Chapter 5. IMPLEMENTATION OF THE LIKELIHOOD PRINCIPLE

5.1 INTRODUCTION

The LP strikes us as correct, and behaving in violation of it would be a source of considerable discomfort. Yet the LP does not tell one what to do (although insisting on methods based on the observed likelihood function certainly reduces the possibilities). It can indeed be argued that there is sometimes *no* sensible method of behavior which is completely consistent with the LP.

This raises a very important distinction which is often misunderstood in foundational matters. "Foundations" usually proceeds by formulating properties of desirable behavior, and then seeing what can be deduced from these properties. The quintessential example is that from (very reasonable) axioms of "consistent" or "rational" behavior, it can be deduced that any "consistent" analysis corresponds to some Bayesian analysis. This does *not* imply, however, than any particular form of consistent (Bayesian) analysis is necessarily satisfactory, since, as C.A.B. Smith said in Savage, et. al. (1962),

"Consistency is not *necessarily* a virtue:

one can be consistently obnoxious."

And there is no guarantee that a nonobnoxious consistent way of behaving exists. (See Berger (1984e) for further discussion.) Thus foundational arguments (including the LP) can logically be considered irrelevant from an operational perspective.

This is certainly overstating the case, somewhat, in that, at the very least, foundational arguments can be invaluable in giving direction to