

PARAMETAR b_i

$$\frac{\partial E_k}{\partial b_i} = \frac{\partial E_k}{\partial \sigma_k} \cdot \frac{\partial \sigma_k}{\partial \alpha_i} \cdot \frac{\partial \alpha_i}{\partial b_i}$$

$$\frac{\partial E_k}{\partial \sigma_k} = -(y_k - \sigma_k)$$

$$\frac{\partial \sigma_k}{\partial \alpha_i} = \frac{\sum_{j=1}^m j \neq i \alpha_j (z_i - z_j)}{(\sum_{j=1}^m \alpha_j)^2}$$

$$\frac{\partial \alpha_i}{\partial b_i} = \frac{\partial (\mu_{A_i} \mu_{B_i})}{\partial b_i} = \frac{\partial \mu_{A_i}}{\partial b_i} \cdot \mu_{B_i}$$

$$\frac{\partial \mu_{A_i}}{\partial b_i} = \mu_{A_i} (1 - \mu_{A_i}) \cdot \frac{\partial (-b_i (x - a_i))}{\partial b_i} = \mu_{A_i} (1 - \mu_{A_i}) \cdot (a_i - x)$$

$$\frac{\partial \alpha_i}{\partial b_i} = \mu_{A_i} (1 - \mu_{A_i}) \cdot (a_i - x) \cdot \mu_{B_i}$$

$$\frac{\partial E_k}{\partial b_i} = -(y_k - \sigma_k) \cdot \frac{\sum_{j=1}^m j \neq i \alpha_j (z_i - z_j)}{(\sum_{j=1}^m \alpha_j)^2} \cdot \mu_{A_i} (1 - \mu_{A_i}) (a_i - x) \cdot \mu_{B_i}$$

STOHAŠTIČKO AŽURIRANJE :

$$b_i(t+1) = b_i(t) + \eta \cdot (y_k - \sigma_k) \cdot \frac{\sum_{j=1}^m j \neq i \alpha_j (z_i - z_j)}{(\sum_{j=1}^m \alpha_j)^2} \cdot \mu_{A_i} (1 - \mu_{A_i}) (a_i - x) \mu_{B_i}$$

GRUPNO AŽURIRANJE :

$$b_i(t+1) = b_i(t) + \eta \cdot \sum_{k=1}^N (y_k - \sigma_k) \cdot \frac{\sum_{j=1}^m j \neq i \alpha_j (z_i - z_j)}{(\sum_{j=1}^m \alpha_j)^2} \cdot \mu_{A_i} (1 - \mu_{A_i}) (a_i - x) \mu_{B_i}$$