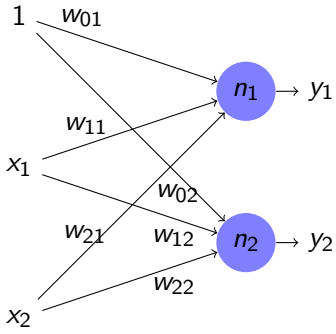
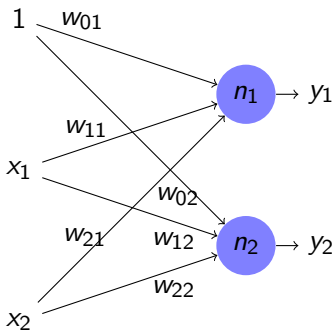
Обратное распространение ошибки

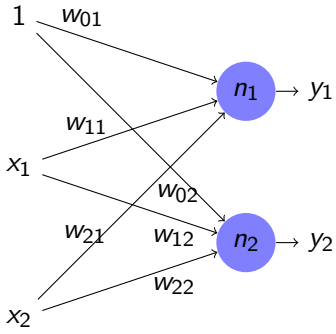


Обратное распространение ошибки

$$D_k(y_1, y_2) = (y_1 - a_1)^2 + (y_2 - a_2)^2$$



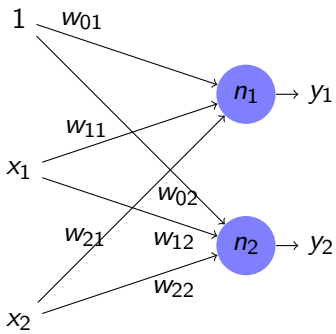
Обратное распространение ошибки



$$D_k(y_1, y_2) = (y_1 - a_1)^2 + (y_2 - a_2)^2$$

$$\frac{\partial D_k}{\partial y_1} =$$

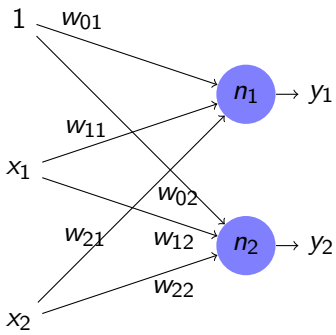
Обратное распространение ошибки



$$D_k(y_1, y_2) = (y_1 - a_1)^2 + (y_2 - a_2)^2$$

$$\frac{\partial D_k}{\partial y_1} = 2(y_1 - a_1)$$

Обратное распространение ошибки



$$D_k(y_1, y_2) = (y_1 - a_1)^2 + (y_2 - a_2)^2$$

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Обратное распространение ошибки

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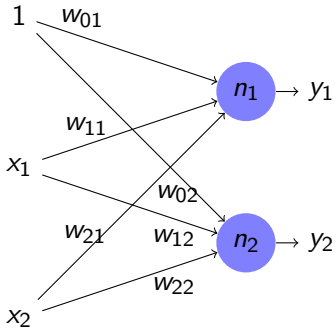
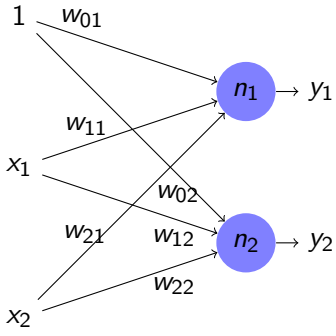


$$\frac{\partial D_k}{\partial y_1} = 2(y_1 - a_1) \qquad \frac{\partial D_k}{\partial y_2} = 2(y_2 - a_2)$$

$$y_1 = y_1(w_{01}, w_{11}, w_{21}) =$$

Обратное распространение ошибки



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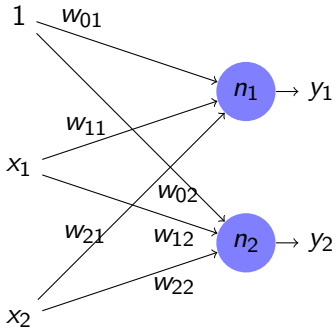
Обратное распространение ошибки



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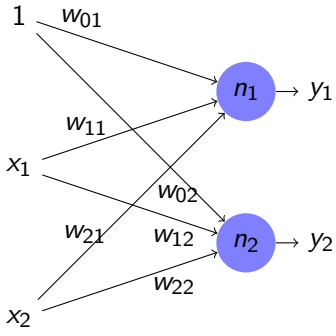

