

- The above is the dependency graph for a channel code with feedback, which is equivalent to

$$q(w, \mathbf{x}, \mathbf{y}, \hat{w}) = q(w) \left(\prod_{i=1}^n q(x_i | w, \mathbf{y}^{i-1}) \right) \left(\prod_{i=1}^n p(y_i | x_i) \right) q(\hat{w} | \mathbf{y})$$

for all $(w, \mathbf{x}, \mathbf{y}, \hat{w}) \in \mathcal{W} \times \mathcal{X}^n \times \mathcal{Y}^n \times \mathcal{W}$ such that $q(w, \mathbf{y}^{i-1}), q(x_i) > 0$ for $1 \leq i \leq n$ and $q(\mathbf{y}) > 0$, where $\mathbf{y}^i = (y_1, y_2, \dots, y_i)$.