ALGORITHMS FOR TESTING FAITHFULNESS OF PROBABILITY DISTRIBUTIONS AND GRAPHS

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In this talk, I define the concept of the partially completed graph, which is a representative of a Markov equivalence class of the general class of mixed graphs. These graphs represent simultaneously “direct effects”, “confounding”, and “symmetric dependence structures occurring in equilibrium”. I provide a structural learning algorithm for finding these graphs. I show how to generate all graphs in a Markov equivalence class from its partially completed graph. I also discuss how the theory behind this algorithm ensures faithfulness of the generated graphs to the probability distribution even in the case of conditional independence testing errors.