Notes on Bayesian statistics

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Abstract

This is some notes on Bayesian statistics.

1 General

Intrinsic prior is motivated from an asymptotic argument. This argument may not be valid in high dimensional setting.

2 From Efron (2012)

Jeffreys-type priors can yield unsatisfactory results in multiparameter problems [Ghosh (2011)], as shown here by comparison with bootstrap confidence limits.

external (How much would the results vary in future data sets?). The latter concerns the frequentist analysis of Bayesian estimates, an important question in objective Bayes applications; see, for instance, Gelman, Meng and Stern (1996) and Berger (2006).

3 From Ghosh (2011)

Bayesian methods are increasingly used in recent years in the theory and practice of statistics. Their implementation requires specification of both a likelihood and a prior.

The main focus of this article is to introduce certain objective priors which could be potentially useful even for frequentist inference. One such example where frequentists are yet to reach a consensus about an optimal approach is the construction of confidence intervals for the ratio of two normal means, the celebrated FiellerCreasy problem.

4 From Dobriban and Wager (2018)

Our results also uncover an exact inverse relation between the limiting predictive risk and the limiting estimation risk in high-dimensional linear models.

5   From Sweeting et al. (2006)

Since the focus is on prediction, there is no need to specify a set of parameters deemed to be of interest

References

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Sweeting, T. J., Datta, G. S., and Ghosh, M. (2006). Nonsubjective priors via predictive relative entropy regret. *The Annals of Statistics*, 34(1):441–468.