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All Frames Are Not Created Equal: A Typology and Critical Analysis of Framing Effects

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Accentuate the positive or accentuate the negative? The literature has been mixed as to how the alternative framing of information in positive or negative terms affects judgments and decisions. We argue that this is because different studies have employed different operational definitions of framing and thus have tapped different underlying processes. We develop a typology to distinguish between three different kinds of valence framing effects. First we discuss the standard risky choice framing effect introduced by Tversky and Kahneman (1981) to illustrate how valence affects willingness to take a risk. Then we discuss attribute framing, which affects the evaluation of object or event characteristics, and goal framing, which affects the persuasiveness of a communication. We describe the distinctions, provide a number of examples of each type, and discuss likely theoretical mechanisms underlying each type of framing effect. Our typology helps explain and resolve apparent confusions in the literature, ties together studies with common underlying mechanisms, and serves as a guide to future research and theory development. We conclude that a broader perspective, focused on the cognitive

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and motivational consequences of valence-based encoding, opens the door to a deeper understanding of the causes and consequences of framing effects.

Investigators are rightfully intrigued by the finding that decision makers respond differently to different but objectively equivalent descriptions of the same problem. Over the past decade, studies of "framing effects" in the area of human judgment and decision-making have proliferated, expanding to include domains as diverse as cognition, psycholinguistics, perception, social psychology, health psychology, clinical psychology, educational psychology, and business. The existence of framing effects has been documented in medical and clinical decisions (decisions made by both the provider and the recipient of health care), perceptual judgments, consumer choices, responses to social dilemmas, bargaining behaviors, auditing evaluations, and many other decisions.

Despite this breadth of application, the search for a deeper understanding of the processes that underlie framing effects has been limited. Throughout the literature, *valence framing effects*, wherein the frame casts the same critical information in either a *positive* or a *negative* light, are often treated as a relatively homogeneous set of phenomena explained by a single theory, namely prospect theory (Kahneman & Tversky, 1979). We demonstrate, first, that there are different types of framing effects with different underlying mechanisms and consequences and, second, that a closer examination of these different kinds of framing effects can reveal critical variables involved in representing, processing, and responding to information.

In what follows, we describe a taxonomy composed of three different types of framing manipulations, all of which involve valence framing. The first of these manipulations is *risky choice framing*. This form of framing, introduced by Tversky and Kahneman (1981), is the form most closely associated with the term "framing." In this type of framing, the outcomes of a potential choice involving options differing in level of risk are described in different ways. Another basic form of framing is what we call *attribute framing*, in which some characteristic of an object or event serves as the focus of the framing manipulation. A third type of manipulation is *goal framing*, in which the goal of an action or behavior is framed. We explore how these type of frames differ from one another and we categorize prior research on the basis of these different types of framing manipulations to show that their effects on behavior differ predictably from one another.

By way of preview, Table 1 summarizes how the different types of framing differ from one another in (a) what is framed, (b) what the frame presumably affects, and (c) how the phenomenon is typically measured. We use these three methodological criteria to determine on an *a priori* basis which studies fall into which category.

Our typology serves to organize and interpret past "framing" research, focusing on the kinds of critical differences and commonalities that help explain distinct patterns of results reported in the literature. In this way, we provide

TABLE 1

Summary of Methodological Differences in Risky Choice, Attribute, and Goal Framing

Frame type	What is framed	What is affected	How effect is measured
Risky choice	Set of options with different risk levels	Risk preference	Comparison of choices for risky options
Attribute	Object/event attributes or characteristics	Item evaluation	Comparison of attractiveness ratings for the single item
Goal	Consequence or implied goal of a behavior	Impact of persuasion	Comparison of rate of adoption of the behavior

straightforward explanations of results that have previously been described as "contradictory." In addition, the framework is able to link together phenomena that have not previously been seen as related. We will discuss both the theoretical generalities uncovered by our analysis and the implications for designing future research on framing effects.

Although there are other types of framing, we have limited our discussion to valence framing in order to emphasize the power of valence differences in cognitive processing. We thus exclude studies in which different frames are represented by qualitatively different information such as when some subjects are presented arguments favoring one position and other subjects are presented arguments favoring a different position or when some subjects in a gambling study are told to assume that they are ahead in previous gambles while others are told that they are behind.

Tversky and Kahneman (1981) theorized that framed information was encoded as positive or negative and that this encoding determined which portion of a psychophysical value function would contribute to the perception of the worth of the information. This perspective, originally developed in prospect theory (Kahneman & Tversky, 1979), has led to numerous insights into decision-making behavior, and the approach forms a strong foundation for understanding a wide variety of phenomena. Nevertheless, many recent studies of valence framing effects have deviated greatly from the operational definitions and theoretical concepts used in the original studies, thus stretching the limits of Kahneman and Tversky's initial theoretical accounts.

We begin by describing what typically has been treated as the "standard" framing effect, which we label *risky choice framing*. We then introduce *attribute framing* and *goal framing*. We review and evaluate these three types of framing effects in order to enhance our understanding of how differences in the valence of information affects how we think about the information and how we behave as a result. Our approach places framing effects within a richer context by considering general differences in the way that positive and negative information is encoded and some of the consequences of these encoding differences.

We conclude by pointing out how our typology clarifies the likely mechanisms behind framing, serves to reduce confusion in comparing valence-based framing effects, and provides a significant new contribution in organizing the framing

literature. We offer our typology, with its broader perspective on possible mechanisms, as a tool for guiding future research into valence framing effects.

THE TYPOLOGY OF FRAMING EFFECTS

The Standard View of Framing: Risky Choice Frames

The prototypical example of what we call risky choice framing effects comes from Tversky and Kahneman's (1981) "Asian disease problem," where the researchers demonstrated that discrete choices between a risky and a riskless option of equal expected value depended on whether the options were described in positive terms (i.e., lives saved) or in negative terms (i.e., lives lost). Tversky and Kahneman found a "choice reversal," where the majority of subjects who were given the positively framed version of the task (a sure saving of one-third the lives versus a one-third chance of saving all the lives and a two-thirds chance of saving no lives) selected the option with the certain outcome, whereas the majority of subjects who were given the negatively framed version (a sure loss of two-thirds the lives versus a one-third chance of losing no lives and a two-thirds chance of losing all the lives) selected the risky option. Tversky and Kahneman explained this choice reversal in terms of their prospect theory (Kahneman & Tversky, 1979), which assumes that the framing manipulation determines whether outcomes are evaluated in terms of gains or losses and that most subjects have an S-shaped subjective value function that is concave in the domain of gains (supporting risk aversion in the positive framing condition) and convex in the domain of losses (supporting risk seeking in the negative framing condition). The reader is referred to Tversky and Kahneman (1981) for a more detailed description and graphic representation of this account.

Since the original "Asian disease problem," there have been many studies that have used risky choice framing to test Tversky and Kahneman's (1981) choice reversal prediction. The basic form of the risky choice framing paradigm is illustrated in Fig. 1. In most cases, the manipulation involves presentation

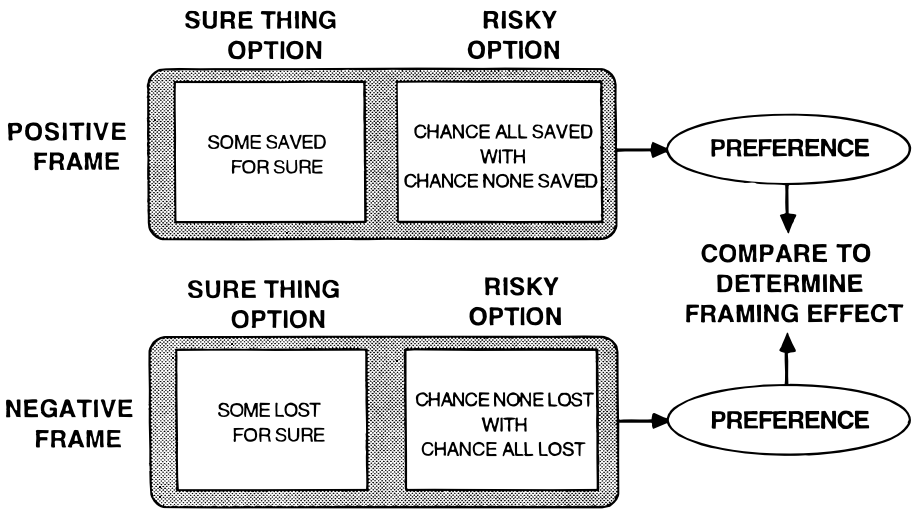

FIG. 1. The standard risky choice framing paradigm.

of a hypothetical decision scenario with two choice options or prospects. One is a riskless or sure thing prospect and the other is a two-outcome all-or-none risky prospect in which the probabilities are specified numerically. In the positive frame, the outcomes of both prospects are described in terms of gains and in the negative frame, outcomes of both prospects are described in terms of losses. The effect is measured by comparing choice proportions for the two prospects across frames. Table 2 summarizes the findings of numerous studies of risky choice framing. As can be seen in the table, choice reversals are but one of several patterns of results found in studies of risky choice framing.

Some studies have employed relatively minor variations of the original Asian disease problem whereas others have delved into new domains such as bargaining and negotiation. An interesting example is the study of bargaining decisions, where one option, a settlement, represents a "sure thing" or riskless option because a fixed outcome is assured and the other option, a decision to undergo arbitration, represents a "risky" option because it could lead to either a favorable or an unfavorable outcome. In this context, framing involves emphasizing either the potential gains or the potential losses of both options to the bargaining parties.

Overall, the evidence for the effect of framing on risky choice reveals a relatively consistent tendency for people to be more likely to take risks when options focus attention on the chance to avoid losses than when options focus on the chance to realize gains. Although there are occasions when no effect of the framing manipulation is observed, when there is an effect, the typical pattern is a choice reversal or a choice shift in the direction of less willingness to take a risk when the choices are framed positively than when choices are framed negatively. (A choice shift differs from a choice reversal in that the proportion of risky choices differs across conditions but is not both significantly greater than .5 in the negative condition and significantly less than .5 in the positive condition. See Wang, 1996, for an analogous distinction between uni- vs bidirectional framing effects). When an element is added such as by asking subjects to provide a rationale for their choice (Larrick, Smith, & Yates, 1992; Miller & Fagley, 1991), the framing effect is apt to be reduced or eliminated. The opposite pattern, wherein risk taking is more common for the positive than the negative frame, is very rare.

