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Framing Effects, Default Effects, and Trust

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The study of decision making has given rise to entire volumes filled with errors that people purportedly make (e.g., Gilovich, Griffin, & Kahneman, 2002; Kahneman & Tversky, 2000). Many of these errors involve apparent inconsistency of preferences. For example, it is widely held that decisions should not be influenced by different, but formally equivalent, descriptions of the available options (Tversky & Kahneman, 1986; Shafir & Le Boeuf, 2002). This rational principle of "description invariance" is routinely violated in laboratory experiments, such as when a medical treatment is viewed more favorably when it is described as leading to "90% survival" rather than "10% mortality" (Levin, Schnittjer, & Thee, 1988; Marteau, 1989; Wilson, Kaplan, & Schneiderman, 1987). When different behavior results from descriptions that ostensibly convey the same information, a "framing effect" is said to occur.

Closely related to framing effects are default effects. In some choice situations, one option needs to be imposed if the decision maker fails to make a choice. For example, in the US, a person is not considered an organ donor unless he or she actively chooses to be a donor. In some countries, though, the opposite is true: A person is assumed to be an organ donor unless he or she actively chooses not to be. People tend not to switch from the default, so default effects can be quite large, even in important situations, such as when people are deciding whether to be an organ donor (Johnson & Goldstein, 2003) or to participate in a retirement plan (Madrian & Shea, 2001).

Despite the apparent ubiquity of decision errors, several researchers have interpreted many purported errors in rational terms (e.g., Anderson, 1990; Gigerenzer et al., 1999; McKenzie, 2005; Oaksford & Chater, 2007). One fruitful rational approach to explaining decision behavior in the laboratory is the conversational pragmatics approach, introduced by Grice in 1975 (e.g., Hilton, 1995; Schwarz, 1996; Sperber & Wilson, 1995). The area of pragmatics (a subfield of linguistics) is concerned not with what is said per se, but with what is *meant*, which involves considerations of context and speaker intent. Clark and Schober (1992) note that it is a "common misperception that language use has to do with words and what they mean. It doesn't. It has primarily to do with people and what they mean. It is essentially about speakers' intentions" (p. 15).

If Frank asks, "Where is Bill?", and Joe responds with "There's a yellow VW outside Sue's home", we would likely infer that Bill owns a yellow VW and conclude that Bill is at Sue's house (Levinson, 1983). This is what Joe means, but it is very different from what he said. In order to understand Joe's intended meaning by drawing the necessary inferences, we assume that he is *cooperative*, that is, truthful, informative, relevant, and clear (Grice, 1975). The cooperative principle makes everyday conversation possible.

Importantly, these same processes are at work when participants in experiments are presented with verbal stimuli (Hilton, 1995; Schwarz, 1996). For example, a well-known finding is that asking leading questions influences subsequent recall. Loftus (1975) presented participants with a brief film clip and then asked some of them about events that did not occur, such as "Did you see the children getting on the school bus?" A week later, these participants were more likely to (incorrectly) report having seen a school bus in the clip. One interpretation of these findings is that participants assume the experimenter is being cooperative, and that his or her questions are cues to veridical, but possibly overlooked, events or features from the clip. Asking whether someone saw something that the questioner knows was not there violates the maxim of relevance, a maxim that listeners assume by default. However, when the source of a leading question regarding an observed car accident was the defense lawyer, or the defendant himself, the biasing effect of the leading question disappeared (Dodd & Bradshaw, 1980). That

is, when participants had good reason to think the cooperative principle might be violated, they were no longer led astray by the leading question.

The pragmatic approach is social in the sense that conversational rules are widely shared, and the source of any utterance is another social entity, whose intentions must be understood in order for the utterance to be understood. In this article, we argue that framing and default effects can be rational, provided that the source of the frame or default is a cooperative communicator. Consistent with this viewpoint, we report evidence that when participants have reason to suspect that the cooperative principle is not applicable, because the source is biased or the context evokes a general lack of trust, framing effects are significantly reduced and default effects are eliminated or even reversed. Viewing these classic effects as social phenomena, rather than as purely intrapersonal cognitive phenomena, allows for a more complete understanding of their nature.

