$$\begin{aligned}
E_{P(\delta|\mathbf{x},\theta^{(n)})}\left(L_c(\theta,\delta)\right) &= E_{P(\delta|\mathbf{x},\theta^{(n)})}\left(\sum_{ij}\delta_{ij}\left[\log\pi_j + \log P(\mathbf{x}_i|\mu_j,\Sigma)\right]\right) \\
&= \left(\sum_{ij}P(\delta_{ij}=1|\mathbf{x},\theta^{(n)})\left[\log\pi_j + \log P(\mathbf{x}_i|\mu_j,\Sigma)\right]\right)
\end{aligned}$$