Nevertheless, the heterogeneity of evidence in Table 2, particularly the distinction between choice reversals and choice shifts, is both interesting and challenging to the development of a uniform theoretical account. The examples of risky choice framing in the table vary from each other in a number of ways: problem domain (e.g., risk of losing lives, risk of losing money or property), subject characteristics (ranging from high school students to "expert" decision makers), magnitude of potential outcomes and their associated probabilities, and wording of outcome categories and levels (e.g., substituting "not saved" for "die" or substituting "many" or "few" for numerical values). Moreover, the hedonic tone of the outcome at stake can be intrinsically positive (e.g., life) or intrinsically negative (e.g., debt), which may make the framing manipulation more complex or unnatural in the frame opposite the given hedonic tone. This

TABLE 2

Risky Choice Framing Effects

Authors	Task domain	Framing effects	Comments
Bohm & Lind (1992)	Asian disease problem (with Swedish subjects)	Choice shift	Rewording the problem and using a smaller number of people affected by the disease led to a reduced framing effect compared to Tversky and Kahneman.
Fagley & Kruger (1986)	School psychologists' choices about programs for high school drop-outs	No framing effect	Subjects were experts.
Fagley & Miller (1987)	Cancer treatment scenario	No framing effect	Subjects were asked to provide a rationale for their choices.
Fagley & Miller (1990)	Various decision problems	Choice shift, no effect, or effect opposite of prospect theory predictions	Significant effects of framing on choice, but responses were not consistently in the direction predicted by prospect theory; responses differed as a function of problem characteristics such as extremeness of probabilities and as a function of subject gender.
Frisch (1993)	Asian disease and one other risky choice problem involving monetary gambles, plus other nonvalence framing problems (within-subject manipulation of frame)	Averaged over the two risky choice problems, results showed 19% predicted choice reversals, 75% nonreversals, and 6% opposite reversals	Not all subjects judged the frames to be equivalent; challenges description invariance.
Highhouse & Paese (1996)	Jobs, taxes	Choice shift or no framing effect	Situations viewed as neutral or as a threat.
Highhouse & Yuce (1996)	Asian disease	Choice reversal	Participants perceived the risky option as an opportunity in the loss frame but as a threat in the gain frame.
Jou *et al.* (1996)	Variations of Asian disease problem	Choice reversal, or choice shift, or no effect	Choice reversals found when problem was presented in an ambiguous and abstract form but not when presented in a form that stressed situational limitations; more risky choices with decisions concerning human lives than with property.

TABLE 2—*Continued*

Authors	Task domain	Framing effects	Comments
Kühberger (1995)	Asian disease, cancer, jobs, (between- and within-subjects designs)	Some choice shifts, most problems showed no framing effect	Substituting "not saved" for "die" and "not die" for "saved" weakened the effect; providing complete information regarding certain option (i.e., best and worst outcomes) eliminated framing effect.
Larrick *et al.* (1992)	Asian disease problem	Choice reversal or choice shift	Choice reversal reduced to shift if subjects are asked to think aloud or provide justifications; requesting justification or pro/con lists leads to increased risk aversion, especially in negative frame.
Levin & Chapman (1990)	Variations of Asian disease problem	Choice reversal or no effect	Replicated Tversky and Kahneman's choice reversal when "Asian disease" changed to AIDS; when manipulated characteristics of disease victims, choice reversal disappeared for undesirable or "outgroup" members; consistent with different value of lives lost/saved for different groups.
Maule (1989)	Asian disease (within-subjects)	Choice shift	Protocol analysis showed focus on possible gains in positive frame but on moral principles and possible losses in negative frame.
Miller & Fagley (1991)	Various decision problems including the Asian disease problem	Choice shift or no effect	Although framing significantly affected choice, its effects were mediated or moderated by rationale request, degree of apparent gain/loss, and probability.
Miller & Fagley (1992)	Various decision problems involving human lives or money	Choice shift or no effect	Females showed choice shift, but males showed no effect; both genders made more risky choices regarding life than money.
Neale & Bazerman (1985)	Bargaining behaviors	Choice shift	Settlement (risk averse choice) was more likely when outcomes expressed as gains and negotiation (risky choice) when outcomes framed as losses.

TABLE 2—*Continued*

Authors	Task domain	Framing effects	Comments
Paese (1995) (Exp. 1)	Time allocation decisions	Choice shift	Subjects were offered a choice between performing an unpleasant task for a fixed amount of time or gambling on avoiding vs prolonging the task. Most subjects took the gamble, especially in the negative frame condition.
Paese *et al.* (1993)	Group decision making with Asian disease and similar tasks	Choice reversals	Replicated Tversky and Kahneman (1981) at the individual subject level and showed that the effect became larger in groups.
Qualls & Puto (1989)	Industrial buying decisions	Choice shift	Buyers with a positive decision frame were less likely to choose a risky supplier (44%) than buyers with a negative frame (79%).
Reyna & Brainerd (1991)	Asian disease and gambling tasks	Choice reversal or choice shift	When numerical information was replaced by "some" and "many," relational gist of quantities was sufficient to replicate Tversky and Kahneman; when deleted redundant parts of gambles, got choice shift rather than reversal.
Roszkowski & Snelbecker (1990)	Financial planning	Choice reversal or choice shift	Professionals not immune to framing effects; subjects showed less risk-taking with clients' money than with own money under both gain and loss frames.
Schneider (1992)	Multiple problems (between- and within-subject designs)	Choice shift or no effect	Framing effect depends on domain: strong effects only with human lives; framing effect only found with some probability values; choices in the negative frame were weak and inconsistent.
Schneider & Eble (1994)	Lives, jobs, assets	Choice shifts	Partial replication of Schneider (1992)
Schoorman *et al.* (1994)	Acquisition or selling of a company, based on financial information	Choice reversal or no framing effect	Framing effect inversely related to amount of information presented.

TABLE 2—*Continued*

Authors	Task domain	Framing effects	Comments
Schurr (1987)	Bargaining task	Choice shift	Bargaining teams focusing on net profits (gains) made less risky bargaining agreements than teams focusing on incurring expenses (losses).
Svenson & Benson (1993)	Multiple problems (with high school participants)	Choice reversal, choice shift, or no effect	Framing effects vary substantially across problem types; in some cases, experiencing time pressure reduces framing effects.
Takemura (1994)	Asian disease task	Choice reversal or no framing effect	Replicated Kahneman and Tversky (1981) in a low elaboration condition; but framing effect disappeared when subjects were asked to think about the decision for 3 min.
Tversky & Kahneman (1981)	Asian disease problem	Choice reversal	Original demonstration of the choice reversal effect.
Van Schie & van der Pligt (1996)	Asian (foreign) disease	Choice shift or no framing effect	Making salient the positive or negative outcomes of others reduces framing effects.
Wang (1996)	Life, property, money	Choice shift or no framing effect	Identified differences in framing effects based on topic and amount at stake.

qualitative difference in linguistics might also influence results, although most risky choice framing examples to date involve outcomes of positive hedonic tone.

Recent meta-analyses, both across framing types (Kuhberger, 1998) and within the category of risky choice framing (Schneider, 1997), have examined differences in results as a function of such task and subject variables. Each found that the likelihood of obtaining choice reversals was directly related to the similarity between features of a given study and features of Tversky and Kahneman's (1981) original "Asian disease problem."

The interpretation of risky choice framing effects is complicated by the fact that the framing manipulation involves (a) the dependent measure of choice and (b) the presence of risk. Choice can only provide an indirect measure of the effect of frame on information processing because choice relies on several component processes including option evaluation and option comparison. Adding risk to the picture only makes it more difficult to extract what influence the frame, as opposed to the risk, is having on information processing.

In order to better understand the variety of factors underlying framing effects, we find it important to recognize that framing effects are not isolated to situations involving risky choice. In the next sections, we introduce two fundamentally different categories of framing effects with a focus on how the frame influences information processing. These two categories are attribute framing and goal framing. Because these two categories have received less

attention in the literature than risky choice framing, we describe them in some detail. We assume that most readers will be familiar with the prospect theory explanation of risky choice framing effects, but we feel the need to develop and discuss distinct explanations of attribute framing and goal framing effects. After describing these categories, we discuss the interrelationships of the different framing effects, focusing on what they reveal about the nature of valence-based information processing.

Attribute Framing

Attribute framing represents perhaps the simplest case of framing, making it especially useful for gaining a basic understanding of how descriptive valence influences information processing. We label this elementary form of framing "attribute framing" because only a single attribute within any given context is the subject of the framing manipulation. Here, the dependent measure of interest is not choice between independent options, but it is instead a measure of the more basic process of evaluation. Because attribute framing is restricted to the simplest case, it allows the most straightforward test of the influence of positive and negative framing. See Fig. 2 for an example.

Evaluations can take the form of ratings of favorability (e.g., Rate the program on a scale from bad to good, or from completely unacceptable to completely acceptable) or they may be measured as yes/no judgments (e.g., Would you be in favor of the program?). The latter type of evaluation may also be interpreted as a choice between accepting versus rejecting the object or event (e.g., adopt the program versus reject the program), but it represents a degenerate case of choice because the "options" are simple unspecified complements. Objectively, the favorability of accepting an object or event completely determines the (un)favorability of rejecting the same object or event. In this case, providing an evaluation of the favorability of *either* acceptance or rejection would specify

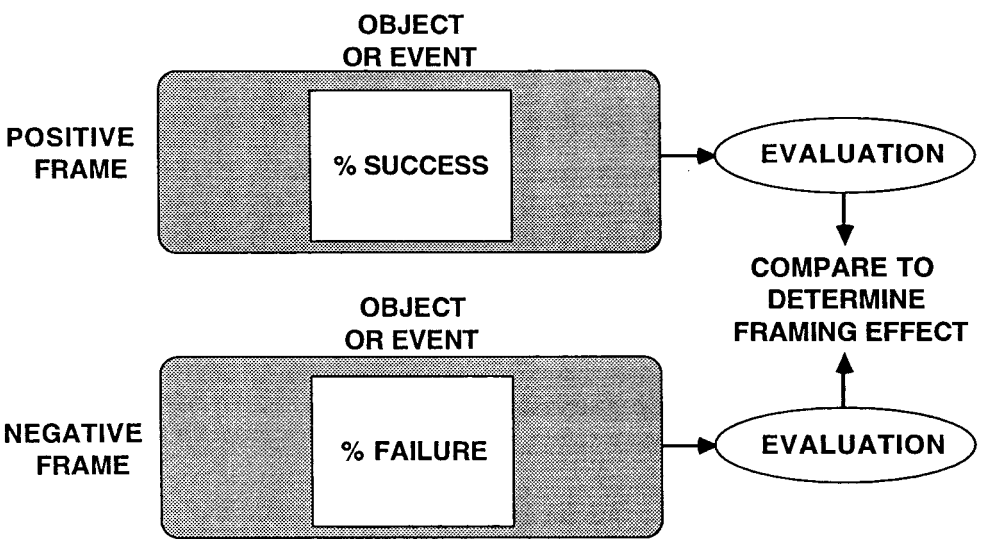

FIG. 2. The attribute framing paradigm.

the choice. Hence, the choice does not provide anything but evaluation information. In contrast, risky choice framing involves options that are independent so that the evaluation of one option does not provide information about the evaluation of the other option. Here, the choice represents more than a simple evaluation. To avoid confusion, we will reserve the term "choice" for choices between independent options, and we will use the term "evaluation" to include the degenerate case involving simple complements.

