

FRAMING EFFECTS

A “framing effect” is usually said to occur when *equivalent descriptions of a decision problem lead to systematically different decisions*. Framing has been a major topic of research in the psychology of judgment and decision making and is widely viewed as carrying significant implications for the “Rationality Debate” (e.g., Shafir and LeBoeuf 2002). Framing effects are commonly taken as evidence for incoherence in human decision making, and for the empirical inapplicability of the rational actor models used by economists and other social scientists. The first part of this entry presents a brief review of the empirical phenomena; the second part describes the standard normative interpretation of these empirical effects. Though the literature has not typically focused on the structure of human conversational environments, framing effects involve utterances selected by a “speaker” for a “listener”. A final section considers the possible implications of communicative factors for a normative and descriptive understanding of framing effects.

Empirical Review

In this section, we follow Levin, Schneider, and Gaeth’s (1998) taxonomy of framing effects into three categories: attribute framing, risky choice framing, and goal framing.

In *attribute framing*, a single attribute of a single object is described in terms of either a positively valenced proportion or an equivalent negatively valenced proportion.

The subject is then required to provide some evaluation of the object thus described. The typical finding is a *valence-consistent shift* (Levin et al., 1998): Objects described in terms of a positively valenced proportion are generally evaluated more favorably than objects described in terms of the corresponding negatively valenced proportion. For example, in one study, beef described as “75% lean” was given higher ratings than beef described as “25% fat” (Levin and Gaeth 1988); similarly, research and development (R&D) teams are allocated more funds when their performance rates are framed in terms of successes rather than failures (Duchon et al., 1989). The valence-consistent shift in attribute framing is a robust effect, observed in a large range of experimental environments, with obvious implications for marketing and persuasion.

In *risky choice framing*, subjects are presented with two options in a forced-choice task. The two options are typically gambles which can be described in terms of proportions and probabilities of gains or losses. Usually, one of these options is a *sure thing* (in which an intermediate outcome is specified as certain), while the other is a *risky gamble* (in which extreme good and bad values are both assigned non-zero probabilities). The gamble and sure thing are both described either in terms of gain outcomes and probabilities or else in terms of equivalent loss outcomes and probabilities. The two options are usually equated in expected value (i.e., the mean outcome expected over many repeated trials), enabling the framing researcher to interpret observed patterns of preference in terms of subjects’ risk attitudes. Within this rubric, preferences for the sure thing indicate *risk aversion* and preferences for the gamble indicate *risk seeking*. The best-known risky choice framing problem is the so-called “Asian Disease Problem” (Tversky and Kahneman 1981). In it, subjects first read the following background blurb:

Imagine that the U.S. is preparing for the outbreak of an unusual Asian disease, which is expected to kill 600 people. One possible program to combat the disease has been proposed. Assume that the exact scientific estimate of the consequences of this program is as follows:

Some subjects are then presented with options A and B:

A: If this program is adopted, 200 people will be saved.

B: If this program is adopted, there is a one-third probability that 600 people will be saved and a two-thirds probability that no people will be saved.

Other subjects are presented with options C and D:

C: If this program is adopted, 400 people will die.

D: If this program is adopted, there is a one-third probability that nobody will die and a two-thirds probability that 600 people will die.

The robust experimental finding is that subjects tend to prefer the sure thing when given options A and B, but tend to prefer the gamble when given options C and D. Note, however, that options A and C are equivalent, as are options B and D. Subjects thus appear to be risk-averse for gains and risk-seeking for losses, a central tenet of prospect theory (Kahneman and Tversky 1979). In prospect theory, it is the decision maker's private framing of the problem in terms of gains or losses that determines her evaluation of the options; the framing manipulation is thus viewed as a public tool for influencing this private frame.

In *goal framing*, subjects are urged to engage in some activity (e.g., wearing seatbelts). This plea involves a description of either the *advantages* of participating in the activity or the corresponding *disadvantages* of *not* participating. The most common result is that subjects are more likely to engage in the activity when the disadvantages of not engaging, rather than the advantages of engaging, are emphasized (Levin et al. 1998).

