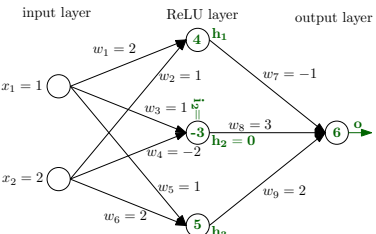

$$\frac{\partial L}{\partial o} = 2(output - gold) = 6$$

$$\frac{\partial L}{\partial w_7} = \frac{\partial L}{\partial o}\frac{\partial o}{\partial w_7} = \frac{\partial L}{\partial o}h_1 = 24$$

$$\frac{\partial L}{\partial w_8} = \frac{\partial L}{\partial o}\frac{\partial o}{\partial w_8} = \frac{\partial L}{\partial o}h_2 = 0$$

$$\frac{\partial L}{\partial w_9} = \frac{\partial L}{\partial o}\frac{\partial o}{\partial w_9} = \frac{\partial L}{\partial o}h_3 = 30$$

$$\frac{\partial L}{\partial w_1} = \frac{\partial L}{\partial i_1}\frac{\partial i_1}{\partial w_1} = \frac{\partial L}{\partial i_1}x_1 = -6$$

$$\frac{\partial L}{\partial w_2} = \frac{\partial L}{\partial i_1}\frac{\partial i_1}{\partial w_2} = \frac{\partial L}{\partial i_1}x_2 = -12$$

$$\frac{\partial L}{\partial w_3} = \frac{\partial L}{\partial i_2}\frac{\partial i_2}{\partial w_3} = \frac{\partial L}{\partial i_2}x_1 = 0$$

$$\frac{\partial L}{\partial w_4} = \frac{\partial L}{\partial i_2}\frac{\partial i_2}{\partial w_4} = \frac{\partial L}{\partial i_2}x_2 = 0$$

$$\frac{\partial L}{\partial w_5} = \frac{\partial L}{\partial i_3}\frac{\partial i_3}{\partial w_5} = \frac{\partial L}{\partial i_3}x_1 = 12$$

$$\frac{\partial L}{\partial w_6} = \frac{\partial L}{\partial i_3}\frac{\partial i_3}{\partial w_6} = \frac{\partial L}{\partial i_3}x_2 = 24$$

$$\frac{\partial L}{\partial h_1} = \frac{\partial L}{\partial o}\frac{\partial o}{\partial h_1} = \frac{\partial L}{\partial o}w_7 = -6$$

$$\frac{\partial L}{\partial h_2} = \frac{\partial L}{\partial o}\frac{\partial o}{\partial h_2} = \frac{\partial L}{\partial o}w_8 = 18$$

$$\frac{\partial L}{\partial h_3} = \frac{\partial L}{\partial o}\frac{\partial o}{\partial h_3} = \frac{\partial L}{\partial o}w_9 = 12$$

$$\frac{\partial L}{\partial i_1} = \frac{\partial L}{\partial h_1}\frac{\partial h_1}{\partial i_1} = \frac{\partial L}{\partial h_1}1 = -6$$

$$\frac{\partial L}{\partial i_2} = \frac{\partial L}{\partial h_2}\frac{\partial h_2}{\partial i_2} = \frac{\partial L}{\partial h_2}0 = 0$$

$$\frac{\partial L}{\partial i_3} = \frac{\partial L}{\partial h_3}\frac{\partial h_3}{\partial i_3} = \frac{\partial L}{\partial h_3}1 = 12$$

$$\frac{\partial L}{\partial x_1} = \sum_j \frac{\partial L}{\partial i_j}\frac{\partial i_j}{\partial x_1} = 0$$

$$\frac{\partial L}{\partial x_2} = \sum_j \frac{\partial L}{\partial i_j}\frac{\partial i_j}{\partial x_2} = 18$$