran & Chaiken, 1991; Maheswaran et al., 1992). When people are surprised by the message content, they engage in greater systematic

message processing. This is particularly likely when message recipients initially are not highly motivated to process—as is the case when participants are low in NC, as in our study, or when the message is personally irrelevant (e.g., Maheswaran & Chaiken, 1991). This is the first research to show that expectancies about the framing of message arguments have effects on message processing that are similar to other expectancies.

At a minimum, our results provide evidence for a new process by which message framing can influence the extent of persuasion—that is, by influencing the extent of message processing. It is also possible that this process can account for some of the past empirical findings regarding message framing effects. For example, both Meyerowitz and Chaiken (1987) and Maheswaran and Meyers-Levy (1990) found that negative framing elicited greater persuasion than positive framing under conditions of moderate to high processing motivation. Rothman et al. (1993) found that among highly involved female participants, intentions to engage in cancer detection behaviors were more favorable in response to negatively framed messages than positively framed ones. In addition, Robberson and Rogers (1988) found that a negatively framed message was nominally superior to a positively framed appeal in persuading participants of the health benefits of exercise.<sup>4</sup>

A possible reinterpretation requires first that we make some assumptions regarding the expectancies that participants had regarding the way in which the persuasive communications would be framed. Meyerowitz and Chaiken (1987) suggested that a positivity bias that operates in the realm of social information is relevant to understanding people's general expectancies for message framing. That is, people tend to expect information to be framed positively. Indeed, their observations regarding several widely disseminated BSE pamphlets were consistent with this suggestion, as virtually all information was framed positively. As we have noted, however, people can sometimes expect communications to be framed negatively.

To gain some insight into what people's baseline expectancies might be for messages on issues that were used in the research cited earlier, we conducted an additional study in which undergraduate participants ( $N = 90$ ) were asked to indicate how they would expect messages to be framed for a number of issues. They were specifically instructed to "imagine that you were about to read an article or advertisement on each of the following topics. How would you expect the information in the article to be phrased?" These issues included recycling (the issue used in our Experiment 1), cholesterol tests (the message topic used by Maheswaran and Meyers-Levy, 1990), and exercising (the topic used by Robberson and Rogers, 1988). Participants responded on 9-point

scales with end anchors tailored to the topic; lower scores indicated that participants expected negatively framed messages. For example, the scale for recycling ranged from 1 (*The harm in not recycling*) to 9 (*The benefits of recycling*). The means for each item were greater than 6.0, suggesting that for these particular issues, people expect communications to be framed positively, or in terms of the benefits of engaging in the behavior rather than the costs of not so doing.

Our reinterpretation also requires that we make some assumptions regarding the quality of message arguments used in past research. Whereas argument quality was manipulated in our experiments, it was held constant in other studies at an unspecified level. However, it seems reasonable to assume that these experimenters attempted to construct fairly persuasive messages. Indeed, examination of the arguments used in these experiments suggests that relatively strong message arguments were employed. For example, one of the BSE arguments employed by Meyerowitz and Chaiken (1987) stated that "Research shows that women who do BSE have an increased chance of finding a tumor in the early, more treatable stages of the disease" (p. 504). An argument from Maheswaran and Meyers-Levy's (1990) message condoning cholesterol testing reads, "Remember that you stand to gain important health information benefits if you take the initiative to learn what your current cholesterol level is" (pp. 363-364). An additional assumption we must make is that initial attitudes were not so positive that ceiling effects would be operating.

If the above assumptions are tenable (i.e., that positively framed messages were expected, arguments were strong, initial attitudes were moderate), then we would anticipate that negative frames would increase the extent of message processing. Further, we would expect negatively framed messages to be more persuasive than positively framed messages if the arguments are compelling. Thus it is possible that the negatively framed messages were more persuasive in the studies we have cited because of increased message processing. We would further expect negatively framed messages to be less persuasive than positively framed messages when positive framing is expected and the arguments are weak. As suggested by Experiment 2, these effects would be expected primarily under conditions of moderate or low motivation to elaborate. Very high elaboration likelihood should undermine any framing effects on persuasion that are attributable to differential processing, because processing will be high to begin with.

The elaboration likelihood model suggests that a variable can serve multiple roles in persuasion. On the basis of our analysis and that of Maheswaran and Meyers-Levy (1990), it appears that message framing does indeed serve multiple roles. Maheswaran and Meyers-Levy's re-

sults suggest that under conditions of low elaboration likelihood, message framing may act as a peripheral cue, with positive framing acting as an agreement cue. The results of our experiments, however, indicate that under conditions of low to moderate elaboration likelihood, message framing can also act to influence the extent of message processing. To the extent that the framing of message arguments is inconsistent with participants' expectancies of how the message will be framed, processing will be increased. Under very high elaboration likelihood, framing might serve a weighting function, perhaps with negatively framed messages receiving greater weight than positively framed messages.

