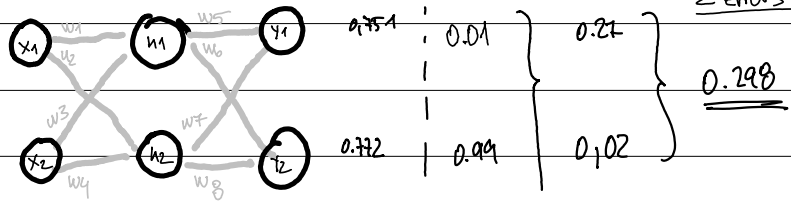


Backprop Recipe For Simple Network

1) In hidden out



1) Calculate error

2) Get gradient for every single neuron

2) We want 6 gradients

a) $\frac{\partial E}{\partial y_1} = y - d = 0.751 - 0.01 = \underline{\underline{0.741}}$

b) $\frac{\partial E}{\partial y_2} = y - d = 0.772 - 0.99 = \underline{\underline{-0.218}}$

c) $\frac{\partial E}{\partial h_1} = \frac{\partial E}{\partial y_1} \cdot \sigma'(\xi_{y_1}) \cdot w_5 + \frac{\partial E}{\partial y_2} \cdot \sigma'(\xi_{y_2}) \cdot w_6$

d) $\frac{\partial E}{\partial h_2} = \frac{\partial E}{\partial y_1} \cdot \sigma'(\xi_{y_1}) \cdot w_7 + \frac{\partial E}{\partial y_2} \cdot \sigma'(\xi_{y_2}) \cdot w_8$

e) $\frac{\partial E}{\partial x_1} = \frac{\partial E}{\partial h_1} \cdot \sigma'(\xi_{h_1}) \cdot w_1 + \frac{\partial E}{\partial h_2} \cdot \sigma'(\xi_{h_2}) \cdot w_3$

$\frac{\partial E}{\partial h_1} \cdot \sigma'(\xi_{h_1}) \cdot w_1 + \frac{\partial E}{\partial h_2} \cdot \sigma'(\xi_{h_2}) \cdot w_2$

f) $\frac{\partial E}{\partial x_2} = \frac{\partial E}{\partial h_1} \cdot \sigma'(\xi_{h_1}) \cdot w_4 + \frac{\partial E}{\partial h_2} \cdot \sigma'(\xi_{h_2}) \cdot w_8$

$\frac{\partial E}{\partial h_1} \cdot \sigma'(\xi_{h_1}) \cdot w_4$