Dennis Leung*, dmhleung@uw.edu, and Hisayuki Hara and Mathias Drton. Identifiability of acyclic directed Gaussian graphical models with one latent variable.

Acyclic directed graphical models capture dependence structures that arise from causal relations between random variables of interest. We consider the problem of parameter identifiability in the Gaussian setting, in which we seek graphical conditions that guaranteed that all model parameters can be recovered from the covariance matrix of the observed variables. Specializing to the case of precisely one latent/unobserved variable, we will discuss the results of algebraic computations for graphs up to 7 nodes and describe a new sufficient criterion for finite identifiability. A necessary condition will also be introduced, which has not been found in the literature before. Finally, we will discuss a result on how knowledge about identifiability of a subgraph can be extended to identifiability of an original graph. (Received September 02, 2014)