Most recent examples of attribute framing involve consumer judgment or other forms of item evaluation. One such study of attribute framing was conducted by Levin and Gaeth (1988). They showed that perceptions of the quality of ground beef depend on whether the beef is labeled as "75% lean" or "25% fat." They found that a sample of ground beef was rated as better tasting and less greasy when it was labeled in a positive light (75% lean) rather than in a negative light (25% fat). Notice that the information framed here is not the outcome of a risky choice but an *attribute* or characteristic of the ground beef that affects its evaluation.

Another common application of attribute framing involves describing situations in terms of success versus failure rates. This type of manipulation has been used to study the evaluation of several issues including job placement programs (Davis & Bobko, 1986), industry project teams (Dunegan, 1993), medical treatments (Levin, Schnittjer, & Thee, 1988), and condom use (Linville, Fischer, & Fischhoff, 1993). In all cases, the same alternative was rated more favorably when described positively than when described negatively. An analogous pattern is observed in studies wherein a surgery or other medical treatment is described in terms of survival rates versus mortality rates (e.g., Marteau, 1989; Wilson, Kaplan, & Schneiderman, 1987). When survival rates of a medical procedure are emphasized, people are more likely to approve of the procedure than when the mortality rates of the procedure are emphasized.

Notice that these examples of framing demonstrate that risk perception is not an essential feature of valence framing effects. Consider a case in which subjects were asked to rate the previous performance of basketball players (Levin, 1987a). Some subjects were provided information about the percentage of shots made (positive frame), whereas others used the percentage of shots missed (negative frame). Risk was not an issue in either case, yet performance of the player was rated significantly higher by subjects given success rates than by subjects given failure rates. Another nonrisk framing effect occurred when subjects were asked to rate the performance of students based on exam scores expressed in terms of percentage correct or percentage incorrect. The presence of risk is the exception rather than the rule in cases of attribute framing.

Although attribute framing does not in any way rely on the presence of risk, it is nevertheless possible to study attribute framing in the context of gambling. In this case, the issue of interest involves the evaluation of a single gamble described in terms of its "probability of winning" rather than in terms of its "probability of losing." Consistent with the previous examples of attribute framing, people are more likely to evaluate a gamble favorably when it is

described positively in terms of winning rather than when it is described negatively in terms of losing (Levin, Johnson, Deldin, Carstens, Cressey, & Davis, 1986; Levin, Snyder, & Chapman, 1989) (See also Levin, Schnittjer, & Thee, 1988, Exp. 2; van Schie & van der Pligt, 1995).

Examples of other studies investigating attribute framing are described in Table 3. A quick scan of Table 3 shows that a "valence-consistent shift," wherein the positive framing of attributes leads to more favorable evaluations than negative framing, has been documented not only in areas concerned with consumer products and selection of medical treatments but also in areas such as radio news broadcasting, personnel selection, and audit judgments. Although the effect of an attribute frame may be negligible due to moderating variables described below, we know of no case in which a negative attribute frame produces more favorable evaluations than a positive attribute frame. In fact, of the three tables (Tables 2–4) summarizing studies within each type of framing, Table 3 presents the clearest evidence of a homogeneous phenomenon, the "valence-consistent" shift.

Occasionally, attribute framing effects may superficially appear to be at variance with this principle. For example, Marteau (1989) showed that her subjects were more apt to be in favor of amniocentesis in the negative frame condition. But the framing manipulation did not describe the amniocentesis procedure itself. Instead, the framed attribute was the potential status of the child, presented as chances of being abnormal in the negative frame and normal in the positive frame. Because concerns about the child's status is a logical antecedent of electing amniocentesis, Marteau's results do in fact demonstrate a valence-consistent shift in that subjects focusing on the negatively-framed attribute of abnormalities (apparently) judged the child's status to be in greater jeopardy. As another example, subjects might evaluate a movie designed to be a "tearjerker" more favorably if scenes were described within a negative versus a positive frame. But this differential rating of the movie would only happen if there were in fact a valence-consistent shift such that the negatively framed scenes effectively accentuated sadness more than the positively framed counterparts.

The summary in Table 3 also provides insight into why attribute framing effects can be mitigated. Topics involving issues of strongly held attitudes or high personal involvement are less susceptible to attribute framing effects. For example, Marteau (1989) found no framing effects across a wide variety of problems involving abortion decisions. And, although Levin, Schnittjer, & Thee (1988) found that the general incidence of cheating was rated higher by subjects receiving the statement, "65% of the students had cheated during their college career" than by subjects receiving the statement, "35% of the students had never cheated," they found no difference between conditions when subjects were asked to indicate whether they themselves would change their own answers on an exam or turn in a cheater. In these instances the framed information apparently receives little or no weight in the judgment process, so, consequently, the framing effect is negligible. Similarly, attribute framing effects are routinely found when someone else's performance is described in terms of percentage

TABLE 3

Studies of Attribute Framing Effects

Authors	Task domain	Framing effect	Comments
Beach *et al.* (1996)	Evaluating toasters for potential purchase	Valence consistent shift or no effect	Nonframed toaster descriptions presented with satisfaction or dissatisfaction rates. Effect only for toasters with few or weak desired features missing; possible ceiling effect elsewhere.
Brockner *et al.* (1995)	Layoff survivors evaluated trust in and support for their organization following a layoff	Valence consistent shift or no effect	Layoff survivors reacted more favorably toward the organization when evaluating criteria used to keep versus dismiss employees, but only when procedural fairness was low.
Davis & Bobko (1986)	Indicate continuation of support for weak job placement program	Valence consistent shift	There was less continued support for initially chosen program when described in terms of failure rate rather than success rate; framing effect reduced when subjects had to justify original decision.
Duchon *et al.* (1989)	Allocating engineering funds to research and development team	Valence consistent shift	Engineers allocated more to an R&D team when performance was described as % successfully completed projects versus % uncompleted projects.
Dunegan (1993)	Project funding allocations	Valence consistent shift	Members of an international company gave lower evaluations of a project team with a 40% failure rate versus a 60% success rate.
Dunegan (1995)	Project funding allocations	Valence consistent shift	Replicated Dunegan (1993).
Dunegan (1996)	Assigning penalties for deceptive advertising	Valence consistent shift	Higher fines assigned in the negative frame, especially when offender was organization versus individual.
Dunegan *et al.* (1995)	Resource allocations	Valence consistent shift	Framing effect obtained for several measures.
Emby (1994)	Evaluation of organization's internal control system	Valence consistent shift	Levels of substantive testing of controls was lower with instructions to focus on strengths versus risks of the system.
Highhouse & Yuce (1996)	Evaluation of a joint business venture and a possible lawsuit	Valence consistent shift	For both a potential gain and loss, a risky situation was more likely to be favored when described as an opportunity versus a threat.
Johnson (1987)	Evaluation of ground beef	Valence consistent shift	Replicated Levin (1987).

TABLE 3—*Continued*

Authors	Task domain	Framing effect	Comments
Koriat *et al.* (1980)	Evaluation of answers to general knowledge questions	Valence consistent shift	Participants were less confident of their answers when considering why each answer might be wrong versus right.
Kramer (1989)	Arms race simulation	Valence consistent shift	Frames manipulated appearance of security deficit.
Levin (1987a)	Evaluation of previous basketball performance	Valence consistent shift	Performance ratings higher when information presented as % shots made versus % shots missed.
Levin (1987b)	Evaluation of ground beef	Valence consistent shift	Effect demonstrated on multiple response measures, supporting associative model of attribute framing effects.
Levin, Chapman, & Johnson (1988)	Evaluation of gambles	Valence consistent shift	Effect smaller with real than with hypothetical gambles.
Levin & Gaeth (1988)	Evaluation of ground beef	Valence consistent shift	Direct product experience (tasting) reduced but did not eliminate framing effects.
Levin *et al.* (1996)	Selecting automobiles based on country-of-origin information	Valence consistent shift	Automobiles were evaluated more favorably with "% American workers employed" rather than "% non-American workers employed." Effect increased across successive decision stages.
Levin *et al.* (1985)	Evaluations of gambles, ground beef, student performance	Valence consistent shift	Framing effects found for both one- and two-attribute stimuli.
Levin *et al.* (1986)	Gambling decisions	Valence consistent shift	Framing effects found for both one- and two-attribute stimuli.
Levin *et al.* (1987)	Evaluation of gambles (between- and within-subjects designs)	Valence consistent shift	Effect of original framing of gambles persists even when descriptions reframed.
Levin, Schnittjer, & Thee (1988)	Evaluation of medical treatment; reacting to cheating incident	Valence consistent shift or no effect	Success/failure rate of medical treatment affected treatment recommendation rate; base rate of number of students who do/do not cheat did not affect moral judgments about cheating.
Levin *et al.* (1989)	Gambling decisions	Valence consistent shift	Prior experience (gambling) did not prevent framing effects.
Linville *et al.* (1993)	Judging effectiveness of and intentions to use type of condom	Valence consistent shift	More support for condom described as having 90% success rate rather than 10% failure rate.