Framing Effects

The earlier example, in which participants more favorably evaluate a medical treatment described as leading to "90% survival" rather than "10% mortality", illustrates an *attribute framing effect* (Levin, Schneider, & Gaeth, 1998). Attribute framing occurs when an object or outcome is described along a single dimension in one of two logically equivalent ways. To take another example, ground beef is considered better tasting, more expensive, less greasy, and of higher quality when it is described as "75% lean" rather than "25% fat" (Levin, 1987; Levin & Gaeth, 1988). In attribute framing, one frame is usually positive (e.g., "survival", "lean") and the other negative ("mortality", "fat"), and the positive frame leads to more favorable evaluations. This robust phenomenon is referred to as a "valence-consistent shift" (Levin et al., 1998; see also Duchon, Dunegan, & Barton, 1989; Sanford, Fay, Stewart & Moxey, 2002).

On the surface, participants are responding inconsistently to equivalent descriptions of the beef and hence are behaving irrationally. However, there is a rational, conversational account of attribute framing effects. It has been shown that speakers often choose attribute frames in systematic ways, thereby conveying ("leaking") information (McKenzie & Nelson, 2003; Sher & McKenzie, 2006). In particular, speakers tend to frame descriptions in terms of attributes that are relatively abundant. For example, participants are more likely to describe new ground beef on the market as "75% lean" (rather than "25% fat") if it is leaner, rather than fattier, than most other ground beef (McKenzie & Sher, submitted, Experiment 1). To take a perhaps more intuitive example, people are more likely to describe a 4-oz cup with liquid at the 2-oz line as "half empty" (rather than "half full") if the cup started out full than if it started out empty. In this case, the cup is relatively empty, and the selected frame signals this. More generally, speakers tend to employ positive frames in describing options they perceive favorably. For example, participants were more likely to describe an R&D team in terms of its "success" (rather than "failure") rate when that team was holistically more impressive (Sher & McKenzie, 2006). In this way, a speaker's choice of frame may convey an "implicit recommendation" about the attractiveness of an option.

Thus, although the frames in question -- "half empty" vs. "half full", "75% lean" vs. "25% fat" -- are logically equivalent, they are not information equivalent (Sher & McKenzie, 2006): Choice-relevant inferences can be made by the listener based on the speaker's choice of frame. Ground beef described in terms of how lean it is will generally be leaner than most ground beef, and will therefore be less greasy, more expensive, and of higher quality. Medical treatments described in terms of how many people survive will generally be more efficacious, and so on.

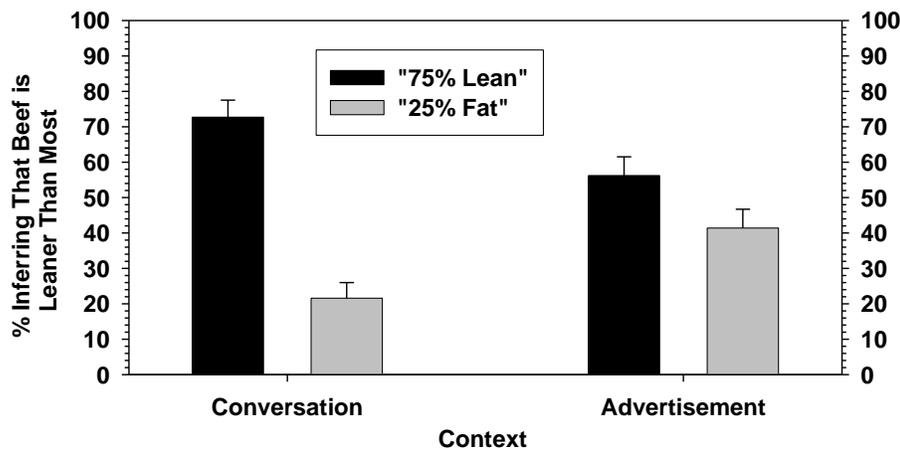
Thus, responding "inconsistently" to the different frames is not necessarily irrational. Indeed, when a speaker's choice of frame conveys choice-relevant information, ignoring the information would be irrational.

Furthermore, "listeners" in experiments make the predicted inferences based on the "speaker's" choice of frame. For example, listeners are more likely to infer that beef is relatively lean when it is described by a knowledgeable friend as "75% lean" rather than "25% fat" (McKenzie & Sher, submitted, Experiment 2; see also McKenzie & Nelson, 2003; Sher & McKenzie, 2006). In short, a speaker's choice of frame can leak choice-relevant information, which is then absorbed by listeners. This provides a rational account of attribute framing effects, which are classic examples of "inconsistent" decision behavior (see also McKenzie, 2004; Sher & McKenzie, 2008, 2010).

