

1 A new look at some old issues in robust Bayesian analysis

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Robust Bayesian analysis was a highly active research field in and around the 1980s. Interest subsequently waned as data complexity remained fairly stable throughout the 90's and 00's but advances in computational methods, such as MCMC, and advances in stochastic structures, such as Bayesian nonparametric priors, provided much richer modeling environments alleviating concerns surrounding potential model misspecification. However, in recent times data complexity has grown enormously, the so called "Big Data" era. Fully Bayesian approaches may struggle to scale to modern data applications meaning that approximate methods have to be adopted. This warrants a reappraisal of robust Bayesian analysis under known model misspecification. We discuss recent relevant advances in the fields of robust control (signal processing) and economics, and present new results and suggestions for exploration and quantification of robust decisions taken over models within a Kullback-Leibler neighbourhood of the working model.