# Notes on Judea Pearl’s Probabilistic Reasoning in Intelligent Systems

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## Notes on Chapter 3 Markov and Bayesian Networks

From Numerical to Graphical Representation

Widely believed idea is that in order to construct an adequate representation of probabilistic knowledge, we must define a joint distribution function on all propositions and their combinations, where this function serves as a primary basis for all inferred judgements. While useful from mathematical standpoint in facilitation of rigorous mathematical analysis this view on probability theory is totally inadequate for representing and modeling human reasoning.

Consider for example the problem of encoding an arbitrary join distribution for propositional variables. To store explicitly would require a table with entries. Even if we found an economical way of storing – or rules of generating it – there would remain the problem if computing from it the probabilities which are relevant for humans in specific context.