

Regenerative Gibbs Samplings for Bayesian Networks

D. L. Minh¹

Abstract: Gibbs sampling is a common tool for estimating the conditional probabilities in Bayesian networks. A major problem of Gibbs sampling is the dependency of the generated variates. Thus the estimates are biased if the initial value of the chain is not drawn from the conditional joint distribution. One elegant method to overcome the initial bias is regenerative sampling. We reported elsewhere the "stationary minorization condition" that makes any Markov Chain Monte Carlo technique regenerative. In this paper, we show how this condition can be easily met in any Bayesian network, regardless of its size.

¹ Department of ISDS
California State University, Fullerton
CA 92831, USA
dminh@fullerton.edu