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On the Meaning and Function of Normative Analysis: Conceptual Blur in the Rationality Debate?

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The rationality debate centers on the meaning of deviations of decision makers' responses from the predictions/prescriptions of normative models. But for the debate to have significance, the meaning and functions of normative analysis must be clear. Presently, they are not, and the debate's persistence owes much to conceptual blur. An attempt to clarify the concept of normative analysis was undertaken.

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Questions about the rationality of human judgment and deliberative human behavior are nowadays largely the focus of decision science, which is often said to rest upon a tripod of *descriptive*, *normative*, and *prescriptive* analyses. As Stanovich and West made clear, the rationality debate certainly has much to do with the tension between descriptive and normative accounts. But how stable is the tripod of decision science? And how much of the rationality debate is really a product of conceptual blur?

Let me begin by asking a simple question: *What defines a normative analysis?* If normative analysis is so vital for assessing rationality, then the answer to this question should be straightforward—but it isn't. Normative analysis often relies on integrating one or more axioms or theorems of a formal system and examining the implications for judgment or decision making (Bell et al. 1988). For instance, the much discussed conjunction rule is a normative principle that derives from probability theory: Probabilities themselves never violate the rule, yet people may or may not reason in accordance with it—that is an empirical issue.

Many other normative principles, such as transitivity, independence, and descriptive or procedural invariance, fit this definition, but others do not. The phi coefficient and the delta rule, often treated as normative models of contingency judgment and causal induction, respectively, are two examples. These information integration models achieve particular information processing objectives often valued by scientists but, in spite of their quantitative nature, these models do not reflect properties of formal systems (Mandel & Lehman 1998). Other principles, like Grice's maxims of conversation, which are often described as normative (Hilton, 1995), seem utterly different yet. So, strictly in terms of defining what is normative, it seems that decision scientists have been mixing apples with oranges.

Let me ask another question: *What is the primary function of normative analysis?* Clearly, many researchers use normative models as benchmarks to evaluate the "goodness" of people's judgments and decisions. From this Meliorist perspective, as Stanovich and West call it, rationality is seen as an inverse function of the deviation of the decision maker's response from the normative response. Normative analysis, therefore, often serves a prescriptive function, in spite of the ostensible separation of normative and prescriptive foci in decision science. In contrast, normative analysis is sometimes used to generate *deductively* "first cut" descriptive accounts of judgment and decision making that are to be modified if necessary in light of later inductive analyses (Bell et al. 1988). Expected utility theory, for instance, was used initially as a descriptive account of microeconomic behavior—not as a prescriptive benchmark for evaluating choice. Normative analysis, therefore, may also serve a descriptive function, in spite of the ostensible separation of descriptive and normative foci in decision science.

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Let us examine the prescriptive function often ascribed to normative analysis in greater detail, for it is that function which has influenced so many of the claims that decision scientists have made about rationality. According to Kleindorfer et al., normative analysis focuses on "how decision makers *should ideally perform*" an activity (1993: 177). More dramatically, Bell et al. claimed that "normative theory has something to do with how idealized, rational, super-intelligent people should think and should act" (1988: 16). Normative analysis is then often contrasted with prescriptive analysis, which is usually said to be geared toward examining what *real* people ought to do given their real-world constraints and cognitive limitations (or how decision scientists might aid real decision makers).

The notion of the *ideal* decision maker is, I believe, the result of a conceptual confusion. As noted earlier, many normative theories rely on axioms of formal systems that are used deductively to generate "first cut" descriptive accounts of human decision making. This approach tends to ask the following type of question: Do people judge or decide as some relevant set of abstract entities behave? For example, if probabilities behave according to principles x , y , and z in probability theory, do humans conform to principles x , y , and z in the process of judging probabilities? Normative analysis, therefore, examines how real decision makers *would* perform if they were like idealized (i.e., abstract) entities of a formal system—not how they *should* perform if they are ideal (i.e., super-intelligent) decision makers. Probabilities, sets, and numbers are not super-intelligent entities—indeed, they have no intelligence—and it is unclear why adaptive decision makers *should* follow the same rules as they do.

Unfortunately, the preceding distinction seems to have been lost in the rationality debate and the erroneous conception of the ideal decision maker often adopted. If consistency and coherence are hallmarks of rationality, then Panglossians and Meliorists alike should question the rationality of some fundamental practices in decision science, for, at present, normative theories, on one hand, are said to describe what idealized decision makers should do and, on the other hand, they are used to evaluate real decision makers who are subject to myriad real-world constraints. This formula simply doesn't add up. Similarly, the use of the term *normative rationality* by Stanovich and West to describe instrumental rationality at the level of the individual is, I believe, confusing since it has yet to be demonstrated that normative responses optimize individuals' multiple concerns.

Finally, let me be clear that, in my view, this critique is not a Panglossian perspective. I have not offered another reason why people might not be as irrational as some Meliorists would have us believe. Indeed, I have not commented at all on whether people are rational or irrational. Rather, I have questioned the conceptual rigor that underlies the overall debate. The meaning and function of normative analysis and the relation of normative analysis to descriptive and prescriptive concerns needs to be thought through more clearly in the future if the rationality debate is to optimize its significance.

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