Ayu/koliyev Yerbolsyn

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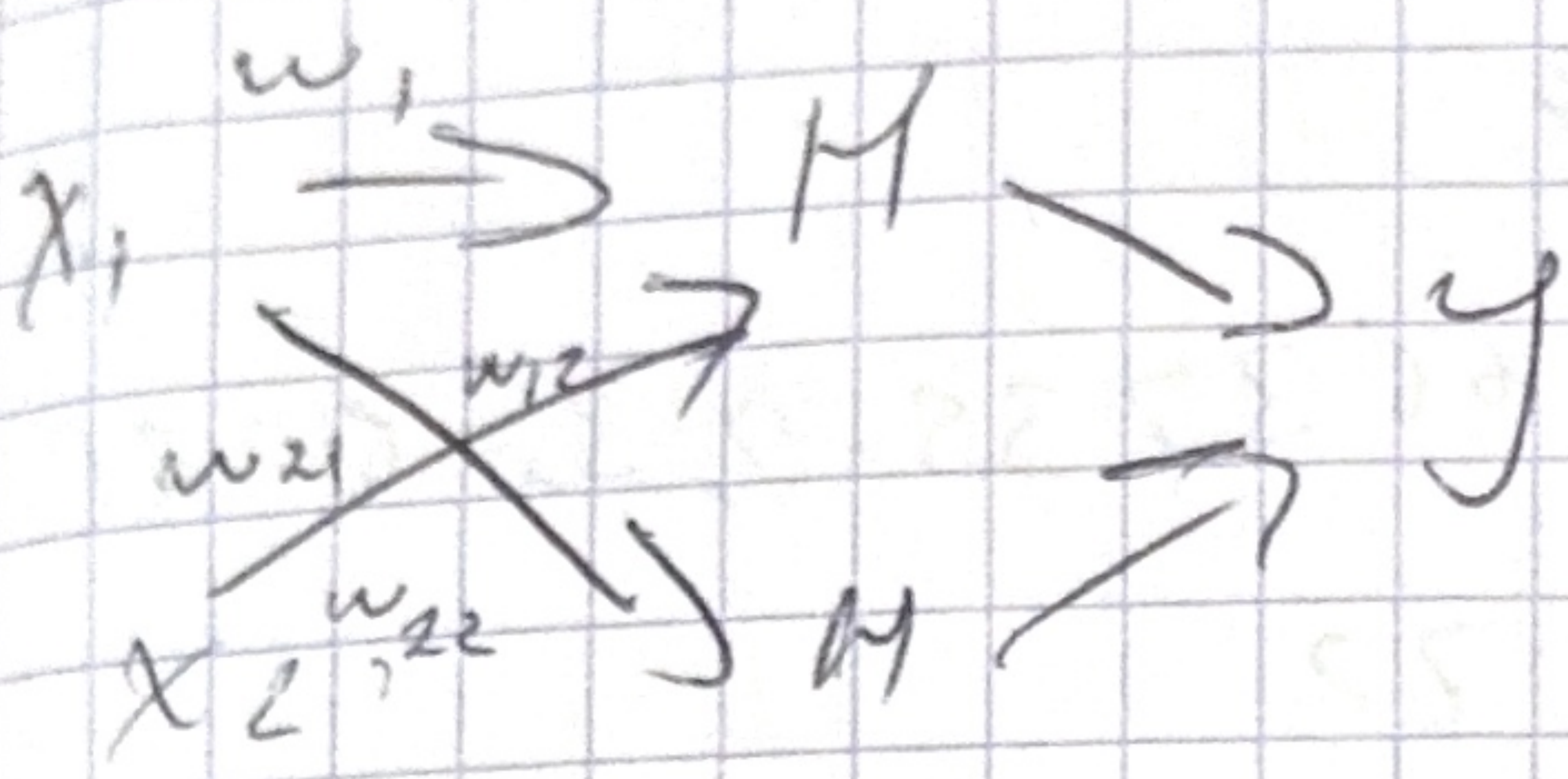

