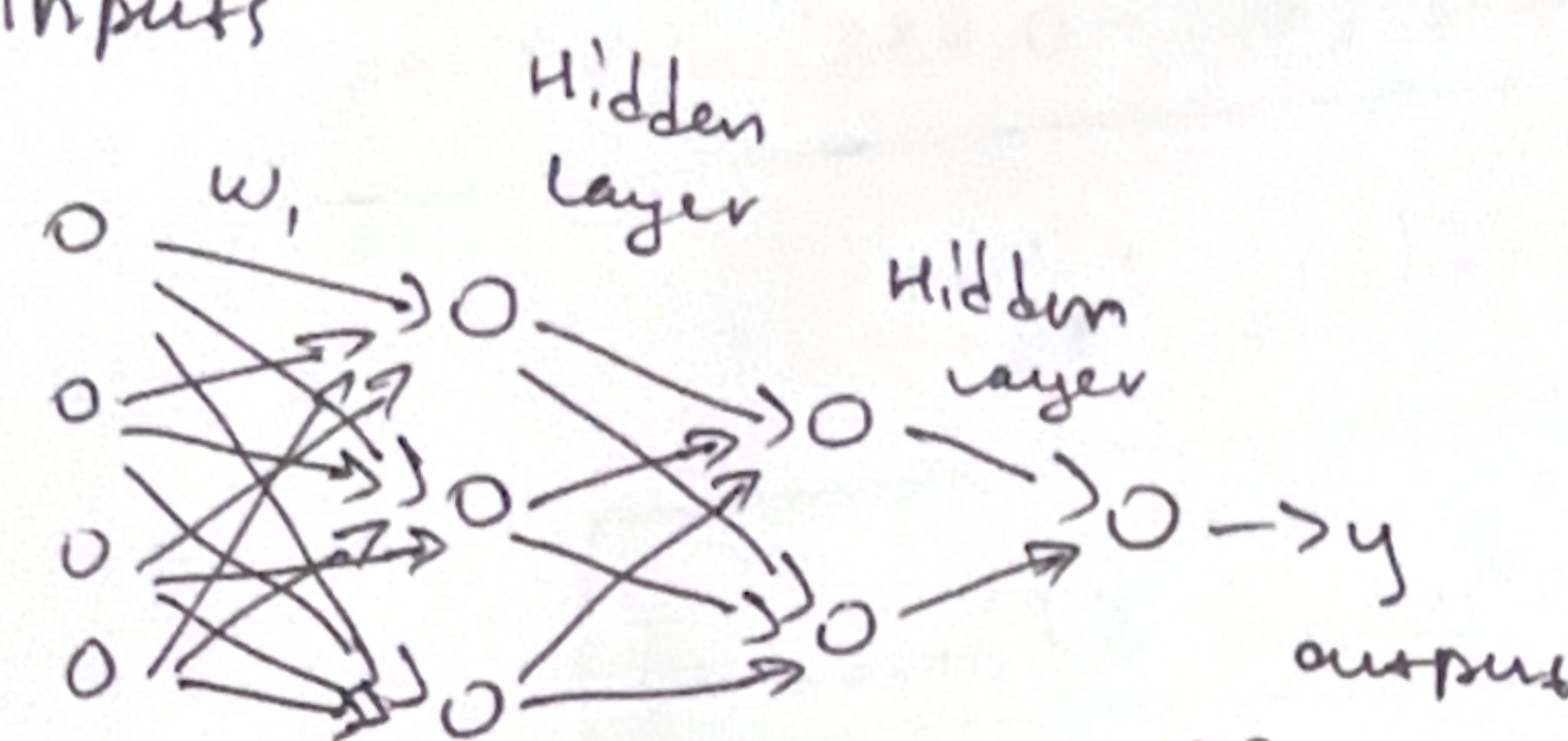
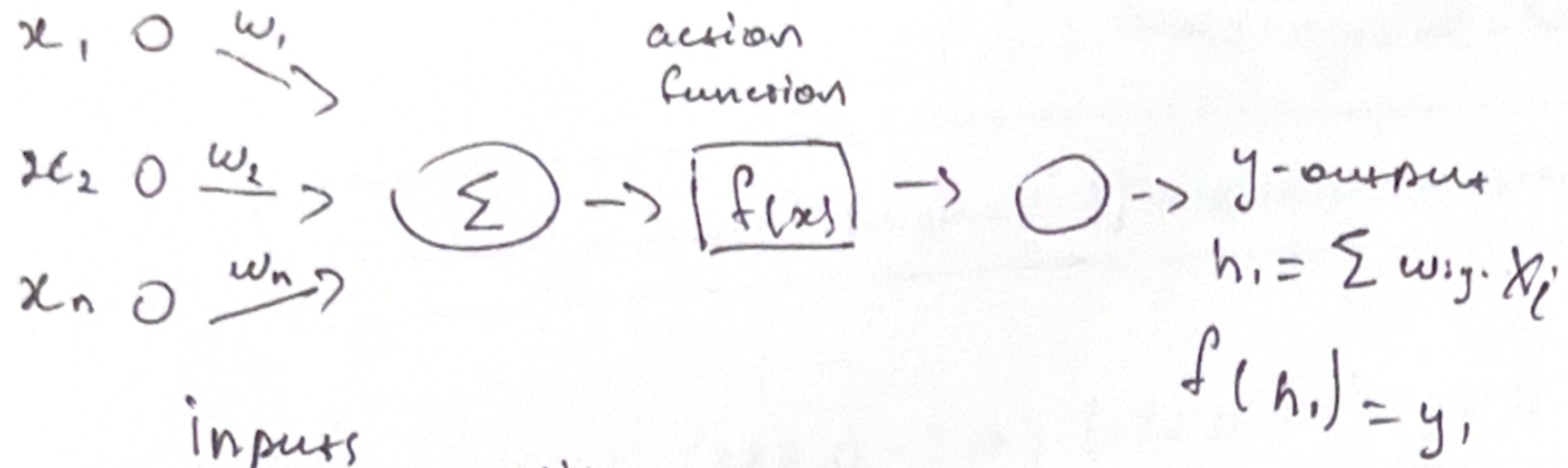
