## Discussion by Professor Lucien LeCam

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Professors Berger and Wolpert are to be thanked and congratulated for giving us a closely argued view on the foundations of statistics. Their arguments in favor of the Likelihood Principle are very persuasive indeed. One may suspect, however, that some readers will be convinced and converted while some others will hold fast to their misguided beliefs, in spite of all the evidence.

I shall try here to indicate why the present writer belongs to the latter category.

There is a body of statistical theory, call it "type 1", that deals with the following kind of systems. When contemplating a particular unresolved question, one devises experiments to ascertain what the facts are. The mathematician will abstract the idea of "experiment", using an object formed by a family of probability measures on a suitable field. The consequences of using particular procedures to analyse the "experiment" are then describable in probabilistic language. One can attempt to single out procedures that have a reasonable performance in this probabilistic world. That is a bit like selecting tools: wrenches are often, but not always, successful at unscrewing bolts; paint brushes often fail in the same activity.

This kind of endeavor has given us the Neyman-Pearson theory and Wald's theory of "statistical decision functions". One can readily claim that the whole enterprise is misguided, but it does seem to have a role to play in certain endeavors, like planning experiments, settling arguments that involve several scientists and odd questions such as "is methotrexate effective in the