

- Tierney, L. and Kadane, J. (1986). Accurate approximation for posterior moments and marginal densities. *J. Amer. Statist. Asso.* **81**, 82-86.
- Tierney, L., Kass, R., and Kadane, J. (1989). Fully exponential Laplace approximations to expectations and variances of nonpositive functions. *J. Amer. Statist. Asso.* **84**, 710-716.

DISCUSSION

R.E. Kass

Carnegie-Mellon University

At this moment in the history of statistics, there seems to be less interest in the great Bayesian/frequentist divide than there had been in the nineteen seventies and eighties, when Efron (1986) asked, "Why isn't everyone a Bayesian?" We are all eager to get on to solving the many challenges of contemporary data analysis. Yet, we have our foundational conscience speaking to us; it continues to prod, with occasional welcome reminders from papers such as this one by Efron and Gous. How can these two great paradigms co-exist in peace? Where are the resolutions? What conflicts are irresolvable? And where does this leave us?

To me, the issues raised in this paper continue to be interesting. I find the authors' discussion clear and their new results informative. On the other hand, there are those in the Bayesian camp who see little relevance of all this to things they care about. Nearly all statisticians I have come across, regardless of philosophical persuasion, freely admit to *thinking* Bayesianly. Among the converted, however, there is a kind of Cartesian credo: "I think Bayesianly, therefore I am Bayesian." The impatience of the true believers comes in part from their taking the next step: "I think Bayesianly, therefore I must place all of my statistical work within the Bayesian paradigm."

A second, equally fundamental difficulty many Bayesians (and some frequentists) have with the perspective articulated in this paper, is in the importance it places on hypothesis testing and model selection. As the authors note, a recent version of this dissenting point of view is in Gelman and Rubin's discussion of Raftery (1995).

One might say that a major practical goal of this paper is to dissect Jeffreys's remark that his methods and Fisher's would rarely lead to different conclusions (Jeffreys, 1961, p. 435): "In spite of the difference in principle between my tests and those based

R. E. Kass is Professor and the Head, Department of Statistics, Carnegie-Mellon University, Pittsburgh, PA 15213-3890, U.S.A; email: kass@stat.cmu.edu.