$$P(F_{mn}|l_{mn} = s_k, \{F_{\hat{m}}\}_{\hat{m} \neq m}^M, \{l_{\hat{m}}\}_{\hat{m} \neq m}^M)$$
$$\sim \sum_{q=1}^Q w_{km}^q \mathcal{N}_m(\mu_k^q, \Sigma_k^q)$$