On generating directed acyclic graphs

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We present a method for generating a finite directed acyclic graph based on partitioning the nodes into layers generated by a random partition scheme. The method has three tuning parameter that will control the sparsity and the structure of the graph. We also give the joint graph/partition probability function and investigate some of its properties. These properties is of great interest when using this distribution as a prior when learning Bayesian network structure.

Keywords: Random graphs, Bayesian Networks, Bayesian statistics

References:

Griffiths, T.L; Kemp, C.;Manisghka, V.K.; Tenebaum, J.B. [2009] *Structured priors for structure learning preprint*