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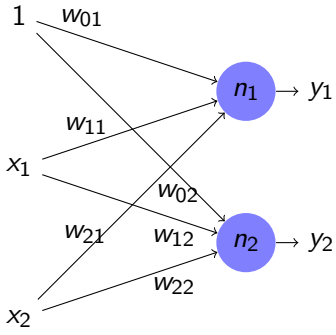
Обратное распространение ошибки



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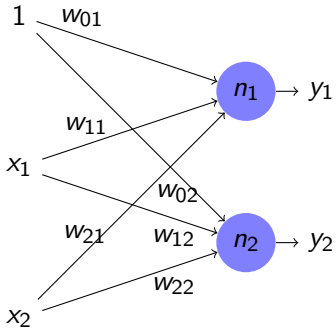
Обратное распространение ошибки



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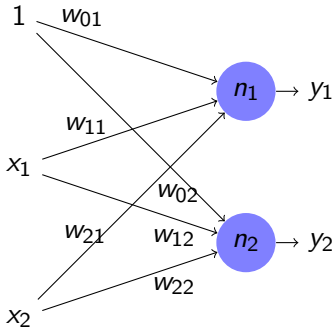

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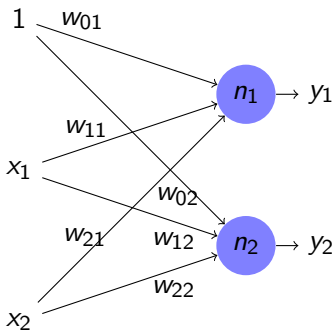
Обратное распространение ошибки



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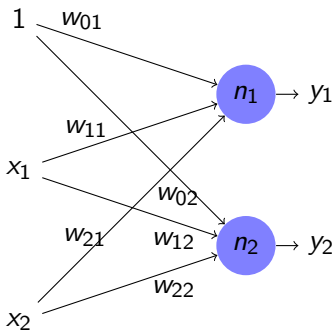
Обратное распространение ошибки



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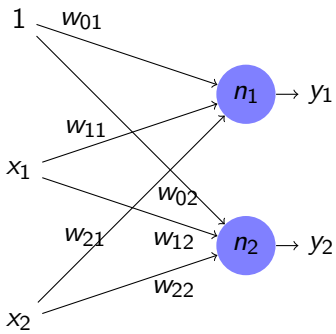
Обратное распространение ошибки



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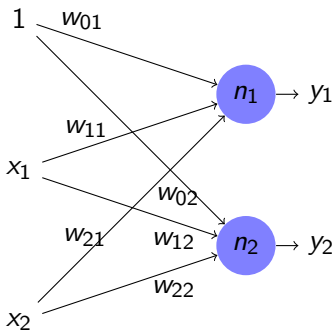
Обратное распространение ошибки



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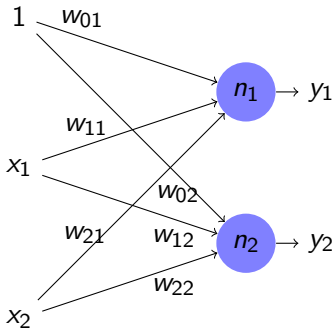
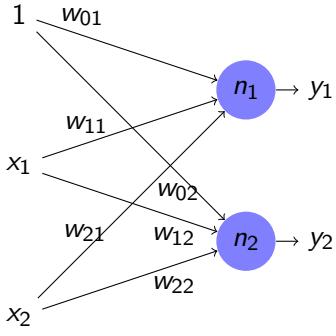
Обратное распространение ошибки



Обратное распространение ошибки



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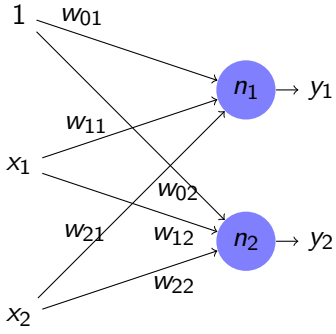
Обратное распространение ошибки



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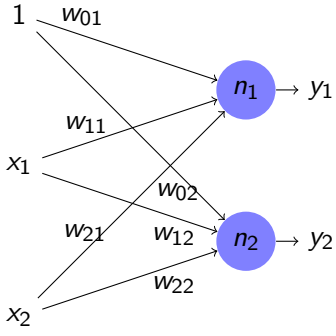
$$\frac{\partial D_k}{\partial y_i} =$$

