

studies should be criticized "on the grounds that they take insufficient account for structural uncertainty." But does that mean we should drop our tools, as the quote from Freedman suggests we do, and pass the buck completely? Doesn't a statistician have something to contribute even to the Freedman-recommended "ad hoc analysis by experts?" I am sorry if my desired for clever turn of phrase, wherein I refer to Freedman as the Neturei Karta of statistics, conveyed to Hodges the caricature characterization of Freedman's position as merely that of a defender of our discipline's virtue. I hoped to engage the reader to think about the more pressing issue, whether or not a statistician qua statistician has a role in (if you will) policy analysis when "the basic theory is incomplete or the data sparse." And I was hard put to pin down Hodges' position on this issue in this paper.

## Comment

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On the one hand, this paper claims that, both in theory and in practice, statisticians currently fail to acknowledge and incorporate important aspects of uncertainty in their modeling and analysis methodology, thus potentially distorting the inference and decision making processes in many areas of application. On the other hand, it claims that the subjectivist approach of de Finetti provides the most promising general framework for developing a language and methodology that might overcome the defects of current approaches. I am entirely in agreement with these views and therefore naturally welcome Hodges' paper, both in its own right and as a focus for a general discussion of the issues raised.

However, the structuring of the paper left me a little unclear as to what particular emphasis was intended in various of its sections. Sometimes, the emphasis seemed to be on drawing a pragmatic boundary between those problems and activities that can and cannot be approached by using some kind of more-or-less formal statistical modeling and analysis. At other times, the emphasis seemed to be on drawing attention to the unique merits of the Bayesian approach in providing a natural and unified framework for the development of precisely those tools that Hodges

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seems to consider so desirable, including predictive forms of uncertainty statements and between- as well as within-model uncertainty evaluations, both as outputs in themselves and as the basis for sensitivity analysis. Policy analysis applications seemed to fall somewhat between these two tools. Were we supposed to see policy analysis as an archetypal area where the boundary problem is particularly acute? Or as an archetypal area where Bayesian methods particularly come into their own? I fully realize that Hodges is attempting a grand overview of a large number of conceptual and practical problems that are all too rarely discussed together, but I would welcome some clarification from him of the main messages he was hoping we would extract from all this.

What I certainly do recognize from Hodges' running example and his general discussion is the total inadequacy of any view of modeling and analysis that does not appreciate the sociologic and institutional dimensions of dealing with large, messy systems in large, messy organizations. In an unpublished joint study undertaken for a major government agency in the United Kingdom, Dr. Ray Paul, of the London School of Economics, and I considered similar broad issues of model building and validation in representing and summarizing uncertainties in the context of very large scale problems. I shall briefly describe some of our general perceptions and conclusions and would very much welcome Hodges' views as to whether and to what extent we are thinking along the same lines. A