

WinBUGS -- R2WinBUGS -- R; OpenBUGS -- BRugs -- R Many letters, but how to combine them?

Uwe Ligges

Abstract:

BUGS (Bayesian inference Using Gibbs Sampling) is a well known software for the Bayesian analysis of complex statistical models using Markov Chain Monte Carlo (MCMC) methods. It has been developing and maturing over the years, and is probably best known in its WinBUGS incarnations.

The latest version called OpenBUGS is distributed under the GPL and runs on Windows.

BRugs (Thomas, 2004a) has been refined as an R package containing functions that reproduce the functionality of OpenBUGS graphical user interface using a dynamic link library linked to the OpenBUGS API.

This way it is possible to write R functions (e.g. MCMC simulations) using OpenBUGS and R functionality at the same time. For example, it is possible to run some iterations in OpenBUGS, calculate convergence diagnostics in R, and if required, let OpenBUGS perform some more iterations.

In addition to the functions that reproduce OpenBUGS functionality, there are also some functions to prepare data and initial values, as well as functions for doing inference as known from the R2WinBUGS package.

We will discuss how the interfaces are today, what went wrong, what we should do better, and what the future should look like.