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Structure learning in BBNs using regular vines

Learning the structure of a Bayesian network from data is still one of the most exciting challenges in machine learning. Broadly the existing structure learning algorithms fall into two categories: score-based and constraint-based approaches. When dealing with continuous data, both types of methods usually assume that the involved random variables have a joint multivariate normal distribution. In this talk, we launch the vine selection methodology as a new approach for learning the structure of Bayesian networks. Using this methodology one is restricted to a certain sub-class of chordal graphs. However, we show through several practical applications the possibility of using non-Gaussian margins and a non-linear dependency structure more than outweighs this restriction.

This is joint work with Ingrid Hobæk Haff and Arnoldo Frigessi.