Обратное распространение ошибки



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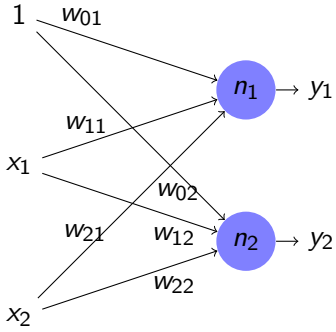
$$\frac{\partial D_k}{\partial y_i} = 2(y_i - a_i)$$

Обратное распространение ошибки



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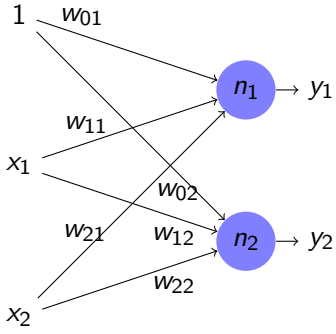
Обратное распространение ошибки



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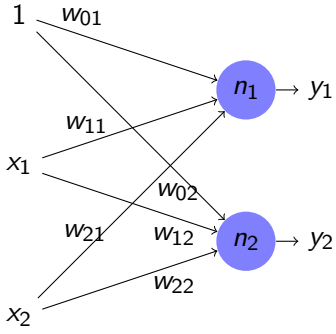

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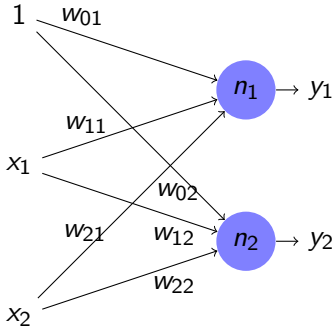
Обратное распространение ошибки



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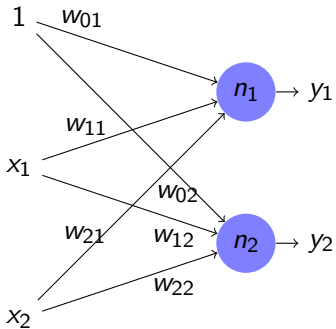

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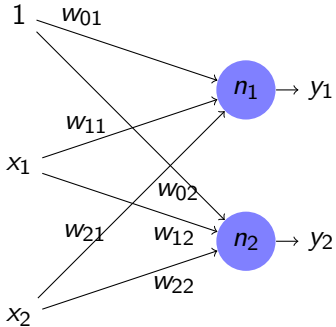
Обратное распространение ошибки



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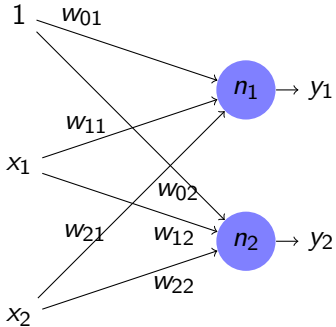

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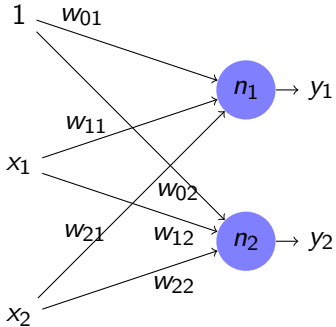
$$\frac{\partial E_k}{\partial w_{ji}} = \sum_{l=1}^{n} \frac{\partial D_k}{\partial y_l} \frac{\partial y_l}{\partial w_{ji}}$$

Обратное распространение ошибки



$$D_k(y_1, ..., y_n) = (y_1 - a_1)^2 + ... + (y_n - a_n)^2$$

$$\frac{\partial D_k}{\partial y_i} = 2(y_i - a_i)$$

$$S_i = \sum_{j=0}^{m} x_j w_{ji} \qquad y_i = f(S_i) \qquad \frac{\partial y_i}{\partial w_{ji}} = f'(S_i)x_j$$

$$E_k(W) = D_k(y_1(w_{01}, \ldots, w_{mn}), \ldots, y_n(w_{0n}, \ldots, w_{mn}))$$

$$\frac{\partial E_k}{\partial w_{ji}} = \sum_{l=1}^{n} \frac{\partial D_k}{\partial y_l} \frac{\partial y_l}{\partial w_{ji}} = 2(y_i - a_i)f'(S_i)x_j$$