In typical conversational situations, a speaker's choice of frame is a useful cue to the perceived attractiveness of options and the relative abundance of attributes. The evidence outlined above suggests that listeners are appropriately sensitive to these pragmatic cues. However, when the speaker has an agenda, a frame may be selected in order to persuade rather than inform the listener. A conversational pragmatics approach to framing effects predicts that listeners should infer less from the speaker's choice of frame, and thus exhibit reduced framing effects, when there is reason to doubt the cooperativeness of the speaker. As mentioned above, there is strong evidence indicating that participants assume cooperativeness in experiments unless there is good reason to assume otherwise, in which case they stop making the usual inferences invited by typical conversational context.

McKenzie and Sher (submitted, Experiment 3) tested this prediction by comparing the effects of frames selected by friends and advertisers. In a paper-and-pencil study, they manipulated both whether ground beef was described as "75% lean" or "25% fat", and whether it was described by a knowledgeable friend or in a radio advertisement. From the conversational perspective, attributes of the speaker matter, and it is known that consumers tend to discount information provided by marketers, who clearly aim to persuade consumers (Campbell & Kirmani, 2000; Friestad & Wright, 1994). In particular, advertisers are less likely to follow the cooperative principle and will be more likely to select the frame that makes the product sound more appealing ("75% lean", in this case).

The main results are displayed in the figure below, which shows the percentage of listeners (UC San Diego undergraduate students) inferring that the ground beef is leaner than most other ground beef. The left half of the graph shows the results for participants who were told that the source of the frame was a knowledgeable friend (the "conversational" context). These participants were much more likely to infer that the beef was relatively lean when it was described as "75% lean" than when it was described as "25% fat". However, when the source of the frame was an announcer in an ad for the beef, the effect was diminished (right side; standard error bars are shown). Although the effect of frame was significant in both contexts, it was significantly smaller when participants knew the speaker had a persuasive agenda and was therefore less likely to be cooperative.



Default Effects

In the context of choice, a default is the option that will be implemented for people if they take no action. Defaults have a powerful effect on behavior. Madrian and Shea (2001) found that for one Fortune 500 company, automatically enrolling employees in a retirement plan (rather than requiring them to opt-in) increased participation by nearly 50 percentage points. Such default effects are common, influencing behavior in a variety of domains including organ donation (Johnson & Goldstein, 2003), consumer insurance (Johnson et al., 1993), and internet privacy (Johnson, Bellman, & Lohse, 2002).

Researchers have suggested that default effects may arise from at least three causes (Johnson & Goldstein, 2003). First, loss aversion assumes that people view the default as the status quo. People are averse to losses (Tversky & Kahneman, 1991) and giving up the default option may be seen as a loss, making people more likely to stay with the default. However, there is no direct evidence for this account of default effects. Second, opting-in or -out requires some effort (cognitive or transaction costs), making it more likely that people will adhere to the default, which requires no effort (Samuelson & Zeckhauser, 1988; Baron & Ritov, 1994). While effort undoubtedly contributes to real-world default effects, Johnson and Goldstein (2003) found large default effects in a laboratory task even when effort was held constant, indicating that effort is not the whole story. Finally, there is a pragmatic model of default effects: The default might provide a signal to decision makers as to which option the policymaker thinks is best.

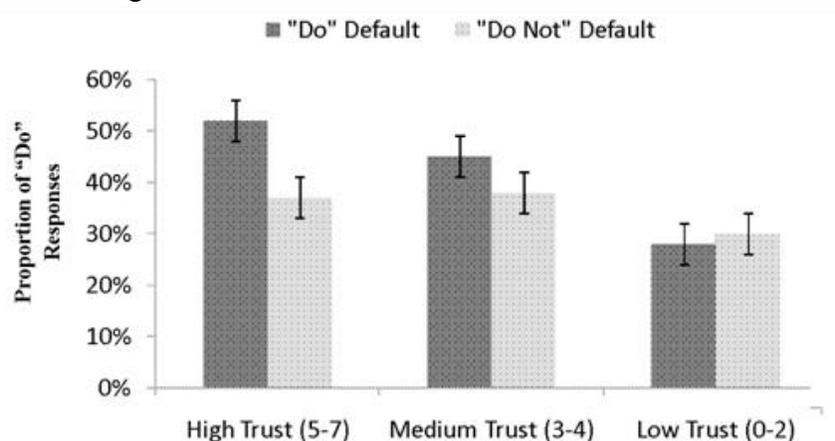
McKenzie et al. (2006) provided evidence for the third account, namely, that defaults are implicit recommendations. Much as a speaker's choice of frame provides information about the speaker's perceptions and preferences, so too can a policymaker's choice of default. In one experiment that examined organ donation, some participants were told that policymakers had chosen the default to be "organ donor", while other participants were told that policymakers had chosen the default to be "not an organ donor". Participants in the "donor" group were more likely to infer that policymakers thought that people should be donors (and that the policymakers were donors themselves). In other words, policymakers' selected default was seen by participants as the recommended course of action. Consistent with these inferences, in another experiment, participants playing the role of policymakers were more likely to select the "organ

donor” (rather than “not an organ donor”) default if they thought others should be organ donors (and if the participants were willing to be donors themselves).

