

$$P(\mathbf{x}_i | \delta_{ij} = 1, \theta^{(n)}) = \frac{1}{Z} \exp \frac{-\left(\mathbf{x}_i - \mu_j^{(n)}\right) \Sigma^{-1} \left(\mathbf{x}_i - \mu_j^{(n)}\right)}{2}$$