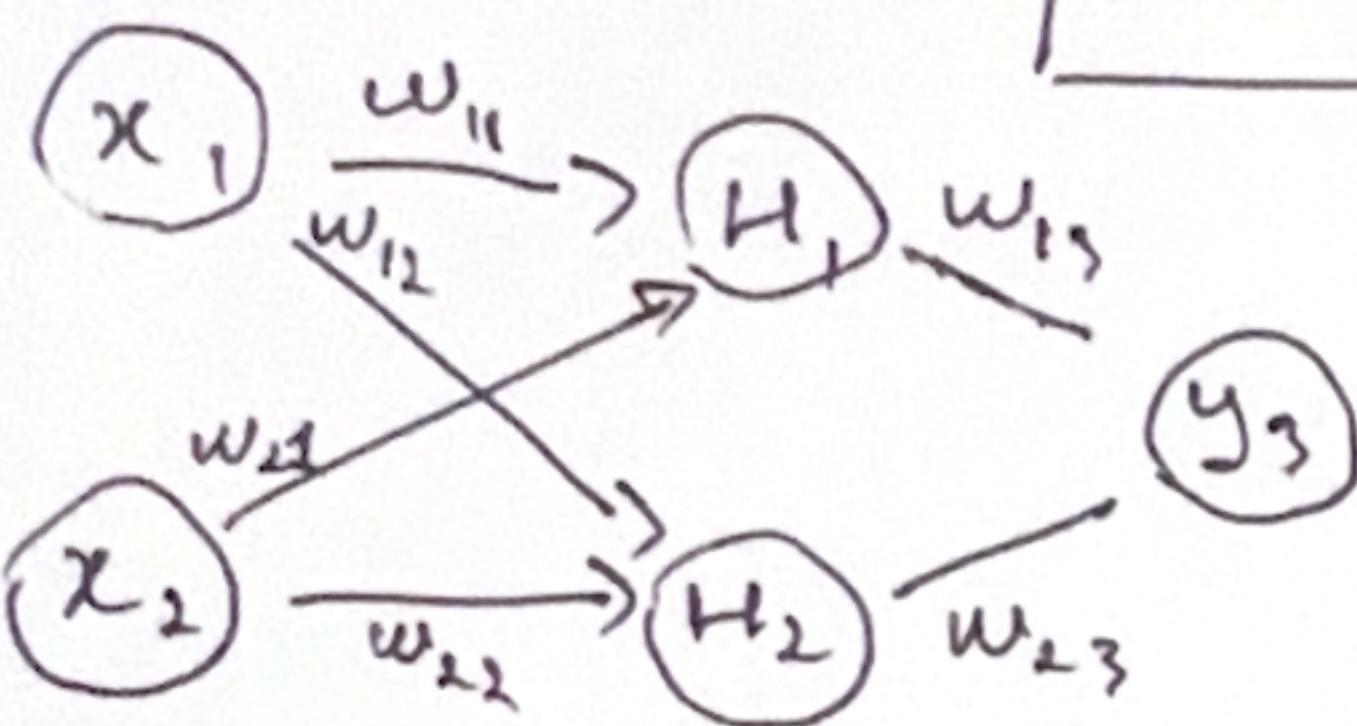