Normative Analysis

Risky choice framing effects have been put forward as *positive* evidence for prospect theory (Kahneman and Tversky 1979), a theory of choice which aims to be both formally tractable and cognitively realistic. However, the focus in the framing literature has largely been on the *negative* evidence which framing effects allegedly raise against classical expected utility theory and other so-called “rational actor models”. The literature on attribute framing, in particular, is concerned almost exclusively with the normative and practical implications of the empirical effects. “Framing effects,” Kahneman has noted, “are less significant for their contribution to psychology than for their importance in the real world...and for the challenge they raise to the foundations of a rational model of decision making.” (2000, xv) This raises the important questions: Are framing effects always counter-normative? And if so, what norm or norms do they violate?

In an important paper, Tversky and Kahneman (1986) argued that framing effects violate a bedrock normative condition of *description invariance* – “[a]n essential condition for a theory of choice that claims normative status...so basic that it is tacitly assumed in the characterization of options rather than explicitly stated as a testable axiom” (S253). Any theory of rational choice, they argued, must stipulate that the same problem will be evaluated in the same way, regardless of how the problem is described – thus equivalent descriptions should lead to identical decisions. Expected utility theory, for example, satisfies this principle: it evaluates choice options strictly as a function of probability and outcome, with no specification of probability-outcome framing. This reducibility of decision problems to a canonical form is clearly a theoretical convenience;

the principle of description invariance states that it is also a normative requirement. Because the framing phenomena observed both in the laboratory and in real-world situations violate the description invariance principle, these effects are taken to imply that “no theory of choice can be both normatively adequate and descriptively accurate.” (Tversky and Kahneman 1986, S251)

Framing, Communication, and Rational Norms

Though framing effects are mainly investigated in relation to normative choice models, such effects are clearly bound up with human language, and closely related phenomena have been investigated by language scholars. For example, *MARKEDNESS* theorists have documented subtly different information conveyed by opposing polar adjectives. The school of *COGNITIVE LINGUISTICS* has drawn on a more general notion of frame in its treatment of fundamental issues in *SEMANTICS* (see *FRAME SEMANTICS*). “Framing”, in the broad sense, enters crucially into many processes of *COMMUNICATION*, and can only be fully understood in the context of those processes.

Experimental framing effects involve utterances selected by “speakers” for “listeners”, but the standard normative analysis, described above, applies to listener effects without any consideration of associated speaker phenomena (i.e., regularities in how speakers choose frames in typical linguistic environments). Researchers have tended to interpret the experimental effects as if the experimenter had somehow surgically implanted a framing of the decision problem into the subject’s brain. However, because linguistic utterances are employed, regularities in speaker behavior may be relevant to the normative and descriptive understanding of listener behavior: If

speakers tend to choose different frames as a function of background conditions, then listeners may reasonably draw inferences from the speaker's choice of frame. If knowledge of these background conditions is relevant to the listener's choice, then the frames, while logically equivalent, would not be *information equivalent*. Sher and McKenzie (2006; cf. McKenzie and Nelson 2003) argued that the frames studied in the attribute framing literature are commonly information non-equivalent, because speakers tend to frame options in terms of attributes that are relatively salient. For example, a generally impressive R&D team is more likely to be described in terms of its "success" rate than a generally incompetent team with the same success/failure rate. A positive frame thus highlights the salience of the positive attribute in the speaker's conception of the option – information relevant to its evaluation.

Experiments convey information to subjects in framed statements, and researchers have generally assumed that the only information content is *logical* information content. The *framing* of the logical content is assumed not to convey information, but simply to influence the listener's construal of the logical content. In this way, the usual normative analysis of framing experiments leans on an implicit assumption of the information equivalence of logically equivalent frames. However, while the logical equivalence of a pair of frames can usually be determined on inspection (though see Jou et al. 1996), a determination of information equivalence requires empirical study of the human communicative environments in which speakers typically frame objects and options. At least in the domain of attribute framing, logical equivalence does not imply information equivalence. Whether the study of communicative environments will have similar implications for traditional normative conclusions drawn in risky choice and goal framing

is an open question. There also remain important questions about how, and how flexibly, listeners use subtle information which is in principle available in particular framing experiments. However, an analysis of speaker regularities in human communicative environments is likely to be of some significance in any research area in which information presented to experimental subjects is evaluated against a normative standard of information equivalence (cf. Hilton 1995; McKenzie 2004; Sher and McKenzie, forthcoming; Schwarz 1996).

– Shlomi Sher and Craig R. M. McKenzie

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