Our analysis does not dispute that other effects of framing are possible. For example, when comparing risky and conservative behavioral choices, it seems reasonable to suggest that message framing can affect the relative attractiveness of these alternatives, as suggested by prospect theory and found by Rothman et al. (1993). Nor does our analysis imply that message framing will always have an impact on persuasion (e.g., Lalor & Hailey, 1990). For example, if message framing is acting to enhance message elaboration and these elaborations are mixed (i.e., the message elicits equal proportions of positive and negative thoughts), then increased elaboration would not be expected to either increase or decrease persuasion. Further, if elaboration likelihood is extremely high to begin with (such as when message recipients are high in NC), then altering the framing of the message would not be expected to enhance processing. In situations in which framing might serve as a cue, it is possible that some people would be more persuaded by a positively framed message (e.g., Maheswaran & Meyers-Levy, 1990), whereas others may be more persuaded by negatively framed information (e.g., because the message seems more "consequential"; see Homer & Yoon, 1992). These divergent responses could cancel each other out, resulting in an overall null effect of message framing. Finally, there are likely to be many issues for which people's expectancies for message framing are not clearly positive or negative. In such situations, processing might not be affected by message framing.

Despite these complexities, the current research has shown for the first time that message framing can influence the extent of message processing. Furthermore, one source of the enhanced scrutiny appears to be violations of expectancies. The present data have important practical implications as well. For persuasive communications that are likely to elicit predominantly positive thoughts, more elaboration of message arguments is desirable. Attitudes based on careful scrutiny will tend to be more favorable than those based on little thought, and these evaluations will also be more enduring, more resistant to counterpersuasive attacks, and

more predictive of subsequent behavior (e.g., Haugtvedt & Petty, 1992; see Petty, Haugtvedt, & Smith, 1995, for a review).

Our results suggest that the extent to which messages are elaborated can be increased by employing message framing that is unexpected. If people are accustomed to seeing communications on a given topic framed in terms of benefits gained (i.e., positively framed), then a negative frame (focusing on the costs of not engaging in a behavior or using a product) will induce greater processing. Conversely, when people expect the information to be framed negatively, a positively framed communication will likely be more successful in motivating thought.

Thus the best strategy to use in constructing a persuasive communication may be to combine strong arguments with an unexpected message frame. Although for many if not most topics, people will expect positively framed information, the general expectancy for some other topics may be for negatively framed communications. For example, if the majority of communications regarding safe sexual behaviors (e.g., condom use) employ negative frames emphasizing the negative consequences of not engaging in such behaviors, then a positively framed communication may elicit greater processing, and the attitude change that results may be more lasting as well. Of course, the current research suggests that it may be relatively simple to manipulate expectancies about message framing itself to create expectancy violations and enhanced processing. Future research is needed to test such propositions.

#### NOTES

1. However, given recent evidence that positivity biases are also possible under certain circumstances (e.g., Skowronski & Carlston, 1987), this perspective might also allow for positive framing to be more persuasive at times. Yet, there is no theory at present that explains when positive and when negative information would receive greater weight.

2. One mean is substantially below the scale midpoint, whereas the other is close to it. This is consistent with the notion that overall, there is a tendency to expect positive information that can be tempered by negatively framed headings. To provide a stronger test of the expectancy hypothesis, we conducted additional analyses, including only those participants who were appropriately affected by the expectancy manipulation. Thus participants in the negative-expectancy condition were excluded if they rated their expectancies on the positive end of the scale, and participants in the positive-expectancy condition were eliminated if their rated expectancies were on the negative end of the scale. The analysis retained 84 participants and yielded the same pattern of results that was obtained in the full analysis reported here.

3. Argument quality effects should be mediated by message elaborations for both low-NC and high-NC participants. The difference is that framing determines the size of the argument quality effect for low-NC participants but not for high-NC participants.

4. As mentioned earlier, an additional finding in this study was that positively framed messages favoring exercise were more persuasive than negatively framed messages when the messages focused on the self-esteem benefits of exercising. However, the use of self-esteem arguments for exercise by Robberson and Rogers (1988) creates a situation in which the framing itself likely affects the cogency of message arguments. Although it is certainly plausible that exercise will

lead to increased self-esteem, it seems less compelling to conclude the opposite as well—that is, that not exercising will lead to decreased self-esteem. Thus the negatively framed message in this case might be inherently less persuasive than the positively framed version and hence would be expected to lead to less agreement given that participants think about the message even minimally.

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