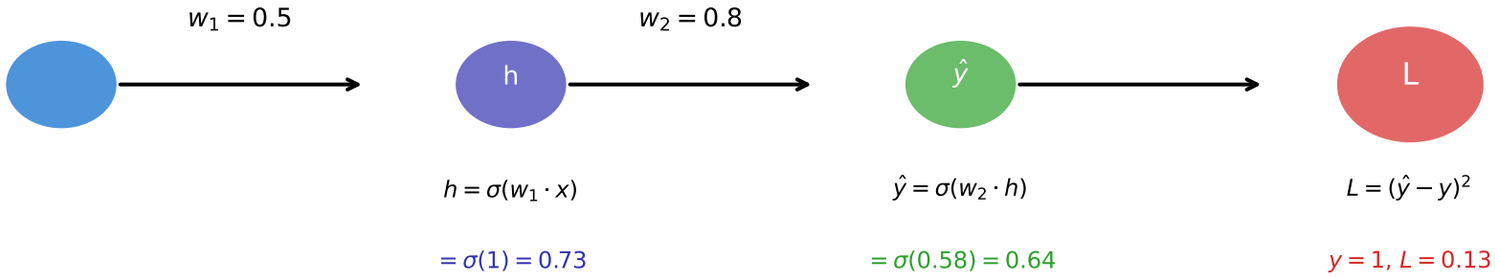
Worked Example: Backpropagation

$x = 2$



Backward Pass:

$\frac{\partial L}{\partial \hat{y}} = 2(\hat{y} - y) = -0.72$

$\frac{\partial \hat{y}}{\partial w_2} = h \cdot \sigma'(\cdot) = 0.17$

$\frac{\partial L}{\partial w_2} = -0.72 \times 0.17 = -0.12$

$\frac{\partial L}{\partial h} = w_2 \cdot \sigma'(\cdot) \cdot \frac{\partial L}{\partial \hat{y}}$

$\frac{\partial L}{\partial w_1} = x \cdot \sigma'(\cdot) \cdot \frac{\partial L}{\partial h}$

Weight Updates:

$w_2^{new} = w_2 - \eta \cdot \frac{\partial L}{\partial w_2} = 0.8 - 0.1 \times (-0.12) = 0.812$

$w_1^{new} = w_1 - \eta \cdot \frac{\partial L}{\partial w_1}$ (similar calculation)

$\eta = 0.1$ (learning rate)