TABLE 3—*Continued*

Authors	Task domain	Framing effect	Comments
Loke (1989)	Evaluation of gambles	Valence consistent shift	Replicated Levin *et al.* (1987) with Singaporean subjects; initial frame persists at least 48 h.
Loke & Lau (1992)	Meat purchases, branch closure, emergency landings	Valence consistent shift	Mathematical experience did not interact with framing manipulations.
Loke & Tan (1992)	Evaluation of gambles	Valence consistent shift	Replicated Levin et al. (1989) with math experts (professors) and novices (students); no Experience × Frame interaction.
Marteau (1989)	Medical students chose between treatment and no treatment	Valence consistent shift or no effect	Some evidence that participants were more apt to prefer surgery when described by survival versus death rate; no framing effect for abortion decisions (moral issue).
O'Clock & Devine (1995)	Auditors' going concern decisions	Valence consistent shift	Auditors were more likely to recommend modifying an audit report when told % chance of failed versus % chance of successful contract negotiations.
Schneider (1995)	Evaluation of performance on handwriting identification task	No framing effect	Participants did not differ in their assessments of performance when predicting number of right versus wrong answers.
Schneider, Holstrum, & Marden (1993)	Auditor evaluations of an organization's control environment	Valence consistent shift	Subjects judged factors to weaken control environment more when framed negatively.
Schneider, Laurion, & Solomonson (1993)	Attitudes, memory, and metamemory for radio news messages	Valence consistent shift	Attitudes were more favorable to positively framed than negatively framed messages; no framing effects for immediate memory or metamemory of messages.
Schoorman *et al.* (1994)	Evaluation of Products Division performance	Valence consistent shift	Ratings higher when performance described as profits rather than shortfall from target expectations.
Sniezek *et al.* (1990)	Evaluation of answers to general knowledge questions	No framing effect	Participants did not differ in their assessments when predicting number of right versus wrong answers.
van Schie & van der Pligt (1995)	Gamble acceptance rates, vaccine popularity, and popularity of firefighting method	Valence consistent shift	Attribute manipulation nested in risky choice framing paradigm; emphasizing potential positive rather than negative outcomes in risky option led to increased preference for this option.
Wilson *et al.* (1987)	Evaluating surgery	Valence consistent shift	More subjects opted for surgery when described by probability of surviving versus dying.

correct versus percentage wrong (e.g., Levin, 1987a, Levin, Johnson, Russo, & Deldin, 1985), but there is typically no framing effect when subjects estimate their own performance using these different terms (e.g., Schneider, 1995; Sniezek, Paese, & Switzer, 1990, but cf. Koriat, Lichtenstein, & Fischhoff, 1990).

Attribute framing effects are also less likely when dealing with extremes. Levin et al. (1986) found that framing effects on gamble evaluations were more pronounced at intermediate rather than extreme levels of probability of winning or losing. Likewise Beach, Puto, Heckler, Naylor, and Marble (1996) found no attribute framing effects on evaluations of toasters missing many important attributes (the vast majority rejected them in both frames), but there was evidence of the typical framing effect for toasters missing relatively unimportant attributes. Ceiling and floor effects may be operating in these kinds of cases.

Explaining attribute framing effects. Intuitively, it may not seem surprising that positive framing supports more favorable evaluations and that negative framing supports less favorable evaluations. On the other hand, this finding reveals important aspects of cognitive processing. First, it establishes that even at the most basic level, the valence of a description often has a substantial influence on the processing of that information. Second, the results of studies involving attribute framing provide insights into the nature of these processing differences.

Levin and Gaeth (1988) suggest that attribute framing effects occur because information is encoded relative to its descriptive valence. They argue that the positive labeling of an attribute leads to an encoding of the information that tends to evoke favorable associations in memory, whereas the negative labeling of the same attribute is likely to cause an encoding that evokes unfavorable associations. Indeed, they found evidence of valence-consistent shifts in hamburger evaluation not only with respect to the manipulated dimension of fat/lean, but also for associated dimensions such as taste, greasiness, and quality.

In addition, Levin, et al. (1985) suggest that encoding differences based on positive or negative framing may produce stimulus–response compatibility effects. They argue that differences in positive and negative cognitive representations of an attribute may cause subjects to attend differently to the positive or negative aspects of the required evaluation dimension, thus effectively changing subjective scale values. By demonstrating that differences in framed problem responses could not be explained by processes related to the transformation of implicit judgments into overt responses, Levin et al. (1986) concluded that the locus of the effect is the evaluation of stimuli and the resulting subjective scale value. Attribute framing is likely to influence the encoding and representation of information in associative memory, and this representational difference is viewed as the cause of *valence-consistent* shifts in responses.

Positive encoding highlights positive aspects of the information and negative encoding highlights negative aspects. Indeed, it has been demonstrated that the mere presence of positive associations in memory for one item in a choice set can lead to substantial positive distortions of that item's attributes relative

to comparison items (Russo, Medvec, & Meloy, 1996). This valence-based encoding leads to a confirmation bias presumably involving the same sorts of selective attention and cognitive search mechanisms that have been proposed to explain how and why expectations in general have such a profound effect on judgment (e.g., Harris, 1991; Klayman & Ha, 1987; Stangor & Ford, 1992).

To verify the role of valence-based encoding, we collected new data to test the associative model. Each of 76 university students was presented with a set of four scenarios. The first time they saw each scenario they were asked to rate their degree of endorsement of each of the following terms (paired here but presented singly in alphabetical order to the subjects): concerned–unconcerned, hopeful–hopeless, positive–negative, confident–worried, and optimistic–pessimistic. Each scenario had four variations based on whether the general tone (context) of the scenario was positive or negative and whether a key statement was framed in positive or negative terms. The following is an example: "You have been saving money for a vacation trip [to pay your accumulated parking fines] by putting money into a piggybank for the past month. The trip is one month away. [The fines are due in one month.] You notice that the piggybank is half full/half empty." A 2×2 between-subjects design was employed such that each subject received all four senarios in the same context–frame combination. Following endorsement of positive and negative associative terms for each scenario, the scenarios were presented a second time and subjects were asked to make an overall judgment such as rating the likelihood that they would save enough money in the half-full/half-empty piggybank example.

The key measure for testing the associative model was the difference in endorsement ratings of positive and negative terms in Part 1. (The associative response phase was placed before the global judgment phase in order to avoid halo effects in associative responding.) An Associative Valence Index was created by summing the ratings for positive terms and subtracting the ratings for negative terms. Combined across the four scenarios for each subject, this index was significantly higher in the positive attribute framing condition than in the negative attribute framing condition, regardless of whether the general tone of the scenarios was positive or negative. Similarly, Part 2 judgments were significantly higher in the positive attribute framing condition than in the negative attribute framing condition. These results are taken as direct support for the associative model of attribute framing effects.

This interpretation is compatible with the concept of priming as applied in the attitude and impression formation literatures. Subjects are primed with stimuli of positive or negative valence in a prior task, often unrelated to the main task of evaluating some person or thing. The typical finding is that the stimulus object is evaluated more favorably following the positive prime than following the negative prime (Herr, Sherman, & Fazio, 1983; Higgins, Bargh, & Lombardi, 1985; Sherman, Mackie, & Driscoll, 1990). The theoretical interpretation is that the prime sets up an "evaluative tone," which determines whether positively or negatively valenced knowledge is accessed during the impression

formation process (Wyer & Srull, 1989). In attribute framing, the framed stimulus label is like a prime, but it is part of, rather than peripheral to, the description of the target stimulus. It is no wonder that its effect is so reliable.

Notice that a direct prospect theory explanation of attribute framing results is not feasible because the theory is designed to address changes in preference for options varying in riskiness when each of a set of options is framed; it is not designed to address subtleties in evaluations of individual objects or events. Attribute framing remains operationally distinct from risky choice framing in that (a) a single feature or characteristic of some object or event is framed rather than framing each of the options in an independent choice set and (b) attribute framing does not involve a manipulation of riskiness. Consequently, the types of effects seen for attribute framing are qualitatively different from those seen for risky choice framing.

Recently, van Schie and van der Pligt (1995), in effect, provided a contrast of risky choice and attribute framing effects (although they used the terms "prospect framing" and "outcome salience") in the context of gambles. As would be anticipated within our typology, they demonstrated empirically that the two effects differ from one another and represent distinct, independent processes. Borrowing from Levin (1987b; Levin, Schnittjer, & Thee, 1988), they explained the attribute framing effects by arguing that attribute framing (in a gambling context) makes either the positive or the negative outcome salient. This promotes selective attention of only the positive or negative attributes of the gamble, which in turn leads to the accessing of only positive or negative associations in memory.

Although not formally an example of attribute framing, early research on "question framing" seems to follow the same general principle. Harris (1973) demonstrated that height estimates are influenced by whether subjects consider how short versus how tall a person is, and Loftus (1975) found that subjects report more headaches if asked whether they have headaches frequently rather than being asked if they have them occasionally. These manipulations of how a question is framed clearly evoke evaluatively different associations.

The role of attentional processes in attribute framing effects is also nicely illustrated by Shafir's (1993) work comparing responses to *choosing* the more *desirable* of two options and responses to *rejecting* the more *undesirable* of the two options. Because choosing one option implies rejecting the other, one would expect that if subjects tend to choose the first option then they will also tend to reject the second option. Shafir showed that this relationship cannot be expected to hold due to the changes in attention produced by framing the task as a choice versus a rejection. Specifically, he constructed a pair of options such that one option was "enriched" with both stronger positive and stronger negative attributes, whereas the other option was "impoverished" by comparison, with weaker positive and weaker negative attributes. When asked to choose the more desirable of the two options, a majority of subjects selected the enriched option, suggesting that the positive task of choosing focused their attention on a comparison of the positive features. When asked to reject the

worse of the two options, most subjects also rejected the enriched option (thereby selecting the impoverished option), suggesting that the task of rejecting an option focuses attention on a comparison of negative attributes. Shafir and colleagues (1993; Shafir, Simonson, & Tversky, 1993) suggest that this attentional effect is realized as a shift in the weights applied to positive and negative attributes with a change in task frame. The associative model of Levin and colleagues implies that this apparent shift in weights results from valence-based differences in the associations created during encoding.

