

PERFECT TREE-LIKE MARKOVIAN DISTRIBUTIONS

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*Abstract:* We show that if a strictly positive joint probability distribution for a set of binary variables factors according to a tree, then vertex separation represents all and only the independence relations encoded in the distribution. The same result is shown to hold also for multivariate nondegenerate normal distributions. Our proof uses a new property of conditional independence that holds for these two classes of probability distributions.

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**Key words and phrases:** Conditional independence, graphical models, Markov models.

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