

## **Linking R and WinBUGS: A software demonstration of R2WinBUGS and BRUGS**

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WinBUGS (Spiegelhalter et al., 2004) is a well known and easy to use software for the analysis of complex statistical models using MCMC methods.

Though the BUGS language is a very flexible tool, the WinBUGS implementation requires a high degree of users' interaction. The batch mode which is available from version 1.4 onwards allows for an automatized use.

The R2WinBUGS package (Sturtz et al., 2004) links the statistical software R with WinBUGS. Data available in R are written as files, and a script file is automatically created.

A more flexible version is provided together with the latest incarnation of the BUGS language called OpenBUGS. BRugs (Thomas, 2004) has been refined as an R package containing functions that reproduce the functionality of OpenBUGS' graphical user interface using a dynamic link library. This allows to write R functions using both OpenBUGS and R functionality at the same time.

BRugs uses the same model specification language as WinBUGS and the same format for data and initial values. In addition to the functions that reproduce OpenBUGS functionality, there are also some functions to prepare data and initial values.

In this presentation, we will demonstrate how to use the R2WinBUGS and BRugs package.

### **References**

1. Spiegelhalter, D., Thomas, A., Best, N., and Lunn, D. (2004): WinBUGS User Manual, version 1.4.1.
2. Sturtz, S., Ligges, U., and Gelman, A. (2005): R2WinBUGS: A Package for Running WinBUGS from R. *Journal of Statistical Software* 12 (3), 1-16.
3. Thomas, A. (2004): BRugs User Manual, version 1.0, June 2004.
4. Thomas, A., O'Hara, B., Ligges, U., and Sturtz, S. (2006): Making BUGS Open, *R-News* 6/1, 12-17.