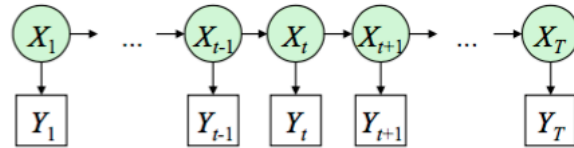
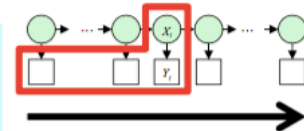


Forward-Backward algorithm



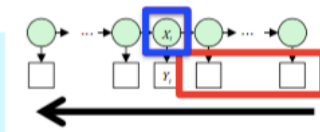
前向き

$$\begin{aligned}\alpha(X_t) &\equiv P(Y_1, \dots, Y_t, X_t) \\ &= P(Y_t | X_t) \sum_{X_{t-1}} \alpha(X_{t-1}) P(X_t | X_{t-1})\end{aligned}$$



後ろ向き

$$\begin{aligned}\beta(X_t) &\equiv P(Y_{t+1}, \dots, Y_T | X_t) \\ &= \sum_{X_{t+1}} \beta(X_{t+1}) P(Y_t | X_t) P(X_{t+1} | X_t)\end{aligned}$$



総合

$$\gamma(X_t) \equiv P(X_t | Y_1, \dots, Y_T) \propto \alpha(X_t) \beta(X_t)$$

隠れ変数事後確率