Goal Framing

Although attribute framing effects provide clear evidence of the importance of valence-based encoding in enhancing or hurting evaluations, valence framing may also have a quite different kind of effect. Imagine, for instance, that one is only interested in enhancing the evaluation of some situation or behavior. In this case, a different kind of framing manipulation can be designed to influence the implicit goals that an individual adopts. In particular, the issue may be framed to focus attention on its potential to provide a benefit or gain (positive frame) or on its potential to prevent or avoid a loss (negative frame). Both frames should *enhance* the evaluation of the issue, but the question here is which type of goal is the more powerful enhancer.

This type of framing effect, which we have labeled the *goal framing effect*, has become popular in studies of persuasive communications. In a common example of this type of framing effect, the impact of a persuasive message has been shown to depend on whether the message stresses either the positive consequences of performing an act or the negative consequences of not performing the act. This type of manipulation is illustrated in Fig. 3. The positive frame focuses attention on the *goal of obtaining the positive consequence (or gain),* whereas the negative frame focuses attention on *avoiding the negative consequence (or loss).* A distinguishing feature of goal framing manipulations

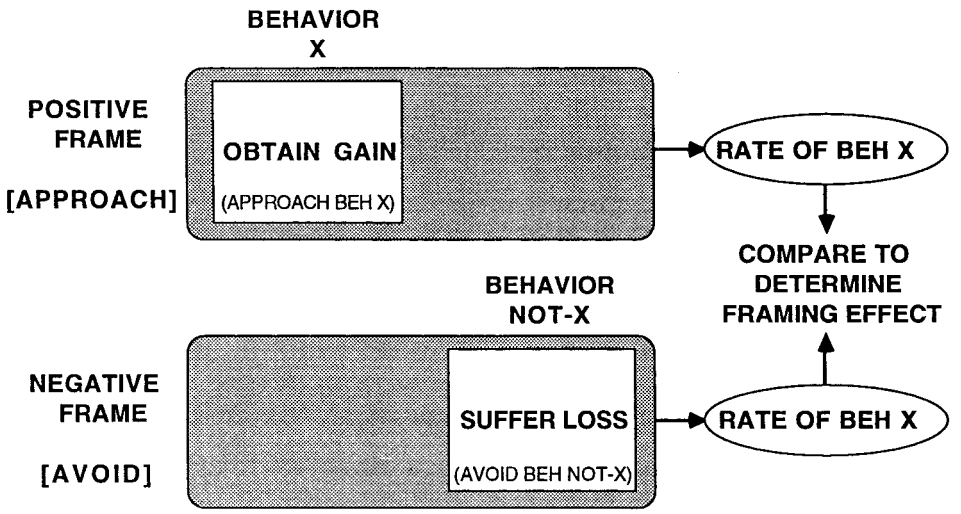

FIG. 3. The basic goal framing paradigm.

is that both framing conditions promote the same act. The question in goal framing is which frame, positive or negative, will have the *greater persuasive impact* on achieving *the same end result*.

A well-known example of a goal framing effect has been documented by Meyerowitz and Chaiken (1987). They showed that women were more apt to engage in breast self-examination (BSE) when presented with information stressing the negative consequences of not engaging in BSE than when presented with information stressing the positive consequences of engaging in BSE. An example of one of the positively-framed sentences they used is, "Research shows that women who *do* BSE have *an increased* chance of finding a tumor in the early, more treatable stages of the disease." The negative complement is, "Research shows that women who *do not do* BSE have *a decreased* chance of finding a tumor in the early, more treatable stages of the disease." [Italics added.]

Notice that the manipulation is quite different from attribute framing. Attribute framing would portray BSE as a relatively "good" thing to do in the positive frame and as a relatively "bad" thing to do in the negative frame (e.g., by accentuating either the hit rate or the false alarm rate). In contrast, with goal framing, it is assumed in both frames that BSE is a "good" thing to do in that it has beneficial or good consequences in **both** the positive and negative frames. However, the positive goal frame describes those good consequences in terms of the goal of obtaining the potential gains associated with doing BSE, whereas the negative goal frame describes those good consequences in terms of the goal of avoiding the potential losses associated with *not* doing BSE. In terms of persuasive effectiveness, Meyerowitz and Chaiken (1987) found that the negatively framed encoding of the good consequences was more powerful than the positively worded encoding; that is, people were more highly motivated to avoid a loss by doing BSE than they were to obtain a gain by doing BSE.

Health, endowment, social dilemmas, and other examples of goal frames. Although popular, studies of goal framing are relatively new to the framing scene and often involve health-related persuasive messages. Instances of goal framing can also be found in studies which range in topic from social dilemmas to consumer choice. These studies are summarized in Table 4. The evidence in Table 4 suggests that the negative (loss) frame generally has a stronger impact on responses than the positive (gain) frame.

Our examples of goal frames include phenomena that have not heretofore been conceptually linked with the studies described above. These include several findings from studies of "endowment effects" and "social dilemmas." In many studies of the endowment effect (e.g., Thaler, 1980, 1985), the same situation is described as either a foregone gain or a sustained loss. Nevertheless, the only subset of endowment effects that can be accurately characterized as valence framing effects is the one in which the *exact same action* is framed in terms of a gain versus a loss. Endowment effects that do not compare the exact same situation under two different descriptions cannot be considered true valence framing effects.

TABLE 4

Studies of Goal Framing Effects

Authors	Task domain	Framing effects	Comments
Banks *et al.* (1995)	Mammography screening	Loss frame has greater impact or no effect	Women viewing negatively versus positively framed message were more likely to obtain a mammogram in next 12 months; no framing effect on attitudes, intentions, or beliefs.
Block & Keller (1995)	Avoiding a sexually transmitted disease or avoiding skin cancer	Loss frame has greater impact or no effect	For low efficacy or detection behavior, the negative frame had a greater impact on attitudes and intentions; no framing effect for high efficacy or prevention behavior. No effects for fear, severity, or vulnerability.
Brewer & Kramer (1986)	Social dilemmas: commons dilemma vs public good	Loss frame has greater impact	Subjects less willing to suffer a personal loss for the common good than to forego a gain.
Fleischman (1988)	Social dilemma: giving to or taking from a collective good	Interaction of frame and others' behavior	Subjects less willing to suffer a personal loss for the common good than to forego a gain when cooperation is high; reverse when cooperation is low.
Ganzach & Karsahi (1995)	Credit card use	Loss frame has greater impact	Credit card customers were more receptive to message stressing losses from not using card than message stressing gains from using it; effect persisted in 6-month follow-up.
Grewal *et al.* (1994)	Ads for a fictitious brand of VCR compared to established brand	Price-by-frame interaction	For high-priced VCR, negative frame had greater persuasive impact, with lower rated performance risk and financial risk. For low-priced VCR, weaker but reverse effect.
Homer & Yoon (1992)	Ads for a mouth-wash	Loss frame has greater impact	Framing manipulation augmented by including photos of "good" or "bad" mouths. Brand-related cognitions may be more influential in negative frame.
Kahneman *et al.* (1990)	Assigning value to a coffee mug	Loss frame has greater impact	Endowment effect: items that are owned and could be lost are valued more than equivalent items that could be gained.
Lalor & Hailey (1990)	Breast self-examination	No framing effect	Failed to replicate Meyerowitz and Chaiken; subjects rated own susceptibility first—susceptibility correlated with behavioral and attitudinal measures.

TABLE 4—*Continued*

Authors	Task domain	Framing effects	Comments
Lauver & Rubin (1990)	Follow-up for abnormal Pap test	No framing effect	No effect on reported optimism or attendance for a followup test within 6 weeks.
Lerman *et al.* (1992)	Follow-up for abnormal mammogram	No framing effect	No effect of framed psychoeducational materials on adherence to free follow-up mammogram.
Loewenstein & Issacharoff (1994)	Assigning value to a coffee mug	Loss frame has greater impact	Replicated Kahneman *et al.* (1990) and showed exaggerated effect when mug ownership was attributed to good performance versus random assignment.
Maheswaran & Meyers-Levy (1990)	Blood cholesterol test	Involvement-by-frame interaction	Greater impact of loss frame for highly involved subjects; reverse for low involvement.
McCusker & Carnevale (1995)	Resource dilemma	Loss frame has greater impact or no framing effect	Without sanctions, participants were less willing to suffer a personal loss than to forego a personal gain for the common good. With sanctions, framing effects disappeared.
Meszaros *et al.* (1991)	Auto insurance special clause selection	Loss frame has greatr impact	Endowment effect: subjects less willing to sustain a loss than to forego an equivalent gain.
Meyerowitz & Chaiken (1987)	Breast self-examination (BSE)	Loss frame has greater impact	Loss frame pamphlet led to more beneficial BSE attitudes, intentions, and behaviors than gain frame or control pamphlets.
Newberry *et al.* (1993)	Tax practitioner decisions	Loss frame has greater impact	Tax preparers were more willing to sign tax returns with a large deduction on ambiguous tax issue if faced with losing a current client versus gaining a new client.
Reese *et al.* (1997)	Encouraging hearing-impaired veterans to obtain and keep hearing aids	Loss frame has greater impact or no framing effect	Participants were more likely to keep new hearing aids when told of losses from not having hearing aid versus benefits gained from having one. No effect for initial willingness to try a hearing aid.
Robberson & Rogers (1988)	Encouraging exercise among nonexercisers	Message focus-by-frame interaction	In health appeal, greater impact of negative frame on intentions and severity; reverse for intentions with self-esteem appeal. No effect on vulnerability or efficacy.

