Introduction

Bayesian inference is primarily implemented through Markov chain Monte Carlo (MCMC) algorithms embedded in various software packages. Exploratory and confirmatory approaches complement each other for the analysis of the posterior distributions of the quantities of interest and diagnosis of model convergence and fit. In the face of complex hierarchical models, advanced MCMC algorithms or large data sets, an interactive and intuitive interface should facilitate the integration of numerical and graphical approaches.

Three dimensional graphical exploration of hierarchical models may provide novel means to detect model misspecification in hierarchical Bayesian inference and improve convergence diagnostics by detecting and demonstrating unexpected deviations from implicit model assumptions.