Chapter 1

The title of this chapter

Stephen P. Brooks, Andrew Gelman, Galin L. Jones and Xiao-Li Meng

1.1 Introduction

Please use cross-referencing, labeling all sections, equations, tables, and figures using the `\label`, `\ref` and `\eqref` commands. Please number displayed equations only if they are referenced elsewhere.

1.2 Next section

Note that only the first word of section headings is capitalized.

1.2.1 A subsection

Note that only the first word of subsection headings is capitalized.

Please place tables and figures at the end of the document on separate pages. But you should indicate where they are to be placed in the text. That is, near where they are first referenced in the text or on a subsequent page (but not on a page preceding that on which they are first referenced). For example, here we are citing Table 1.1. Note how the table appears on page 6, but in the final version we want it right about here:

Table 1 near here.

See the LaTeX source code for this document to see how to format and import a figure.

Please use the "tt" font when referring to software For example, a reference to an R function would look like this: `mcmc`.

Only refer to a website if it is something that will be there for the indefinite future; for example, the CRAN website. Again, URLs should use the "tt" font, so for example: `http://www.cran.r-project.org/`.

1.2.2 References

This file uses BibTex to generate references. See the source code for how to cite references in the text if you are unfamiliar with BibTeX. For example, you might want to do one of the following things

Andersen et al. (2003)

Brooks (1998)

(Brooks, 1998, 1999)

Brooks's (1999)

Jones et al.'s (2006)

Brooks (1999); Craiu and Meng (2005); Gelman and Pardoe (2006)

(Brooks, 1999; Craiu and Meng, 2005; Gelman and Pardoe, 2006)

1.2.3 Theorems

Theorem 1.2.1. $\sin^2\theta + \cos^2\theta = 1$

Proof. Here is how it goes... $\square$

Acknowledgments

This work was supported by NSF grant... The author would like to thank...

Bibliography

Andersen, K. E., Brooks, S. P., and Hansen, M. B. (2003). Bayesian inversion of geoelectrical resistivity data. *Journal of the Royal Statistical Society, Series B: Statistical Methodology*, 65(3):619–642.

Brooks, S. P. (1998). MCMC convergence diagnosis via multivariate bounds on log-concave densities. *The Annals of Statistics*, 26:398–433.

Brooks, S. P. (1999). Bayesian analysis of animal abundance data via MCMC. In Bernardo, J. M., Berger, J. O., Dawid, A. P., and Smith, A., editors, *Bayesian Statistics 6 – Proceedings of the Sixth Valencia International Meeting*, pages 723–731. Clarendon Press [Oxford University Press].

Craiu, R. V. and Meng, X.-L. (2005). Multiprocess parallel antithetic coupling for backward and forward Markov Chain Monte Carlo. *The Annals of Statistics*, 33(2):661–697.

Gelman, A. and Pardoe, I. (2006). Bayesian measures of explained variance and pooling in multilevel (hierarchical) models. *Technometrics*, 48(2):241–251.

Jones, G. L., Haran, M., Caffo, B. S., and Neath, R. (2006). Fixed-width output analysis for Markov Chain Monte Carlo. *Journal of the American Statistical Association*, 101(476):1537–1547.

Table 1.1: Estimated posterior quantities and Monte Carlo standard errors from MCMC output.

Parameter	Estimate	Monte Carlo Standard Error
$E(\theta\|y)$	0.123	0.001
$E(\theta^2\|y)$	0.246	0.002

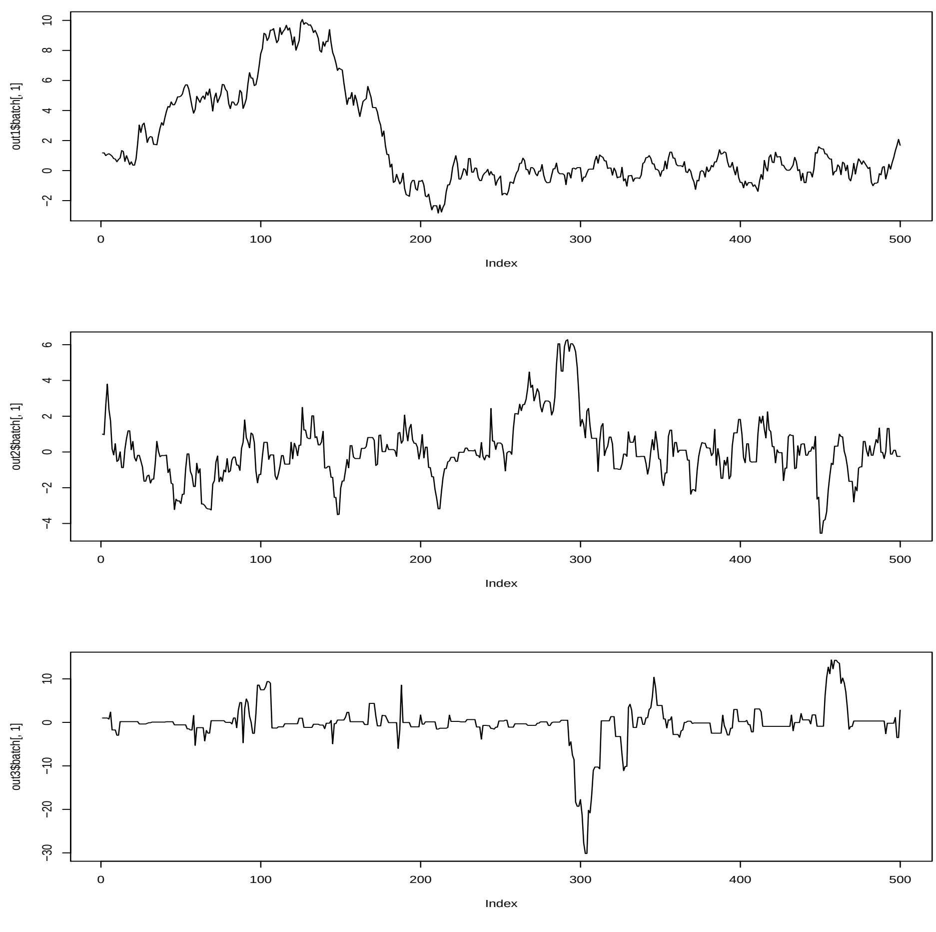

Figure 1.1: A trace plot of the history of 3 Markov chains.