As with attribute framing effects, however, principles of conversational pragmatics predict that default effects will be largest when decision makers (listeners) believe that policymakers (speakers) are being cooperative. Furthermore, policymakers will be assumed to be cooperative, unless there is reason to believe otherwise. If defaults act as implicit advice, then as trust in the source of the default (e.g., the policymaker) decreases, so will default effects, because people will be more likely to ignore or even reject that advice (just as with explicit advice). This prediction is unique to a social, conversational perspective on default effects.

Liersch and McKenzie (submitted, Experiment 1) examined this prediction in the area of internet privacy. Participants were asked to imagine that a new company – ImaginationCo – was attempting to reach new customers by partnering with an established company that owned a large consumer database (which was said to include the participant's personal information). They were told that the established company sent its customers a survey asking for decisions about their potential relationship with ImaginationCo. Between participants, a variety of industries (e.g., retail, media) and companies (e.g., Wal-Mart, Wall Street Journal) were used as the established company to ensure a range of reported trust in the established company (which was elicited at the end of the experiment). The questions included four choices about whether to receive information from ImaginationCo (e.g., "Send me product updates") and three choices about whether to provide personal information to ImaginationCo (e.g., "Please share my demographic information with ImaginationCo"). For all questions, response boxes were pre-checked, but questions were either positively framed or negatively framed. For the positively framed questions, if participants did nothing, they agreed to receive or give information (“do” default). For the negatively framed questions, if participants did nothing, they did not agree to receive or give information (“do not” default). To choose a course of action other than the default option, participants needed to “uncheck” the boxes. It was predicted that there would be smaller default effects for privacy options associated with the new company when trust in the established company was low, rather than high.

The results are shown below for the percentage of questions (out of 7) for which participants reported a willingness to give information to, or receive information from, the new company. When participants reported high trust in the established company (5, 6, or 7 on the 7-point scale), there was a relatively large default effect, followed by a smaller effect at medium levels, and no default effect at low levels of trust. As trust in the established company decreased, so did participants’ willingness to adhere to the default.



The figure also reveals a notable asymmetry: Trust for the “do” default appears largely responsible for the interaction. Lower trust is associated with less willingness to stay with the “do” default, while the “do not” default remains relatively flat, regardless of trust levels. This is consistent with findings from McKenzie et al. (2006), who showed that “do”, rather than “do not”, defaults were more likely to be seen by participants as an implicit recommendation for a particular course of action. Finally, when looking at the results separately for questions regarding giving vs. receiving information, there was a default effect for only the "receive-information" questions. Participants largely ignored defaults when asked to give personal information to ImaginationCo, possibly due to general skepticism of marketers (Brown & Krishna, 2004) and an awareness that companies sometimes have difficulty keeping their data secure.

The above results were correlational: Participants reported their level of trust in the established company. In a second experiment, Liersch and McKenzie (submitted) randomly assigned participants to one of two groups. In the “deception” group, participants were first deceived in an ostensibly unrelated study, and then debriefed about the deception before filling out a survey involving defaults, similar to that employed in the previous experiment. The "no deception" group also participated in an ostensibly unrelated study, but they were not debriefed about any deception. Only the former group was expected to feel distrustful, having been informed of a recent experimental deception. This methodology can establish the existence of a causal connection between trust and default effects; furthermore, random assignment disentangles trust from general liking of the established company in the scenario. Because the deception participants were expected to be less trusting, they were expected to exhibit reduced default effects relative to those in the no-deception group.

As in the previous experiment, for the give-information questions, there was no significant default effect (and there was no difference between the deception and no deception groups). However, for the receive-information questions, there was the standard default effect for the no deception group and a *reversed* default effect for the deception group. The latter participants tended to reject the default regardless of whether the default was "receive" or "don't receive" information. These participants are not only failing to heed the implicit recommendation, they are doing the opposite of the recommendation. This makes sense in situations in which listener and speaker goals are expected to be at odds with each other, and the speaker is not trusted.

