

## Rejoinder

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My thanks to all the discussants for engaging in this interesting debate, and for the CMU Case Studies Workshop and *Bayesian Analysis* for making it happen. I should warn that I will engage in the spirit of the debate and take a more extreme objective Bayesian position than I perhaps believe. I'll first make a few comments about the companion paper by Michael Goldstein.

### 1 Comments on Michael Goldstein's paper

Michael makes a very nice, pleasantly positive, and practical defense of the subjectivist position. There is little he says that I disagree with, but I do have a somewhat different perspective on some issues based on my own experiences.

In *Applied Subjectivism*, Michael first visits a number of complex practical problems where subjective Bayes is argued to be needed. One example is analysis of complex computer models of processes which, coincidentally, is a problem with which I have also been seriously involved (Bayarri et al. (2002), Bayarri et al. (2005a), Bayarri et al. (2005b)). In our work we found that some subjective elicitation was needed, but we had to spend much more time dealing with objective Bayesian issues than with subjective issues. (The ratio of unknowns that we had to deal with objectively versus subjectively was consistently about 15 to 1).

In *Scientific Subjectivism*, Michael makes the case that the progress of science should be viewed in a subjective Bayesian sense; no argument here. But individual pieces of the process are often best stated in objective terms. Take the ESP example. It is very useful to separate out the prior probabilities of the hypotheses (i.e., individual opinions as to whether ESP exists or not) from what the data has to say (the Bayes factor of “Harry has ESP” to “Harry does not have ESP.”) Being able to separate opinions from “what the data says” is important for the progress of science, and important in order for people to develop an understanding of data. Of course, this is a situation where a complete separation is not possible (since the Bayes factor can depend on parameter prior distributions), although objective Bayesians do strive to develop at least conventional Bayes factors which allow communication of what the data has to say. Going into this further would take the discussion too far afield, but a basic tenet of objective Bayesianism is that it is good to separate prior opinions from information in the data, to the extent possible.

The discussion of the court case is another example of this. My impression of the legal situation in the U.S. (the U.K. might well be different, of course) is that an expert witness cannot legally quote posterior probabilities of, say, guilt, but can only present

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