$$\sigma = \frac{1}{1+e}$$

$x_1 = 0,35$ $\quad$ $w_{21} = 0,8$

$w_{11} = 0,1$ $\quad$ $w_{22} = 0,6$

$w_{12} = 0,4$ $\quad$ $h = 1$ $\quad$ $y_{target} = 0,5$

1 итерация

$a_1 = x_1 w_{11} + x_2 w_{21} = 0,35 \cdot 0,1 + 0,9 \cdot 0,8 = 0,755$

$h_1 = \sigma(a_1) = 0,680267$

$a_2 = x_1 w_{12} + x_2 w_{22} = 0,35 \cdot 0,4 + 0,9 \cdot 0,6 = 0,68$

$h_2 = \sigma(a_2) = 0,663739$

$a_y = h_1 w_{13} + h_2 w_{23} = 0,680267 \cdot 0,3 + 0,663739 \cdot 0,9 =$

$= 0,801445$ $\quad$ $y = \sigma(a_y) = 0,690283$

$\delta_{out} = (t-y)y(1-y) = (0,5-0,69) \cdot 0,69 \cdot (1-0,690283) =$

$= -0,040681$

$\delta_1 = h_1(1-h_1)(w_{13}\delta_{out}) = 0,680267 \cdot 0,318767 \cdot$

$\cdot(0,3-0,040681) = -0,002654$

$\delta_2 = h_2(1-h_2(w_{23}\delta_{out})) = 0,663735 \cdot 0,336261$

$\cdot(0,8-0,040681) = -0,000817.2$

$\Delta w_{13} = \eta \delta_{out} h_1 = 1(-0,040681)\ 0,680267 =$

$= 0,027674$

$w_{13}^{new} = 0,3 + (-(0,027674)) = 0,2723326$

$\Delta w_{23} = \eta \delta_{out} h_2 = 1(-0,040681)\ 0,663739 =$

$= -0,027002$

$w_{23} = 0,8 + (-0,027002) = 0,872998.$

$\Delta w_4 = 1(-0,002654) \cdot 0,35 = -0,000829$

$\Delta w_{21} = 1 \cdot (-0,002654) \cdot 0,8 = -0,002389$

$\Delta w_{12} = 1 \cdot (-0,000817.2) \cdot 0,35 = -0,002860$

$\Delta w_{22} = 1(-0,00872) \cdot 0,8 = -0,007354$

$y_{new} = \sigma(h_1 w_{13}^{new} + h_2 w_{23}^{new}) = 0,682019$

2 интервал

$y_1 = 0,35 \cdot 0,089071 + 0,8 \cdot 0,797611 = 0,752525$

$y_1 = 0,679729$

$y_2 = 0,35 \cdot 0,397140 + 0,9 \cdot 0,582646 = 0,672350$

$y_{s_2} = 0,662086$

$E = \frac{1}{2}(t-y)^2 = \frac{1}{2}(0,5 - 0,682019)^2 = 0,016566$

$\delta_{out} = (t-y)y(1-y) = 0,5 - 0,682019 \quad 0,682015$

$0,317987 = -0,039474$

$\delta_1 = y_1(1-y_1)(w_{13}\delta_{out}) = 0,679725 \cdot 0,320271$

$(0,272326(-0,039474) = -0,002340$

$\delta_2 = 0,662036 \cdot 0,337964 (0,872938(-0,039474)$

$= -0,007710$

$\Delta w_{13} = -0,026832$ $\quad w_{13}^{new} = 0,245491$

$\Delta w_{23} = -0,026133$ $\quad w_{23}^{new} = 0,984683$

$\Delta w_{11} = -0,000878$ $\quad w_{11}^{new} = 0,098254$

$\Delta w_{21} = -0,002106$ $\quad w_{12}^{new} = 0,098252$

$\Delta w_{12} = -0,002689$ $\quad w_{12}^{new} = 0,354441$

$\Delta w_{22} = -0,006539$ $\quad w_{22}^{new} = 0,585706.$

3 итерация

$\alpha_1 = 0{,}35 \cdot 0{,}038252 + 0{,}5 \cdot 0{,}795505 = 0{,}7520308$

$h_1 = \frac{f}{1 + e^{-0{,}7520308}} = 0{,}676814$

$\alpha_2 = 0{,}670895$08 $\alpha_2 = 0{,}661703$

$\alpha_y = \alpha_1 \cdot 0{,}245494 + h_2 \cdot 0{,}846885 = 0{,}755770$

$y = 0{,}680435$

$E = \frac{1}{2}(t-y)^2 = \frac{1}{2}(0{,}5 - 0{,}680435)^2 = 0{,}016278$

$\delta_{вых} = (t-y)y(1-y) = (0{,}5 - 0{,}680435) \cdot 0{,}680435 \cdot$

$0{,}319565 - 0{,}083237$

$\delta_1 = 0{,}679664 \cdot 0{,}320366 (0{,}245494 (-0{,}033237)) =$

$= -0{,}002287$

$\delta_2 = 0{,}661703 \cdot 0{,}338297 (0{,}846885 (-0{,}033234)) =$

$= -0{,}007622$

$\Delta w_{13} = -0{,}026685$ $w_{13}^{нов} = 0{,}218825$

$\Delta w_{23} = -0{,}025561$ $w_{23}^{нов} = 0{,}820904$

$\Delta w_{11} = \delta_1 \cdot d_1 = -0,0022871 \cdot 0,35 = -0,0007755$

$\Delta w_{11}^{new} = 0,057454$

$\Delta w_{21} = -0,002053$ $\quad w_{21}^{new} = 0,793452$

$\Delta d_2 = +0,002668$ $\quad w_{12}^{new} = 0,391873$

$\Delta d_{22} = -0,000660$ $\quad w_{22}^{new} = 0,578896$

4 итерация

$d_1 = 0,35 \cdot 0,057454 + 0,65 \cdot 0,793452 = 0,748216$

$\lambda_1 = 0,668785785$

$d_2 = 0,6580581795$

$\lambda_2 = 0,6588233354$

$d_y = 0,6893745274$

$y = 0,6658287283$

$\sum = \frac{1}{2}(t-y)^2 = \frac{1}{2}(95 - 0,6658287283)^2 = 0,013749427$

$\delta_{out} = 0,0368568872$

$\delta_1 = -0,0017604921$

$\delta_2 = -0,0068108$

$\Delta w_{13} = -0,0235045220$ $\quad w_{13}^{new} = 0,1493288780$

$\Delta w_{23} = -0,0243087794$ $\quad w_{23}^{new} = 0,7965852256.$

$\Delta w_{11} = +0,000616151$

$\Delta w_{21} = +0,001584388$

$\Delta w_{12} = -0,002382838$

$\Delta w_{22} = -0,000612788$

$w_{11}^{new} = 0,096837848$

$w_{21}^{new} = 0,738617612$

$w_{12}^{new} = 0,388339016$

$w_{22}^{new} = 0,572718702$