

Kinds of Bayesians (Comment on articles by Berger and by Goldstein)

Robert E. Kass*
Carnegie Mellon University

Philosophy is consequential because it guides action. In statistics, our beliefs about the nature of statistical inference guide us both in selecting statistical methods to apply and in choosing problems to research. Jim Berger and Michael Goldstein have articulated clearly two opposing viewpoints. Yet, both statisticians are highly-experienced, widely-respected Bayesians and, faced with a particular set of data, it is very likely that the two of them would reach similar conclusions. So where, specifically, do they disagree? And which points of disagreement are most consequential? To help in identifying key issues I have constructed a list of questions. Answers to these may be used to classify various kinds of Bayesians.

1. Is it important for Bayesian inferences to have good frequentist operating characteristics? The answer to this question is especially consequential: we either check whether procedures have good long-run properties, or we do not.

2. Does the Bayesian paradigm do anything more than produce candidate procedures, to be judged according to frequentist criteria? A positive answer to this question identifies Bayesians, separating them from the many other statisticians who believe Bayesian methods may sometimes be useful, but who do not subscribe to Bayesian philosophy.

3. Is there a useful role for default (a.k.a. “objective”) Bayesian inferences as representing approximately subjective inferences? There may be subjectivists who would deny any useful role for default priors, but I doubt it. A negative answer would likely instead identify a Bayesian who prefers non-subjectivist philosophies of the kind articulated by Jeffreys. See [Kass and Wasserman \(1996\)](#) for references and discussion.

4. Is it possible to interpret default Bayesian inference as anything other than approximately subjective? This question asks for the philosophical stance of any default Bayesian inference. If a negative answer is given, then subjectivism is taken as the foundation for Bayesian inference. A positive answer would require saying how to interpret an “objective Bayesian” inference. To shy away from answering at all seems like a cop-out.

*Department of Statistics, Carnegie Mellon University, Pittsburgh, PA,
<http://www.stat.cmu.edu/~kass>