Taken together, the results of Liersch and McKenzie (submitted) are consistent with a conversational account of default effects. Listeners (decision makers) generally assume that speakers (policymakers) are being cooperative, or openly signaling their preferred course of action via their choice of default, and listeners are relatively likely to accept the default. However, when listeners do not feel trusting, due to mistrust of either the source of the default or the general situation, they are less likely accept the default; they may even reject the default and reverse the usual effect.

Conclusion

The psychology experiment is a social context, in which one social actor (the researcher) provides information to another social actor (the participant). In interpreting the experimental information, the participant is likely to employ the same principles of pragmatic interpretation he

or she routinely relies on in related social settings (Hilton, 1995; Schwarz, 1996). Viewed through the lens of conversational pragmatics, some apparent violations of rational choice theory – attribute framing effects and default effects – emerge as socially adaptive responses to ecologically valid cues: Logically equivalent attribute frames are not information equivalent in normal conversational environments (Sher & McKenzie, 2006), and policymakers' choice of a default option may convey an implicit recommendation about the appropriate course of action (McKenzie et al., 2006).

From the normative viewpoint of conversational pragmatics, however, the speaker's choice of description is only informative insofar as the speaker is cooperative – that is, only insofar as his/her utterances are understood to be truthful, informative, relevant, and clear (Grice, 1975). If participants in decision making experiments are flexibly applying intuitive principles of conversational pragmatics, then generically relevant cues in the experimental environment should be discounted, and their effects diminished, when the cooperative principle fails. In line with this prediction, the evidence summarized above suggests that default and attribute framing effects are attenuated both when speakers are partisan and when trust is low. These findings illustrate the relevance of social cues and conversational pragmatics to research areas seemingly remote from social psychology and the study of language. In psychology experiments, as in other social contexts, what is meant is as important as what is said, but only when listeners assume that speakers mean to inform them.

References

- Anderson, J. R. (1990). *The adaptive character of thought*. Hillsdale, NJ: Lawrence Erlbaum Associates.
- Baron, J. & Ritov, I. (1994). Reference points and omission bias. *Organizational Behavior and Human Decision Processes*, 59, 475-498.
- Brown, C.L. & Krishna, A. (2004). The skeptical shopper: A metacognitive account for the effects of default options on choice. *Journal of Consumer Research*, 31, 529-539.
- Campbell, M. C., & Kirmani, A. (2000). Consumers' use of persuasion knowledge: The effects of accessibility and cognitive capacity on perceptions of an influence agent. *Journal of Consumer Research*, 27, 69-83.
- Clark, H. H., & Schober, M. F. (1992). Asking questions and influencing answers. In J. M. Tanur (Ed.), *Questions about questions* (pp. 15-48). New York: Russell Sage.
- Dodd, D. H., & Bradshaw, J. M. (1980). Leading questions and memory: Pragmatic constraints. *Journal of Verbal Learning and Verbal Behavior*, 19, 695-704.
- Duchon, D., Dunegan, K. J., & Barton, S. L. (1989). Framing the problem and making decisions: The facts are not enough. *IEEE Transactions on Engineering Management*, February, 25-27.
- Friestad, M., & Wright, P. (1994). The persuasion knowledge model: How people cope with persuasion attempts. *Journal of Consumer Research*, 21, 1-31.
- Gigerenzer, G., Todd, P. M., & The ABC Research Group (1999). *Simple heuristics that make us smart*. New York: Oxford University Press.
- Gilovich, T., Griffin, D., & Kahneman, D. (2002). *Heuristics and biases: The psychology of intuitive judgment*. Cambridge: Cambridge University Press.
- Grice, H. P. (1975). Logic and conversation. In P. Cole & J. L. Morgan (Eds.), *Syntax and semantics 3: Speech acts* (pp. 41-48). New York: Academic Press.

