Baum-Welch Algorithm (cont.)

Updating formulas:

$$\pi_i' = \gamma_1(i)$$

$$a_{ij}' = \frac{\sum_{t=1}^{T-1} \xi_t(i,j)}{\sum_{j'=1}^{N} \sum_{t=1}^{T-1} \xi_t(i,j')}$$

$$b_i(v_k) = \frac{\sum_{t=1}^{T} \gamma_t(i) \delta[o_t = v_k]}{\sum_{t=1}^{T} \gamma_t(i)}$$

Overall complexity for each iteration: $O(TN^2)$