

Souvenir B: Likelihood versus Error Statistical

Like pamphlets from competing political parties, the gift shop from this tour proffers pamphlets from these two perspectives.

To the Likelihoodist, points in favor of the LL are:

- The LR offers “a precise and objective numerical measure of the strength of statistical evidence” for one hypotheses over another; it is a frequentist account and does not use prior probabilities (Royall 2004, p. 123).
- The LR is fundamentally related to Bayesian inference: the LR is the factor by which the ratio of posterior probabilities is changed by the data.
- A Likelihoodist account does not consider outcomes other than the one observed, unlike P -values, and Type I and II errors. (Irrelevance of the sample space.)
- Fishing for maximally fitting hypotheses and other gambits that alter error probabilities do not affect the assessment of evidence; they may be blocked by moving to the “belief” category.

To the error statistician, problems with the LL include:

- LRs do not convey the same evidential appraisal in different contexts.
- The LL denies it makes sense to speak of how well or poorly tested a single hypothesis is on evidence, essential for model checking; it is inapplicable to composite hypothesis tests.
- A Likelihoodist account does not consider outcomes other than the one observed, unlike P -values, and Type I and II errors. (Irrelevance of the sample space.)
- Fishing for maximally fitting hypotheses and other gambits that alter error probabilities do not affect the assessment of evidence; they may be blocked by moving to the “belief” category.

Notice, the last two points are identical for both. What’s a selling point for a Likelihoodist is a problem for an error statistician.