p182 6.4

$$\pi(\mathbf{z}, \mathbf{x} \mid \theta, \mathbf{p}) = l(\theta, \mathbf{p} \mid \mathbf{x}, \mathbf{z})$$

$$\pi(\mathbf{x} \mid \theta, \mathbf{p}) = l(\theta, \mathbf{p} \mid \mathbf{x})$$

$$\pi(\mathbf{z} \mid \mathbf{x}, \theta, \mathbf{p}) = \frac{\pi(\mathbf{z}, \mathbf{x} \mid \theta, \mathbf{p})}{\pi(\mathbf{x} \mid \theta, \mathbf{p})} = \frac{l(\theta, \mathbf{p} \mid \mathbf{z}, \mathbf{x})}{l(\theta, \mathbf{p}|\mathbf{x})}$$

$$\pi(\mathbf{z} \mid \mathbf{x}, \theta, \mathbf{p}) = \frac{\prod_{i=1}^{n} p_{z_i} f(x_i|\theta_{z_i})}{\prod_{i=1}^{n} \sum_{j=1}^{k} p_j f(x_i|\theta_j)}$$

where p_j, θ_j, x_i are observed.