## 1 Hidden Markov Models

In this section we consider probabilistic Graphical Models of the form shown in Figure 1. We assume that  $X_0, X_1, ...$  are each n state discrete random variables and that  $Y_0, Y_1, ...$  are each m state discrete random variables. Models of this form are classically called Hidden Markov Models (HMMs).

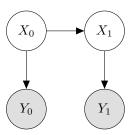


Figure 1: Graphical model of this section

Intuitively, this model represents the situation where we are not sure