TABLE 4—*Continued*

Authors	Task domain	Framing effects	Comments
Rothman *et al.* (1993)	Test for skin cancer (detection); use of sunscreen (prevention)	Framing effect varied for behavior and gender	Greater impact of loss frame for detection behavior for females (assumed to be more involved); greater impact of gain frame for prevention behavior for females.
Rutte *et al.* (1987)	Social dilemmas: commons dilemma vs public good	No framing effect	Subjects more willing to accept a leader's decision in gain frame.
Siminoff & Fetting (1989)	Decisions concerning treatment of breast cancer	No framing effect	Subjects were actual patients; "framing" was assessed by physicians' statements about prognosis (usually negative); conclude that framing effects on real clinic treatment decisions are attenuated by verbal presentation of information.
Steffen *et al.* (1994)	Men's intention to perform testicle self-examination for cancer	No framing effect	Failed to replicate Meyerowitz & Chaiken's (1987) findings on BSE using analogous task for males. Lack of effects may be due to topic novelty or low level of fear arousal.
Thaler (1980)	Credit card use (anecdotal)	Loss frame has greater impact	Endowment effect: people more willing to forego gains (cash discount) than to accept losses (credit surcharge).
Tversky & Kahneman (1991)	Evaluating prizes or jobs	Loss frame has greater impact	Endowment effect: item differences were more influential when reference point implied they were losses versus gains.
Tykocinski *et al.* (1994)	Eating breakfast among nonbreakfast eaters	Self-discrepancy-by-frame interaction	Negative framing was more persuasive for those with actual/ideal self-discrepancies, but the positive frame was more persuasive for those with actual/ought discrepancies.
Wegener *et al.* (1994)	Introduction of University Service program or senior exam requirements	Topic-by-NC-by-mood-by-frame interactions	For Service program and high Need for Cognition (NC) participants, the negative frame was more persuasive in a sad mood and reverse for a happy mood. No framing effects for senior exams topic or low NC.
Wilson *et al.* (1990)	Smoking cessation contracts	Motivation and self-efficacy-by-frame interactions	Manipulated frames were gain-only vs gain plus loss; gain plus loss contracts were more effective for low motivation and for high self-efficacy subjects.

In a familiar example, price differences between cash and credit card purchases can be described as cash discounts or credit card surcharges. The positive frame conveys the message: if you pay cash, you will receive a discount price, whereas the negative frame conveys the message: if you do not pay cash (i.e., if you use a credit card), you will have to pay an additional surcharge. From the point of view of business, it is important to know that consumers are less willing to bear the cost of a surcharge than to forego a discount.

The insurance company provides another example. In a clever pseudo-experiment, Meszaros, Johnson, Hershey, Kunreuther, and Pollister (1991) point to convincing evidence of framing effects in a description of an auto insurance clause that is intended to reduce insurance rates by limiting the number of lawsuits filed as a consequence of relatively minor injuries. In Pennsylvania, the clause read that the regular rate included the right to sue under any conditions, but if the insured wanted to give up this coverage for minor injury accidents, they would receive a discount. In New Jersey, the exact same potential coverage was described. However, the description implied that standard auto insurance would now be cheaper but would no longer allow insureds to sue when accidents involved only minor injuries. If the insured chose to pay an extra premium, they could increase their coverage so it would allow them to sue as a result of any accident. Far fewer insureds retained their right to sue under any condition in the state of New Jersey than in Pennsylvania. Having the right to sue under any condition seems less valuable if people feel that they would have to pay extra to maintain it than if people feel that they already own it and could lose it (i.e., obtaining a good is not as valued as avoiding its loss; later we relate findings in this category to the concepts of "loss aversion" and "status quo bias"). An important feature of this example that leads to its classification as goal framing is that both versions had the same intent, to decrease the incidence of minor lawsuits.

A related class of goal framing studies includes "social dilemmas"—situations in which gains for the individual come at the possible expense of the common good. Framing in this case distinguishes between the "commons dilemma" problem in which subjects may take from a common resource (i.e., obtain a personal benefit) and the "public goods" problem in which subjects may contribute to a common resource (i.e., suffer a personal loss). Brewer and Kramer (1986) found that subjects left more of the common resource for others under the commons dilemma frame than under the public goods frame. In other words, subjects were more willing to forego a personal benefit in the interest of maintaining the common resource than they were to suffer a personal loss.

We include social dilemmas and endowment effects with the more prototypical health promotion examples used to initially define our category of goal framing because in each case alternative framing conditions are seen as supporting the same goal. In each of these examples, a desirable or an undesirable potential outcome is described in terms of gains or losses, with the persuasive intent of the message being the same in both cases. Where reliable effects are found, they typically indicate that the negatively framed message is more persuasive than the positively framed message. That is, a negative frame tends

to intensify the original valence of the outcome, making a desirable outcome seem more desirable and an undesirable outcome seem more undesirable.

Unique features of goal framing. Goal frames are more complicated than other frames in that more than one aspect of the message may be manipulated. This potential dual manipulation increases the susceptibility of goal frames to several linguistic and contextual variations. These variations are illustrated in Fig. 4. Comparing any pair of consequences within Fig. 4 yields a variant of goal framing. The initial example of goal framing depicted in Fig. 3 represents *pure cross-complement goal framing*, in which the consequence of the advocated behavior is framed in terms of obtaining a gain (Consequence A) and its complement (not doing the behavior) is framed in terms of suffering a loss (Consequence D). However, alternate forms of cross-complement framing include positive–negative consequence pairs A–C, B–C, and B–D. These alternate forms may not be as effective in producing goal framing effects because they provide less extreme contrasts of valence across framing conditions.

Notice that the complement to the behavior may also be described in at least two ways, using simple negation (i.e., not doing the behavior) or alternative terminology (i.e., doing some other behavior). For instance, the complement of sleeping can be described either as not sleeping or as staying awake. This linguistic variation may also influence the strength of goal framing effects;

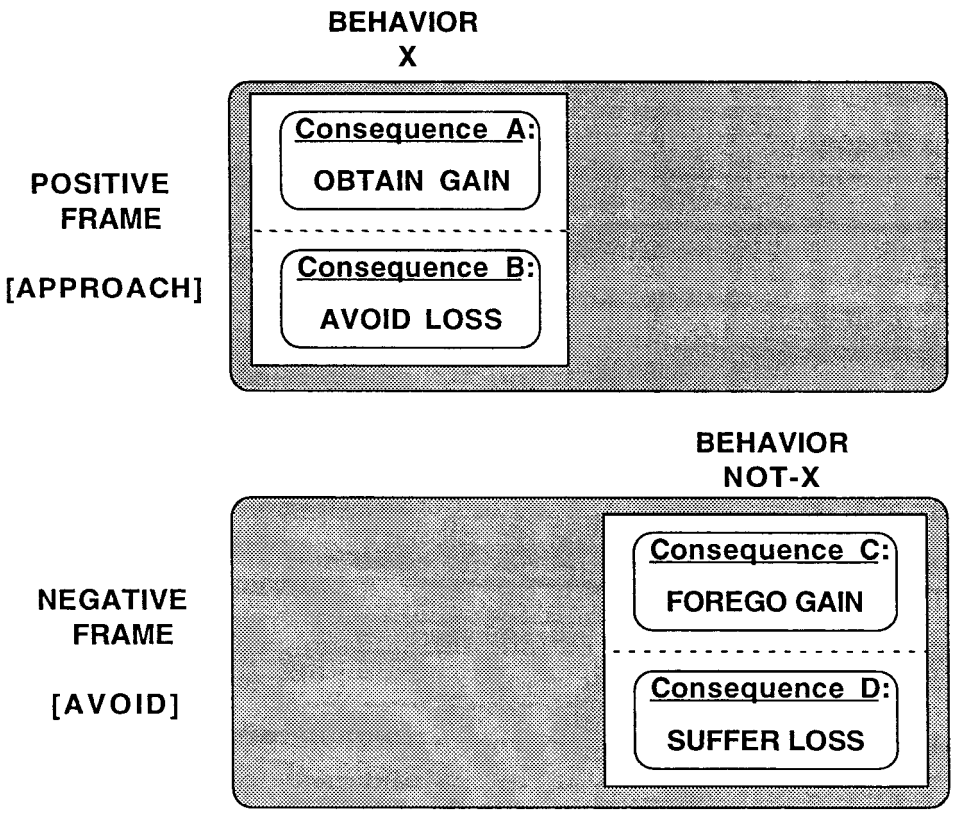

FIG. 4. Variations in the goal framing paradigm.

that is, the alternative terms are not perceptually equal. The issue of using simple negation versus alternative terminology is most apparent for goal framing, but also can exist for both attribute framing (e.g., procedures that do not succeed versus fail) and risky choice framing (e.g., lives saved versus not lost; see e.g., Kuhberger, 1995). Maheswaran and Meyers-Levy (1990, footnote 4) note that, in all framing contexts, alternative terminology may introduce unintended variations in the messages' emotional intensity, making it impossible to separate effects based on differences in linguistic connotation from those produced by a negativity bias. This suggests the need for researchers to be very sensitive to characteristics of language (see, e.g., Mayer, 1992), as well as the need to develop and incorporate valid measures of emotional intensity in future studies of framing effects.

Another variation of goal framing is also possible. *Within-complement goal framing* is illustrated by contrasting positive–negative consequence pairs A–B and C–D. In the former pair, the positive frame would describe the advocated behavior as an opportunity to obtain a gain and the negative frame would describe that same behavior as an opportunity to avoid a loss. The question of interest is which description of the opportunity is more effective in promoting the behavior. In the latter pair, not doing an advocated behavior is described as a threat of foregoing a gain or suffering a loss, and the effect is again demonstrated by differential rates of adopting the advocated behavior.

In all variants of goal framing, the meaning of "positive" and "negative" with respect to the frame is different than in other types of framing. In both risky choice and attribute framing, the positive frame refers to something desirable about the options or the attribute (e.g., lives saved, percentage lean) and the negative frame refers to something undesirable about the options or the attribute (e.g., lives lost, percentage fat). However, in goal framing, the behavior or event of interest (e.g., performing BSE or smoking cigarettes) already has a desirable or undesirable valence from the persuader's perspective and the framing manipulation does not serve to change that valence, but instead influences how persuasive the message will be. Goal frames are thus unique in that both messages are aimed at *promoting the same end result.* Figure 5 illustrates the different "forces" alluded to earlier for different types of framing effects by illustrating how this unidirectional characteristic distinguishes goal framing from the other types of framing.

