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Marginal Information and its use for Structure Learning

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Summary

- ① Structure learning is made in a sequential manner. Thus the order of edge/arrow selection during the learning process affects significantly the final model structure.
- ② Pieces of marginal structure information are helpful in fixing local structure errors during learning by using proper score function.
- ③ The marginal model structures may be provided as directed or undirected graphs for learning Bayesian networks. This is because the graph separateness is the same between the two types of graph except the nodes involved in v-structures.
- ④ The idea of using marginal structures for structure learning is a good example of expanding the notion of prior information for statistical learning. The prior information used to be parametric given in probability distributions. But it could also be non-parametric as given in marginal structures.
- ⑤ This line of research is in need of better score functions so that we could use various types of marginal structure information.