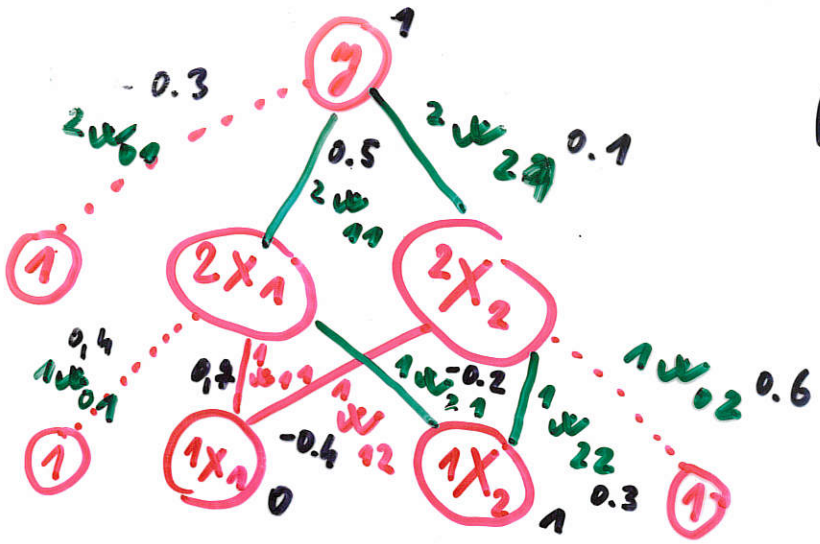

$(0,1) \rightarrow 1$

$\lambda = 1$

$w = 0$

$z = 1$

$2x_1: \quad a = 1 \cdot 0{,}4 + 0 * 0{,}2 + 1 * (-0.2) = 0.2$

$$2x_1 = f(a) = \frac{1}{1 + e^{-0.2}} = 0.55$$

$2x_2: \quad a = 1 \cdot 0{,}6 + 0 \cdot (-0.4) + 1 * 0.3 = 0.9$

$$2x_2 = f(a) = \frac{1}{1 + e^{-0.9}} = 0.71$$

$y: \quad a = 1 \cdot (-0{,}3) + 0.5 * 0.55 + 0.71 * 0.1 = 0{,}046$

$$y = f(a) = \frac{1}{1 + e^{-0{,}046}} = \underline{\underline{0.51}}$$

$$\Delta w_i = -\eta \frac{\partial E}{\partial w_i} \quad \Big| \quad \frac{\partial E}{\partial w_i} = \frac{\partial E}{\partial y} \cdot \frac{dy}{da} \cdot \frac{\partial a}{\partial w_i}$$

1. vist.

$$\frac{\partial E}{\partial y} = 0{,}51 - 1 = -0.49$$

$$\frac{dy}{da} = y(1-y) \; ; \; \frac{dy}{da} = 0{,}51(1 - 0{,}51) = 0{,}25$$

$$\frac{\partial a}{\partial w_i} = x_i \quad \begin{matrix} 1 \\ 2x_1 = 0{,}55 \\ 2x_2 = 0{,}71 \end{matrix}$$

$^2\Delta w_{01} = -(-0.49 * 0,25 * 1) = 0.1225$

$^2\Delta w_{11} = -(-0,49 * 0,25 * 0,55) = 0.067$

$^2\Delta w_{21} = -(-0,49 * 0,25 * 0,71) = 0,087$

UNITĚNÍ $\frac{\partial E}{\partial y} = \sum_{i=1}^{m} \frac{\partial E}{\partial a^i} \cdot w^i$ ∧ $\frac{\partial E}{\partial a^i} = \frac{\partial E}{\partial y} \cdot \frac{\partial y}{\partial a^i}$

$-0,49 * 0,25 = -0,1225$

$\frac{\partial E}{\partial y}$ pro $^2x_1 = -0,1225 * 0,5 = 0,061$

$\frac{\partial E}{\partial y}$ pro $^2x_2 = -0,1225 * 0,1 = -0,012$

$\frac{\partial y}{\partial a}$ pro $^2x_1 = {}^2x_1(1 - {}^2x_1) = 0,55(1-0,55) \doteq 0,248$

$\frac{\partial y}{\partial a}$ pro $^2x_2 = {}^2x_2(1 - {}^2x_2) = 0,71(1-0,71) \doteq 0,2$

$\frac{\partial a}{\partial w_{in}} = x_i$ — 1; $-1x_1 = 0$; $-x_2 = 1$

$^1\Delta w_{01} = -(-0,061 * 0,248 * 1) = 0,015$

$^1\Delta w_{11} = -(-0.061 * 0,248 * 0) = 0$

$^1\Delta w_{21} = -(-0.061 * 0,248 * 1) = 0,015$

$^1\Delta w_{02} = -(-0,012 * 0,2 * 1) = 0,0024$

$^1\Delta w_{12} = -(-0,012 * 0,2 * 0) = 0$

$^1\Delta w_{22} = -(-0,012 * 0,2 * 1) = 0,0024$

$^{2}w_{01} = -0,3 + 0,1225 = -0,1475$

$^{2}w_{11} = 0,5 + 0,064 = 0,564$

$^{2}w_{21} = 0,1 + 0,089 = 0,189$

$^{1}w_{01} = 0,4 + 0,015 = 0,415$

$^{1}w_{11} = 0,7 + 0 = 0,7$

$^{1}w_{21} = -0,2 + 0,015 = -0,185$

[illegible]

$^{1}w_{02} = 0,6 + 0,0024 = 0,6024$

$^{1}w_{12} = -0,4 + 0 = -0,4$

$^{1}w_{22} = 0,3 + 0,0024 = 0,3024$
