

Q1. Consider a small dataset with four points, where each point is in 2D, and y is their classification label. Can we classify this dataset perfectly using a single nonlinear perceptron?

x_1	x_2	y
0	0	0
0	1	1
1	0	1
1	1	0

a) Yes

b) No

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a) Yes

b) No 

Solution:

XOR is not linearly separable, so we cannot use a single neuron (perceptron) to classify this problem.

Q1. Consider a three-layer network with **linear Perceptrons** for binary classification. The hidden layer has 3 neurons. Can the network represent a XOR problem?

- a) Yes
- b) No

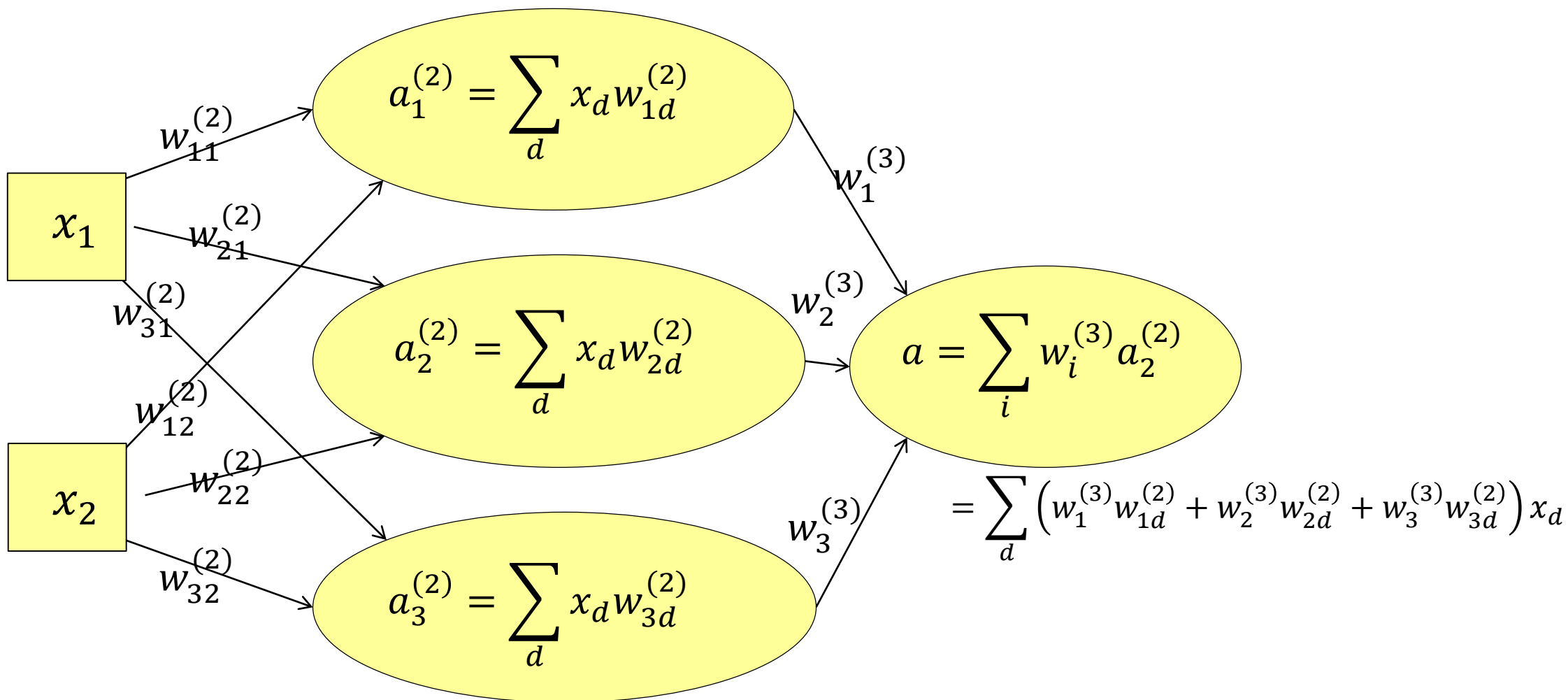
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a) Yes

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Solution:

A combination of linear Perceptrons is still a linear function.



Q5. Gradient descent in neural networks computes the _____ of a loss function w.r.t. the model _____ until convergence.

- a) gradients, parameters
- b) parameter, gradients
- c) loss, parameters
- d) parameters, loss

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