Despite their unique features, goal framing effects, like other framing effects, may be enhanced, eliminated, or even reversed by a variety of characteristics of the situation. For instance, goal framing effects seem to be strongest for simple endowment situations in which it is possible to manipulate the perceived ownership of an item or issue, making the adoption of the manipulated frame more likely. On the other hand, the effect may disappear or reverse for situations in which it is relatively easy to discount the negative frame in order to avoid facing adverse possibilities. This may happen with low involvement or low cognitive effort expended by participants (e.g., Maheswaran & Meyers-Levy, 1990; Steffen, Sternberg, Teegarden, & Shepherd, 1994; Wegener, Petty, & Klein, 1994; but see Hazer & Highhouse, 1997, for evidence that managers

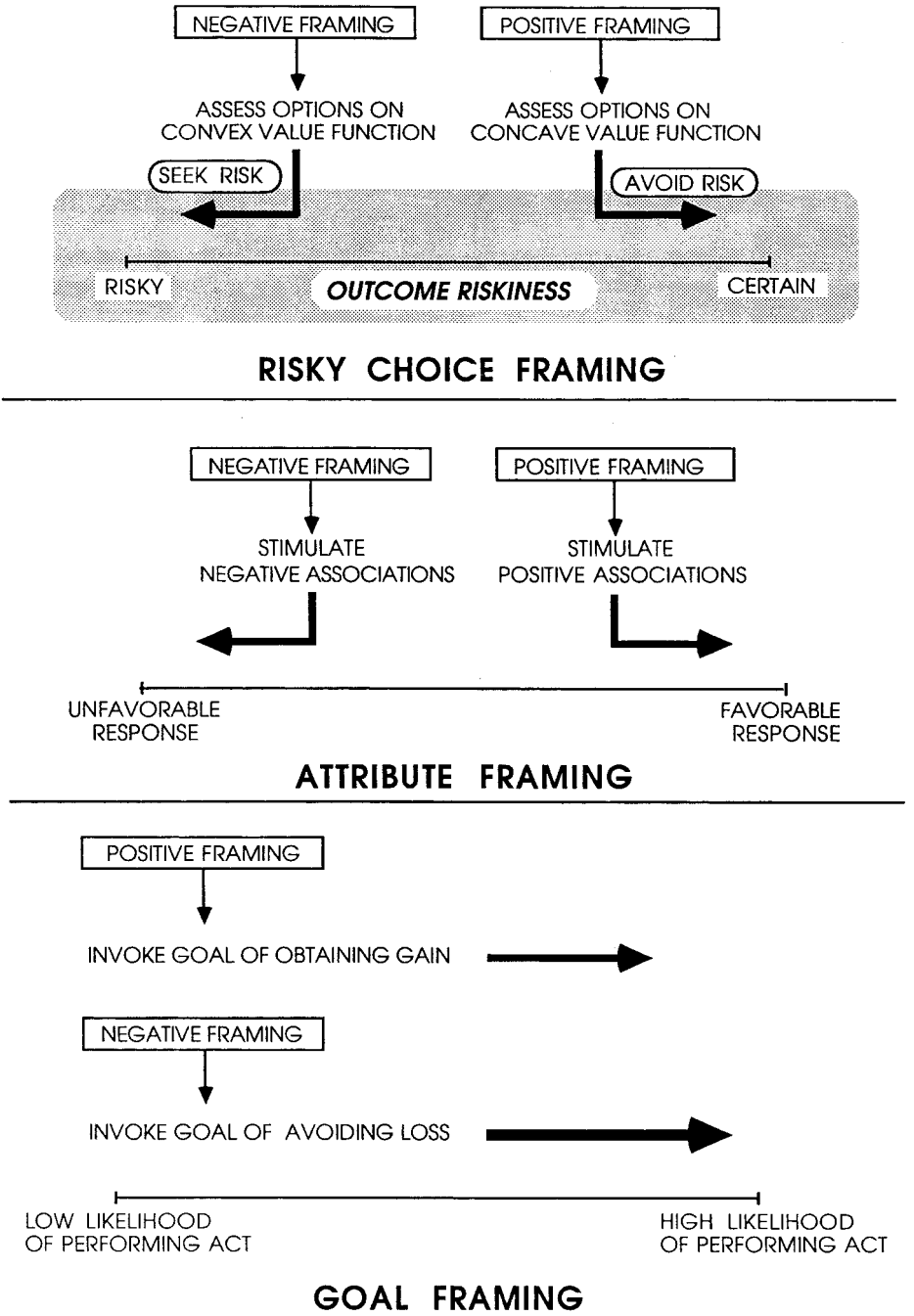

FIG. 5. Different processes in risky choice, attribute, and goal framing.

who least comprehend and utilize difficult dollar-utility estimate information were most influenced by negatively framed opportunity costs compared to positively framed monetary gains). The effect may also disappear or reverse with prevention of subjectively "low-threat" illnesses such as skin cancer (e.g., Block & Keller, 1995; Rothman, Salovey, Antone, Keough, & Martin, 1993) or

when the negative frame message interferes with maintaining an existing positive outlook (e.g., the self-esteem message of Tykocinski, Higgins, and Chaiken, 1994, or the happy mood condition of Wegener *et al.*, 1994; see also Rothman & Salovey, 1997).

Perhaps because of the greater variations in operationalizing goal framing, the evidence is less homogeneous for goal framing than for attribute framing. Clearly there is need for more systematic research in this area, once it is realized that this represents a distinct type of framing.

Explaining goal framing effects. When goal framing effects do appear, researchers typically turn to prospect theory to explain them, trying to redefine the experimental situation in terms of unstated but implicit risks that respondents are trying to seek or avoid. In interpreting findings from social dilemma paradigms, for instance, Brewer and Kramer (1986) argued that individuals settle for a smaller immediate gain rather than take a larger gain that carries the risk of a long-term loss, and, by relating choice to perceived risk, they consider their results to be consistent with the prospect theory explanation of risky choice framing. Rutte, Wilke, and Messick (1987), however, question this analysis by pointing to the difficulty of identifying the relative riskiness of the choice options in the commons dilemma and public goods problems. Without clearly specified risk levels, it is not possible to identify which action is perceived as riskier.

The problem of applying a risky choice framing explanation to goal frames is also apparent with health-related messages. Meyerowitz and Chaiken (1987), for instance, tried to explain their BSE result based on Tversky and Kahneman's (1981) prospect theory explanation of risky choice framing effects. This explanation is unsatisfactory because it rests on the questionable assumption that performing BSE is perceived as a riskier behavior than not performing BSE. Although the outcome of performing BSE is uncertain in that one may find a lump, the outcome of not performing BSE is also uncertain and is inherently more dangerous because the presence of the potentially deadly disease may not be detected until it is too late. Thus, one cannot say unequivocally that performing BSE is riskier than not performing BSE. Even if some people do feel that performing BSE is more risky than not performing BSE, there may be others who feel that the opposite is true or that it is not clear which is riskier. Hence, the assumption that either response can be deemed more or less risky than the other seems questionable, making the usual prospect theory explanation of framing effects largely inapplicable to the case of goal framing.

However, Meyerowitz and Chaiken (1987) also offered a second, more plausible explanation. They suggested that there is a negativity bias in processing information, wherein negative information has a systematically stronger impact on judgment than objectively equivalent positive information. This possibility is firmly grounded in empirical work demonstrating over a wide variety of situations that people pay greater attention to and are influenced more by negative information than by comparable positive information (for reviews, see

Fiske & Taylor, 1991; Kanouse & Hanson, 1972; Peeters & Czapinski, 1990; Taylor, 1991). A negativity bias has in fact been incorporated into prospect theory (Kahneman & Tversky, 1979) with the notion that "losses loom larger than gains." This concept has been deemed "loss aversion" and is operationalized in prospect theory as a steeper value function for losses than for gains. Nevertheless, this account is different from that suggested for risky choice framing which rested on the shape of the value functions (concave for gains, convex for losses), not their difference in slope.

Although loss aversion can occur in the presence of risk, it regularly occurs in the absence of risk. Thus, the phenomenon of loss aversion and its explanation do not rely at all on the presence of risk. Indeed, in addition to the wide variety of evidence gathered in support of what was previously termed a negativity bias, an area of study has emerged recently to document virtually the same phenomenon (or a subset) under the heading of loss aversion (e.g., Kahneman, Knetsch, & Thaler, 1990; Tversky & Kahneman, 1991). In both cases, the impact of negative information, with or without risk, has routinely been found to be stronger than the impact of positive information of the same magnitude. The concept of loss aversion has previously been recognized as an explanation of the endowment effects that we have included in our category of goal framing effects (Kahneman *et al.*, 1990; Tversky, 1994). It has also been used to explain the existence of "status quo bias." Studies of this bias have demonstrated that people are more likely to prefer an option in a choice set when that option represents the status quo (Hartman, Doane, & Wu, 1991; Samuelson & Zeckhauser, 1988). In other words, people are reluctant to trade an option they already possess to obtain a different option, presumably because gaining a comparable option does not seem worth losing the option they currently possess. In our earlier insurance example, people apparently put more value on the right to sue under any condition when they considered that they already had that right and could lose it than when they didn't have it and would have to pay extra to get it.

Goal framing effects make up an important but previously unrecognized set of examples revealing a negativity bias in valence-based processing similar to biases that have been repeatedly demonstrated across the entire spectrum of psychology. Most often, the reluctance to suffer a loss is greater than the desire to obtain a gain of the same size.

Recognizing goal framing and attribute framing as distinct categories of framing effects apart from the more familiar category of risky choice framing represents more than just a useful classification scheme. These two types of framing effects mirror fundamental properties of information processing. There is a growing realization that systematic differences exist in the way that people encode and respond to positively and negatively valenced information. Several authors (Ohman, Dimberg, & Esteves, 1989; Peeters & Czapinski, 1990; Pratto & John, 1991; Simon, 1967; Taylor, 1991), each working, for the most part, within different theoretical frameworks, have argued that such valence processing differences undoubtedly exist. In general, these authors have suggested that humans must possess some system for quickly recognizing and

responding to the valence of stimuli and events, particularly when those stimuli or events are negative.

Reducing Confusion in Comparing Framing Studies

In addition to addressing likely mechanisms behind framing effects, our typology makes it easier to understand and interpret differences in framing effects across studies. Now that we have provided descriptions of three types of valence framing, along with their differences in operationalization and in explanation, it should become apparent that the three different types of framing effects cannot and should not be treated the same. Not recognizing the distinctions leads to unwarranted comparisons that may create unnecessary confusion.

To illustrate, we return to the Marteau (1989) study in which subjects were more apt to choose surgery over no treatment when the possible outcome of surgery was described in terms of survival rate rather than mortality rate. Marteau referred to prospect theory's general notion of shifting reference points but she admitted that her study was unable to reveal how variations in framing may produce their effects (p. 93). By contrast, once it is recognized that Marteau's study is actually an example of attribute framing rather than risky choice framing, her results can be readily explained in terms of the associative model of attribute framing. Describing surgery in a positive light focuses attention on the more favorable possibilities associated with this option, rendering it more acceptable to the decision-maker than when attention is drawn to the more disagreeable possibilities associated with the option. The psychological effect of this positive/negative manipulation has nothing to do with risk; instead the frame makes the single object of the manipulation seem more or less worthwhile. The important point is that without our typology, results such as these would remain a mystery.

