hypothesis," which would be required to justify participants' erroneous expectation that patterns of experimental results would replicate almost in their entirety, regardless of sample size. What is termed "indefensible" (on logical grounds) is not "human judgment" as a whole, but a very particular (indeed, indefensible) response to a difficult question about how to interpret a partial replication of results. And what is "self-defeating" is the practice of choosing research designs with very low statistical power. These strong adjectives were used, in other words, not to tar the human inferential system in general, but to describe very specific responses to very difficult questions. The point, that people seem to believe in a "law of small numbers," remains true. But to accept this point does not require a broad characterization of the inferential system in negative terms. What it does require is an attempt to understand why such problems are so difficult, and what can be done to ameliorate matters.

K&F call for "a more balanced, full-range social psychology" that might result in "a more realistic and thus a more compassionate view of human nature" (sect. 5, para. 1). But we suggest that a realistic, compassionate view is just what emerges from an understanding of the complexities of situations in which people (sometimes) conform, obey unreasonable commands, fail to intervene in emergencies, and overuse judgmental heuristics. It is difficult to think straight and act right in complex situations; we now understand a great deal about why that is so, and what might be done about it.

Errors of judgment and the logic of conversation

Norbert Schwarz

Institute for Social Research, University of Michigan, Ann Arbor, MI 48106-1248. **nschwarz@umich.edu**
http://sitemaker.umich.edu/norbert.schwarz

Abstract: Experimental procedures routinely violate the cooperative principle of conversational conduct by presenting irrelevant information in a way that implies its relevance to the task at hand. This contributes to an overestimation of the prevalence of judgment errors relative to natural contexts. When research participants are aware that the usual norms of conversational conduct do not apply, the emerging errors are attenuated or eliminated.

Krueger & Funder (K&F) highlight social psychologists' fascination with judgmental biases and note that the processes underlying inferential errors in the laboratory may often be adaptive in daily life. This commentary draws attention to one of the variables that contribute to this asymmetry, namely, experimenters' violation of conversational maxims (Grice 1975) that govern cooperative communication in daily life.

Tacit norms of cooperative conversational conduct imply that "communicated information comes with a guarantee of relevance" (Sperber & Wilson 1986, p. vi), entitling listeners to assume that the speaker tries to be informative, truthful, relevant, and clear. Listeners interpret speakers' utterances "on the assumption that they are trying to live up to these ideals" (Clark & Clark 1977, p. 122). Bringing these assumptions to the research situation, participants assume that every contribution of the researcher is relevant to the aims of the ongoing conversation. Yet, the researcher may deliberately present information that is neither relevant, nor truthful and informative – and may have carefully designed the situation to suggest otherwise. Missing this crucial point, participants treat presented "irrelevant" information as relevant to their task, resulting in judgmental errors relative to normative models that consider only the literal meaning of the utterance, but not the implications of the conversational context. These errors are attenuated or eliminated under circumstances that either conform to conversational norms or allow the insight that the usual conversational maxims do not apply (for extensive reviews, see Hilton 1995; Schwarz 1994; 1996).

For example, Kahneman and Tversky (1973) described a man, said to be randomly selected from a sample of engineers and lawyers, who "shows no interest in political and social issues and spends most of his free time on his many hobbies which include home carpentry, sailing, and mathematical puzzles." Participants predicted that this person is most likely an engineer, independent of whether the base-rate probability for any person in the sample being an engineer was .30 or .70. Clearly, they relied on individuating information of little diagnostic value at the expense of more diagnostic base-rate information, violating Bayesian norms. Does this imply that they did not notice that the description was uninformative? Or did they infer that the researcher wanted them to consider it – or else, why would it be presented to them in the first place? An extended replication of this study supports the latter possibility (Schwarz et al. 1991). When the personality description was provided as a narrative allegedly written by a psychologist, participants again concluded that the person is an engineer, independent of the base-rate. But when the same description was presented as a random sample of information about this person, allegedly selected by a computer from a larger file assembled by psychologists, participants relied on the more diagnostic base-rate information to make a prediction. Thus, participants considered normatively irrelevant information when it came with a conversational "guarantee of relevance," but not when this implied guarantee was called into question.

Similar analyses apply to other judgmental biases that involve reliance on normatively irrelevant information, ranging from the fundamental attribution error, the dilution effect, and the conjunction fallacy to misleading question effects in eyewitness testimony and numerous context effects in self-reports (for a review, see Schwarz 1996). When explicitly asked, participants usually seem aware that the normatively irrelevant information is of little informational value (e.g., Miller et al. 1984), but proceed to use it in making a judgment because the sheer fact that it has been presented renders it conversationally relevant in the given context. Once the "guarantee of relevance" is undermined, the impact of normatively irrelevant information is eliminated or attenuated (Schwarz 1996, Chs. 3–4). Increasing individuals' motivation to "get it right" rarely attenuates reliance on normatively irrelevant information, but merely increases participants' efforts to find meaning in the material presented to them (e.g., Tetlock & Boettger 1996).

Because of these conversational dynamics, the field's favorite procedures foster an overestimation of the size and the pervasiveness of judgmental biases. This analysis does *not* imply, however, that violations of conversational norms are the *sole* source of judgmental biases. Like most robust phenomena, judgmental biases are likely to be overdetermined. If we are to understand their operation in natural contexts, however, we need to ensure that their emergence in experiments is not driven by determinants that may not hold in daily life, where cooperative communication is likely and listeners are often aware of conditions that call the assumption of cooperativeness into question.

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