

Forward pass

Backward pass

No biases

Training case input: 0.23

Training case target (intended output): 1

The output unit (logistic): O

Input: $z_O = y_H \cdot w_{H \rightarrow O} \approx -0.8069$

Output: $y_O = \sigma(z_O) \approx 0.3086$

Target: $t_O = 1$

$E = \frac{1}{2}(t_O - y_O)^2 \approx 0.2390$

$w_{H \rightarrow O} = -1.513$

The hidden unit (logistic): H

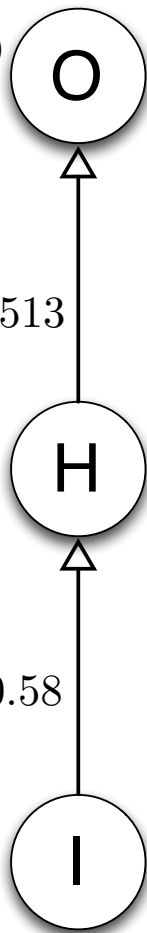
Input: $z_H = y_I \cdot w_{I \rightarrow H} \approx 0.133$

Output: $y_H = \sigma(z_H) \approx 0.5333$

$w_{I \rightarrow H} = 0.58$

The input unit: I

Output: $y_I = 0.23$



E is influenced by y_O :	$\frac{\partial E}{\partial y_O} =$	$-(t_O - y_O) \approx -0.6914$
y_O is influenced by z_O :	$\frac{\partial y_O}{\partial z_O} =$	$y_O(1 - y_O) \approx 0.2133$
	$\frac{\partial E}{\partial z_O} =$	$\frac{\partial E}{\partial y_O} \cdot \frac{\partial y_O}{\partial z_O} \approx -0.1475$
z_O is influenced by y_H :	$\frac{\partial z_O}{\partial y_H} =$	$w_{H \rightarrow O} = -1.513$
	$\frac{\partial E}{\partial y_H} =$	$\frac{\partial E}{\partial z_O} \cdot \frac{\partial z_O}{\partial y_H} \approx 0.2232$
y_H is influenced by z_H :	$\frac{\partial y_H}{\partial z_H} =$	$y_H(1 - y_H) \approx 0.2489$
	$\frac{\partial E}{\partial z_H} =$	$\frac{\partial E}{\partial y_H} \cdot \frac{\partial y_H}{\partial z_H} \approx 0.0556$
z_O is also influenced by $w_{H \rightarrow O}$:	$\frac{\partial z_O}{\partial w_{H \rightarrow O}} =$	$y_H \approx 0.5333$
	$\frac{\partial E}{\partial w_{H \rightarrow O}} =$	$\frac{\partial E}{\partial z_O} \cdot \frac{\partial z_O}{\partial w_{H \rightarrow O}} \approx -0.0787$
z_H is also influenced by $w_{I \rightarrow H}$:	$\frac{\partial z_H}{\partial w_{I \rightarrow H}} =$	$y_I = 0.23$
	$\frac{\partial E}{\partial w_{I \rightarrow H}} =$	$\frac{\partial E}{\partial z_H} \cdot \frac{\partial z_H}{\partial w_{I \rightarrow H}} \approx 0.0128$