

Comment

John W. Pratt

Distressingly much of this paper strikes me as a regressive exercise in overliteral misreading and straw battle. Its main positive message was being advanced by Howard Raiffa and Robert Schlaifer when I joined forces with them 25 years ago, and our joint paper of 1964 said:

... we consider the problem faced by a person who on most occasions makes decisions intuitively and more or less inconsistently, like all other mortals, but who on some one, particular occasion wishes to make some one, particular decision in a reasoned, deliberate manner. ... [We have] avoided any reference to the behavior of idealized decision makers all of whose acts are perfectly self-consistent; instead, we have taken a strictly "constructive" approach to the problem of analyzing a single problem of decision under uncertainty, hoping thereby to dispel such apparently common misconceptions as that a utility function and a system of judgmental probabilities necessarily exist without conscious effort, or that they can be discovered only by learning how the decision maker would make a very large number of decisions.

We viewed others' work and its relation with ours quite differently from Shafer, however, titling our paper "An Elementary Exposition" and saying,

... the sophisticated reader will find nothing here that he does not already know. We hope, however, that the paper will help some readers to a better understanding of the foundations of the so-called "Bayesian" position.

In contrast, I consider Shafer's tone and connotations highly misleading, especially his claims to refutation and radical revision, but your effort would be ill spent in reading a detailed disquisition thereon. Better to reread Savage with your own eyes and mind open, not through Shafer's filter or a second filter of mine. To suggest my disagreement, a set of statements contrary to what Shafer implies and a few general conclusions should suffice.

1. No sensible person ever really thought that probability and utility assessments preexist in anyone's mind, or that probabilities of all events could or should be assessed directly and then checked for consistency, or that they would be naturally consistent. Anyway, that horse is long dead.

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2. Hypothetical acts facilitate deciding sometimes and theorizing always. But if you can reach a Bayesian decision without considering hypothetical acts, or ranking all real acts, it is obviously a good idea, and legitimate by anyone's rules, to do so.

3. If your procedures or decisions or feelings are intransitive or otherwise discordant with subjective expected utility, they are incoherent, "irrational," or whatever you want to call it, and trying to justify them as coherent or find other rationalities is a waste of time.

4. The point of defining probability and utility in terms of hypothetical bets is to give them an unmistakable, concrete or operational meaning, but you may assess them however you like.

5. When your concern is scientific inference, as Savage's mainly was, the processes, psychological difficulties, and precise results of subjective assessment are of relatively little interest. If the posterior distribution is sensitive to the choice of prior, you need more data, not alternative modes of inference.

6. Defining consequences as everything you care about—disentangling values from beliefs—is essential not only to the meaning and acceptability of the axioms, but also to any kind of clear thinking or communication about decision making under uncertainty. Reasonable people may prefer different decisions in the "same" situation because they value even deterministic consequences differently, because they hold different beliefs about the uncertain world, or both. Entangling these sources of difference only confuses matters. Criteria that attempt to do without beliefs (such as .05, minimax, or their relatives) have failed as normative rules, whatever their ad hoc or other virtues. Any model with state-dependent consequences can be simply transformed into an equivalent one having state-independent consequences with no increase in complexity and, if the Bayesian axioms are in doubt, great increase in clarity.

7. In Allais' problem, it is indeed possible that your regret at receiving 0 instead of \$500,000 is greater if you could have guaranteed yourself \$500,000 than if not. Then 0 is an inadequate definition of the consequence: regret also needs to be incorporated (Bell, 1982), even though some hypothetical acts will then be hard to imagine. Similar comments apply if the objectivity of your chance at a prize affects your pleasure in winning or pain at losing, as in Ellsberg's example.

8. Regarding the sure thing principle (or independence postulate, substitution principle, or mixing