Neural network



90% gennauer auszubauen Cummenga

$$f(y) = \frac{1}{1+e^{-x}}$$



$$\begin{aligned} h_1 \text{ input} &= (x_1 \cdot w_{11}) + (x_2 \cdot w_{21}) & H_1 \\ h_1 &= 0,35 \cdot 0,0991 + 0,9 \cdot 0,7976 \\ h_1 &= 0,752525 \\ h_1 \text{ output} &\Rightarrow f(h_1 \text{ input}) = \frac{1}{1+e^{-0,752525}} \\ h_1 \text{ output} &\approx 0,6797 \end{aligned}$$

$$\begin{array}{l|l} \begin{aligned} x_1 &= 0,35 \\ x_2 &= 0,9 \end{aligned} & \begin{aligned} w_{11} &= 0,0991 \\ w_{12} &= 0,3971 \\ w_{21} &= 0,7976 \\ w_{22} &= 0,5926 \\ w_{13} &= 0,2724 \\ w_{23} &= 0,8731 \\ y_f &= 0,5 \end{aligned} \end{array}$$

$$E = (0,5 - 0,682) = -0,182$$

$$\begin{aligned} h_2 \text{ input} &= (x_1 \cdot w_{12}) + (x_2 \cdot w_{22}) & H_2 \\ h_2 &= (0,35 \cdot 0,3971) + (0,9 \cdot 0,5926) \\ h_2 &= 0,612385 \\ h_2 \text{ output} &\Rightarrow f(h_2 \text{ input}) = \frac{1}{1+e^{-0,612385}} \\ h_2 &\approx 0,6485 \end{aligned}$$

$$\begin{aligned} y_3 \text{ input} &= (h_1 \text{ output} \cdot w_{13}) + (h_2 \text{ output} \cdot w_{23}) & y_3 \\ y_3 &= (0,6797 \cdot 0,2724) + (0,6485 \cdot 0,8731) \\ y_3 &= 0,7532 \\ y_3 \text{ output} &\Rightarrow f(y_3 \text{ input}) = \frac{1}{1+e^{-0,7532}} \\ y_3 &\approx 0,682 \end{aligned}$$

$$\Delta W_{new} = \eta \cdot y_i \cdot d + w_{old}$$

η - learning rate

y_i - boxog nreg. war

d = genetar oshibka reskun.
war

ΔW_{old} - nreg. izmen. bera

Osnovnuee bera

$$\Delta w_{ij} = \eta \cdot y_i \cdot d_j$$

$$\Delta w_{ij} = 0,1 \cdot 0,67 \cdot 0,997 (-0,0406)$$

+ 0,27

$$\Delta w_{ij} = -0,00071 + 0,27$$

$$\Delta w_{ij} = 0,27$$

Dek boxoga war (d_3):

$$[d_{output} = y_{output} \cdot (1 - y_{output}) \cdot (y_{target} - y_{output})]$$

$$d_3 = 0,682 (1 - 0,682) \cdot (0,5 - 0,682) = -0,0406$$

Dek epravix war (d_2, d_1):

$$[d_{hidden} = y_{hidden} \cdot (1 - y_{hidden}) \cdot \sum (d_{next} \cdot w)]$$

$$d_1 = 0,67 (1 - 0,67) \cdot 0,27 \cdot (-0,0406)$$

$$d_1 = -0,0026$$

$$d_2 = 0,66 (1 - 0,66) \cdot 0,87 \cdot (-0,0406)$$

$$d_2 = -0,0082$$