

Bayes and R

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Why R for Bayes?

- ▶ R has a large collection of functions for simulation, data analysis, and graphics.
- ▶ Easy to extend the R language
 - ▶ by writing functions
 - ▶ by creating packages
- ▶ There are nice interfaces of R with more efficient MCMC computing engines like OpenBUGS

Three Stories

- ▶ Learning About Streakiness
 - ▶ Using R simulation functions.
 - ▶ Using functions from LearnBayes package.
- ▶ Exploring Patterns in Website Counts
 - ▶ Using R to program Gibbs sampling.
- ▶ Website Counts, Continued
 - ▶ Using LearnBayes.
 - ▶ Using MCMCpack
 - ▶ Using R interface to Openbugs

References

- ▶ Albert (2009), *Bayesian Computation with R*, 2nd edition, Springer.
- ▶ LearnBayes and MCMCpack packages, available from CRAN (<http://cran.r-project.org/>)
- ▶ R code and bugs file for my examples available at <http://bayes.bgsu.edu/bcwr/bayes.biostats.2011/>
- ▶ CRAN Task View: Bayesian Inference (<http://cran.r-project.org/>)