As another example of the problems arising from the lack of a suitable typology, consider Maheswaran and Meyers-Levy's (1990, p. 361) suggestion that, "Research exploring this issue [message framing effects] has led to *opposing* findings" (Emphasis added.) To make their case, the authors compare Levin and Gaeth's (1988) study of the rated appeal of ground beef (attribute framing) to Meyerowitz and Chaiken's (1987) study of BSE behavior (goal framing). They argue that the former results suggest that positive framing is more persuasive and the latter results suggest that negative framing is more persuasive. They then go on to "seek a theoretical explanation for such opposing findings."

Our typology provides an explanation, making it clear that the "opposing" results of Levin and Gaeth (1988) and Meyerowitz and Chaiken (1987) are due to fundamental differences in the type of framing. Specifically, the two different findings deal with two different operational definitions of framing with effects that rely on different psychological processes. One way to conceptualize these differences was shown in Fig. 5. In cases of attribute framing (e.g., Levin & Gaeth, 1988), associative and attentional processes in the negative and positive

frames "push" the subject in opposite directions. To the extent that these "pushes" are effective, responses are bound to be more favorable in the positive framing condition (e.g., 75% lean) than in the negative framing condition (25% fat). By contrast, both positive and negative goal framing (e.g., Meyerowitz & Chaiken, 1987) push subjects in the same direction—to perform the desired act (e.g., BSE). The extent of push depends on the relative persuasiveness of the two framing conditions. Due to loss aversion, negative wording that focuses on avoiding a loss may produce greater force than comparable positive wording that focuses on obtaining a gain. Becoming aware of the different types of framing effects takes attention away from artifactual differences in results and focuses it instead on these kinds of critical differences which help us to better understand when and why each type of framing will have an effect.

Kuhberger (1998) has recently come to the same conclusion based on his meta-analysis of a wide range of framing effects. In his analysis, he included studies that we have classified as attribute and goal framing in addition to studies of risky choice framing. Because of the great diversity of findings, Kuhberger came to the conclusion that qualitatively different phenomena were represented in his set. In particular, he suggested the need to differentiate reference point framing from outcome salience framing, consistent with distinctions made in our typology. Like us, Kuhberger concluded that the variety of framing phenomena cannot be understood adequately within purely formal models such as prospect theory, but require additional cognitive and motivational constructs.

Comparison to Prior Classification Schemes

As illustrated by Kuhberger's work, our valence-based information processing approach to framing effects does not represent the only attempt to discriminate different types of framing effects. Nevertheless, it provides a unique contribution to understanding framing effects. Previous researchers have also categorized framing studies in terms of their operational definitions. Tversky and Kahneman (1981; see also Slovic, Fischhoff, & Lichtenstein, 1982) distinguished between the framing of acts, the framing of contingencies, and the framing of outcomes. The first two categories deal with framing effects that we have not considered here. The framing of acts involves framing a complex decision in terms of only its combined final outcomes or in terms of its components. The framing of contingencies is similar, except that the components of the decision problem are not independent of one another (i.e., progression onto the second stage is contingent on the outcome of the first stage).

The valence framing effects that we have considered remain undifferentiated in Tversky and Kahneman's (1981) category of the "framing of outcomes." According to Tversky and Kahneman, the framing of outcomes involves variation in the psychological reference point by the labeling of outcomes such as in the Asian disease problem which falls into our category of "risky choice

framing." However, Tversky and Kahneman also include under outcome framing riskless examples such as the "endowment effect," described earlier within the category of "goal framing." Attribute framing is not considered at all within Tversky and Kahneman's scheme.

More recently, Rothman, Salovey, Antone, Keough, and Martin (1993) have differentiated "same consequences" from "different consequences" framing manipulations. In same consequences framing, positive and negative frames depict the same consequences in terms of either performing or not performing a behavior (as in Meyerowitz & Chaiken, 1987). Same consequences framing is thus a subset of our category of "goal framing" because positive and negative frames both drive behavior in the same direction. In Rothman *et al.'s* different consequences framing, a positive frame emphasizes the positive consequences of performing a behavior while a negative frame emphasizes the negative consequences of performing the same behavior. They give an example of a medical test wherein subjects are told either the probability of a favorable outcome or the probability of an unfavorable outcome. "Different consequences" framing is thus an example of our category of "attribute framing" which pushes behavior in different directions depending on the frame. Our categorization scheme is more extensive than Rothman *et al.'s* both because it includes the third category of risky choice framing and because it elaborates on and provides an in-depth treatment of the potential sources and implications of the different types of framing.

Even more recently, Rothman and Salovey (1997) provided a focused review and classification scheme specifically for framing effects in health-related decisions. A very important contribution of their paper is to point to the need to go beyond prospect theory in identifying critical factors underlying differences in framing effects across studies. Rothman and Salovey stressed the importance of individual perceptions of gain, loss, and risk based on the decision maker's prior experiences, involvement, and mood. For example, they point to the work of Levin and Chapman (1990, 1993) on decisions concerning persons with AIDS to show that attitudes toward a disease or the target population influence treatment preferences. However, their classification scheme does not address many of the apparent contradictions in the literature that we have addressed. Thus, for example, Rothman and Salovey (1997, p. 12) describe McNeil *et al.'s* (1982) results in the following terms: "*Contrary to what one might expect*, exposure to information about the likelihood of dying (loss frame) led to a decrease in preferences for surgery" [Italics added.] Because the framing manipulation calls attention to negative consequences of surgery, we consider this to be the predictable result of a valence consistent shift within the category of attribute framing.

Fagley (1993), following Kahneman and Tversky (1979), has argued for yet another distinction regarding framing effects: the difference between "pure" framing effects and "reflection" effects. Problems such as the Asian disease problem provide "pure" framing effects because the *same* outcomes are alternatively phrased *as though* they were gains or as though they were losses (saving one-third the lives or losing two-thirds). By contrast, many gambling problems

described as examples of framing do not have the same outcomes; the alternative versions are *different* gambles differing in whether the outcomes are literally gains or losses (winning $10 or losing $10). They thus do not fit our definition of valence framing. Fagley refers to changes in risky behavior in these cases as "reflection" effects. We agree with the need for this distinction and believe that even finer distinctions (e.g., as in our typology) must be clarified within the category of "pure" framing effects in order to develop satisfactory theoretical accounts.

CONCLUSIONS AND RESEARCH IMPLICATIONS

To summarize our typology, we identified three different types of framing based on a priori distinctions between different sets of operational definitions. Recall that distinctions between framing types were made in Table 1 based on: (1) what is framed, (2) what is affected, and (3) how the framing effect is measured. All of these distinctions are likely to influence framing effects. In risky choice framing, the complete set of options differing in risk level is framed either positively or negatively, and the effect on risk preference is assessed by comparing the frequency of choice of the risky option in each framing condition. In attribute framing, a single attribute of an object or event is framed (labeled) positively or negatively, and the effect on item evaluation is assessed by comparing attractiveness ratings for the object or event in each framing condition. In goal framing, the consequences of a particular behavior are specified in either positive or negative terms, and the impact of alternative framing in persuading the decision maker to engage (or not engage) in that behavior is assessed by comparing the rate of adoption of the behavior in the two framing conditions.

Within each framing type, results show substantial consistency. In risky choice framing, a choice shift (but not necessarily a reversal) typically occurs such that positive frames generally enhance risk averse responding relative to negative frames. In attribute framing, attributes are judged more favorably when labeled in positive terms rather than negative terms. And in goal framing, a negatively framed message emphasizing losses tends to have a greater impact on a given behavior than a comparable positively framed message emphasizing gains.

In addition to broadening our understanding, the identification of differences in valence framing effects across categories and commonalities within categories has important pragmatic implications for both researchers and practitioners. Consider, for example, the finding that level of involvement interacts with frame in goal framing (Maheswaran & Meyers-Levy, 1990; Rothman *et al.*, 1993). If, as we speculate, responses to social dilemmas are governed by the same processes proposed to underlie other goal framing effects, then involvement would be a natural mediating factor to investigate in future studies of social dilemmas.

Another example involves the relationship between goal framing and regret. There have been several demonstrations that short-term feelings of regret are typically stronger when a bad outcome is seen as the result of *performing an*

action rather than as the result of *not performing an action* (e.g., Kahneman & Tversky, 1982; Landman, 1987; cf., Gilovich & Medvec, 1994). The findings regarding regret can be generalized to goal framing; the negative frame may be especially persuasive when actions are undesirable (e.g., smoking) because the greatest perceived regret should be associated with suffering a loss as the result of performing the undesirable action.

More generally, the creators and presenters of persuasive communications must consider not only the emotional appeal of their overriding message, but also the manner in which specific attribute information is framed. Likewise, those conducting research in the area of framing can use our typology to critically evaluate what form of framing they are using and then what mechanisms might reasonably explain the effect of this framing. In all cases, those involved in creating frames need to recognize humans' susceptibility to changing reference points (e.g., Tversky & Kahneman, 1991) and particularly to the influence of changes in the perceived status quo (e.g., Schneider, 1992). Researchers should recognize that framing provides a context that has both cognitive and motivational consequences in that it can determine what is encoded as positive and what is encoded as negative.

Our typology elucidates the complexity of framing effects, but it simultaneously helps organize and interpret prior research, prevents unnecessary digressions to explain "contradictory" findings, and provides operational definitions for better-focused research in the framing stream. The most important contribution of our typology may be in the area of theory development. The discovery of the distinguishing features of different types of framing effects introduces constraints on the theoretical explanations that will provide satisfactory accounts of framing effects. In particular, we have argued that virtually all valence-based framing effects can be differentiated and understood based on the degree to which they invoke (a) valence-based associative processes, (b) loss aversion, and (c) shifting reference points. We believe our valence-based account of framing effects provides an explanation at a level that is both functional and generalizable to other contexts. It may help us to understand more than just phenomena related to framing and, at the same time, encourage us to think about the broad-based underlying motivations that guide our day-to-day behavior.

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