- Hilton, D. J. (1995). The social context of reasoning: Conversational inference and rational judgment. *Psychological Bulletin*, *118*, 248-271.
- Johnson, E.J., Bellman, S., & Lohse, G.L. (2002). Defaults, framing, and privacy: Why opting in \neq opting out. *Marketing Letters*, *13*, 5-15.
- Johnson, E.J. & Goldstein, D.G. (2003). Do defaults save lives? *Science*, *302*, 1338-1339.
- Johnson, E.J., Hershey, J., Meszaros, J., Kunreuther, H. (1993). Framing, probability distortions, and insurance decisions. *Journal of Risk and Uncertainty*, *7*, 35-51.
- Kahneman, D., & Tversky, A. (2000). *Choices, values, and frames*. Cambridge: Cambridge University Press.
- Levin, I. P. (1987). Associative effects of information framing. *Bulletin of the Psychonomic Society*, *25*, 85-86.
- Levin, I. P., & Gaeth, G. J. (1988). How consumers are affected by the framing of attribute information before and after consuming the product. *Journal of Consumer Research*, *15*, 374-378.
- Levin, I. P., Schneider, S. L., & Gaeth, G. J. (1998). All frames are not created equal: A typology and critical analysis of framing effects. *Organizational Behavior and Human Decision Processes*, *76*, 149-188.
- Levin, I. P., Schnittjer, S. K., & Thee, S. L. (1988). Information framing effects in social and personal decisions. *Journal of Experimental Social Psychology*, *24*, 520-529.
- Levinson, S. C. (1983). *Pragmatics*. Cambridge, UK: Cambridge University Press.
- Liersch, M. J., & McKenzie, C. R. M. (submitted). *In defaults we trust*.
- Loftus, E. F. (1975). Leading questions and the eyewitness report. *Cognitive Psychology*, *7*, 560-572.
- Madrian, B.C. & Shea, D.F. (2001). The power of suggestion: Inertia in 401(k) participation and savings behavior. *Quarterly Journal of Economics*, *116*, 1149-1187.
- Marteau, T. M. (1989). Framing of information: Its influence upon decisions of doctors and patients. *British Journal of Social Psychology*, *28*, 89-94.
- McKenzie, C. R. M. (2004). Framing effects in inference tasks -- and why they are normatively defensible. *Memory and Cognition*, *32*, 874-885.
- McKenzie, C. R. M. (2005). Judgment and decision making. In K. Lamberts & R. L. Goldstone (Eds.), *Handbook of cognition* (pp. 321-338). London: Sage.
- McKenzie, C. R. M., Liersch, M. J., & Finkelstein, S. R. (2006). Recommendations implicit in policy defaults. *Psychological Science*, *17*, 414-420.
- McKenzie, C. R. M., & Nelson, J. D. (2003). What a speaker's choice of frame reveals: Reference points, frame selection, and framing effects. *Psychonomic Bulletin and Review*, *10*, 596-602.
- McKenzie, C. R. M., & Sher, S. (submitted). *Product attribute framing and information leakage*.
- Oaksford, M., & Chater, N. (2007). *Bayesian rationality: The probabilistic approach to human reasoning*. Oxford: Oxford University Press.
- Samuelson, W. & Zeckhauser, R. (1988). Status quo bias in decision-making. *Journal of Risk and Uncertainty*, *1*, 7-59.
- Sanford, A. J., Fay, N., Stewart, A., & Moxey, L. (2002). Perspective in statements of quantity, with implications for consumer psychology. *Psychological Science*, *13*, 130-134.
- Schwarz, N. (1996). *Cognition and communication: Judgmental biases, research methods, and the logic of conversation*. Mahwah, NJ: Erlbaum.

- Shafir, E., & LeBoeuf, R. A. (2002). Rationality. *Annual Review of Psychology*, 53, 491-517.
- Sher, S., & McKenzie, C. R. M. (2006). Information leakage from logically equivalent frames. *Cognition*, 101, 467-494.
- Sher, S., & McKenzie, C. R. M. (2008). Framing effects and rationality. In N. Chater & M. Oaksford & (Eds.), *The probabilistic mind: Prospects for Bayesian cognitive science* (pp. 79-96). Oxford: Oxford University Press.
- Sher, S., & McKenzie, C. R. M. (2010). Levels of information: A framing hierarchy. In G. Keren (Ed.), *Perspectives on framing*. Psychology Press - Taylor & Francis Group.
- Sperber, D., & Wilson, D. (1995). *Relevance: Communication and cognition*. Cambridge: Blackwell.
- Tversky, A., & Kahneman, D. (1986). Rational choice and the framing of decisions. *Journal of Business*, 59, S251-S278.
- Tversky, A., & Kahneman, D. (1991). Loss aversion in riskless choice: A reference-dependent model. *Quarterly Journal of Economics*, 106, 1039-1061.
- Wilson, D. K., Kaplan, R. M., & Schneiderman, L. J. (1987). Framing of decisions and selections of alternatives in health care. *Social Behaviour*, 2, 51-59.