Back Prop

W_{46}

$$\frac{\partial E}{\partial w_{46}} = \frac{\partial E}{\partial O_3} \cdot \frac{\partial O_3}{\partial net_3} \cdot \frac{\partial net_3}{\partial w_{46}}$$

$$= -(t - O_3)(O_3(1 - O_3))(O_1)$$

$$= -(1 - 0.7020)(0.7020(1 - 0.7020))(0.95257)$$

$$=$$

$$w_{46} = w_{46} - \eta\left(\frac{\partial E}{\partial w_{46}}\right)$$

$$\eta = 0.01$$

$$w_{46} = 3 - [-(0.298)(0.2091)(0.95257)$$

$$= 3 + (0.05935)(0.01)$$

$$= 3.59\cancel{3}\cancel{8} \quad 3.0.000559$$

$$B_3 = B_3 - \eta\left(\frac{\partial E}{\partial B_3}\right)$$

$$\frac{\partial E}{\partial B_3} = \frac{\partial E}{\partial O_3} \cdot \frac{\partial O_3}{\partial net_3} \cdot \frac{\partial net_3}{\partial B_3}$$

$$= -(t - O_3) \cdot (O_3(1 - O_3)) \cdot 1$$

W_{14}

$$W_{14} = W_{14} - \eta\left(\frac{\partial E}{\partial W_{14}}\right)$$

$$\frac{\partial E}{\partial W_{14}} = \frac{\partial E}{\partial O_3} \cdot \frac{\partial O_3}{\partial net_3} \cdot \frac{\partial net_3}{\partial O_1} \cdot \frac{\partial O_1}{\partial net_1} \cdot \frac{\partial net_1}{\partial W_{14}}$$

$$= -(t - O_3)(O_3(1 - O_3))(W_{46})(O_1(1 - O_1))(I_1)$$

Update all after complete epoch.