Errata for *Subjective probabilities should be sharp*

Adam Elga

Last substantial update May 9, 2012*

I am very grateful for friends and colleagues who have pointed out errors in Elga (2010).

1

"In the framework of Gärdenfors and Sahlin (1982), unsharp belief states are represented by sets of probability distributions, each of which has been tagged by a number indicating a degree of "epistemic reliability." The decision rule is that one choose the option with "the largest minimal expected utility." (371) The minimal expected utility of an option is the minimum of the expected utilities assigned to that option by any of the sufficiently reliable probability functions that are members of one's probability set. **In many circumstances, this rule entails that it can be rational to sequentially reject both Bet A and Bet B.**" (footnote 21, emphasis added).

The claim in bold is incorrect, as I should have seen long ago from an extended email correspondence with Teddy Seidenfeld that vigorously pressed closely related points. (Sorry for taking so long to get the point, Teddy!) More recently, Sahlin and Weirich (2012) independently explains why the above claim is incorrect:

Consider an agent with a maximally unsharp probability for H who realizes that she follows the maximize-minimum-expected-utility (MMEU) rule and who expects that even if she were to deviate from that rule on the present choice, she would conform to it for subsequent choices. Suppose this agent realizes that she will be faced with Bet A followed by Bet B. The agent will anticipate that if she were to accept Bet A, she would later accept Bet B because doing so would then have greater minimal expected utility than rejecting Bet B. The result would be a sure net gain overall. The agent will also anticipate that if she were to reject Bet A, she would later reject Bet B as well, resulting in her neither gaining nor losing overall. Given this, the rule requires the agent to accept Bet A and then accept Bet B.

So the MMEU rule escapes the criticisms presented in Elga (2010).

Sahlin and Weirich (2012), notes that MMEU leads to violations of certain classical axioms for decision-making, citing a result from Seidenfeld (1988). This leads to verdicts about certain cases that some find surprising or counterintuitive. For example, MMEU sometimes requires an agent to pay to avoid receiving relevant information. (To my knowledge, this was first shown in Seidenfeld (2004, Section 2); Isaacs (2012) makes the same point using a very simple case.)

2

"For example, consider the "midpoint rule," according to which agents should evaluate bets according to the midpoints of their probability intervals. [...] **[Rules such as the midpoint rule] require agents to bet just as if they had precise probabilities.**" (p. 6, left column, emphasis added).

Moss (2012, fn. 6) points out that the claim in bold is incorrect, and Moss (2012, Appendix) gives an example of an agent who operates according to the midpoint rule but whose betting behavior does not match that of any rational agent with precise probabilities. This shows that the midpoint rule is in even worse shape than I had claimed.

3

In the first paragraph on p. 10, the word "first" should be replaced by "second" and the word "second" should be replaced by "first". Thanks here to Luke Elson.

References

Adam Elga. Subjective probabilities should be sharp. *Philosophers' imprint*, 10(5), 2010. URL http://www.philosophersimprint.org/010005/.

Peter Gärdenfors and Nils-Eric Sahlin. Unreliable probabilities, risk taking, and decision making. *Synthese*, 53:361–386, 1982.

Yoaav Isaacs. Note on maximizing minimal expected utility. Unpublished note, April 2012.

Sarah Moss. Credal dilemmas. Manuscript, March 2012.

Nils-Eric Sahlin and Paul Weirich. Unsharp sharpness. Manuscript, March 2012.

T. Seidenfeld. Decision theory without 'independence' or without 'ordering': What is the difference? *Economy and Philosophy*, 4:267–315, 1988.

T. Seidenfeld. A contrast between two decision rules for use with (convex) sets of probabilities: Gamma-maximin versus e-admissibility. *Synthese*, 140(1/2):pp. 69–88, 2004. ISSN 00397857. URL `http://www.jstor.org/stable/20118443`.