

Multi-Layer
Neural Networks

BHI Youth Awards

KING'S
College
LONDON

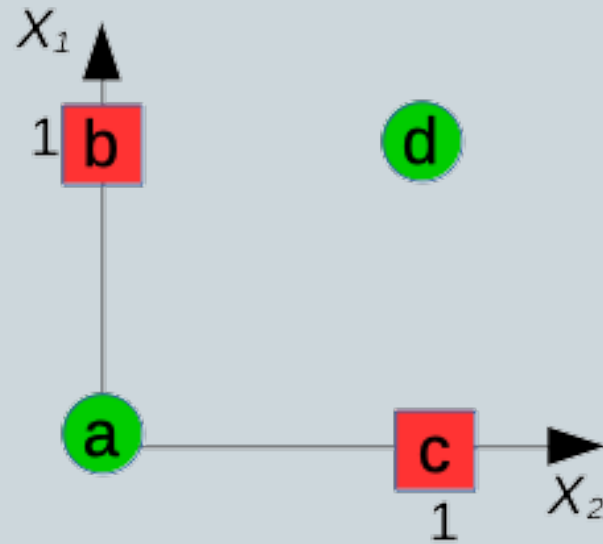


NIHR | Maudsley Biomedical
Research Centre

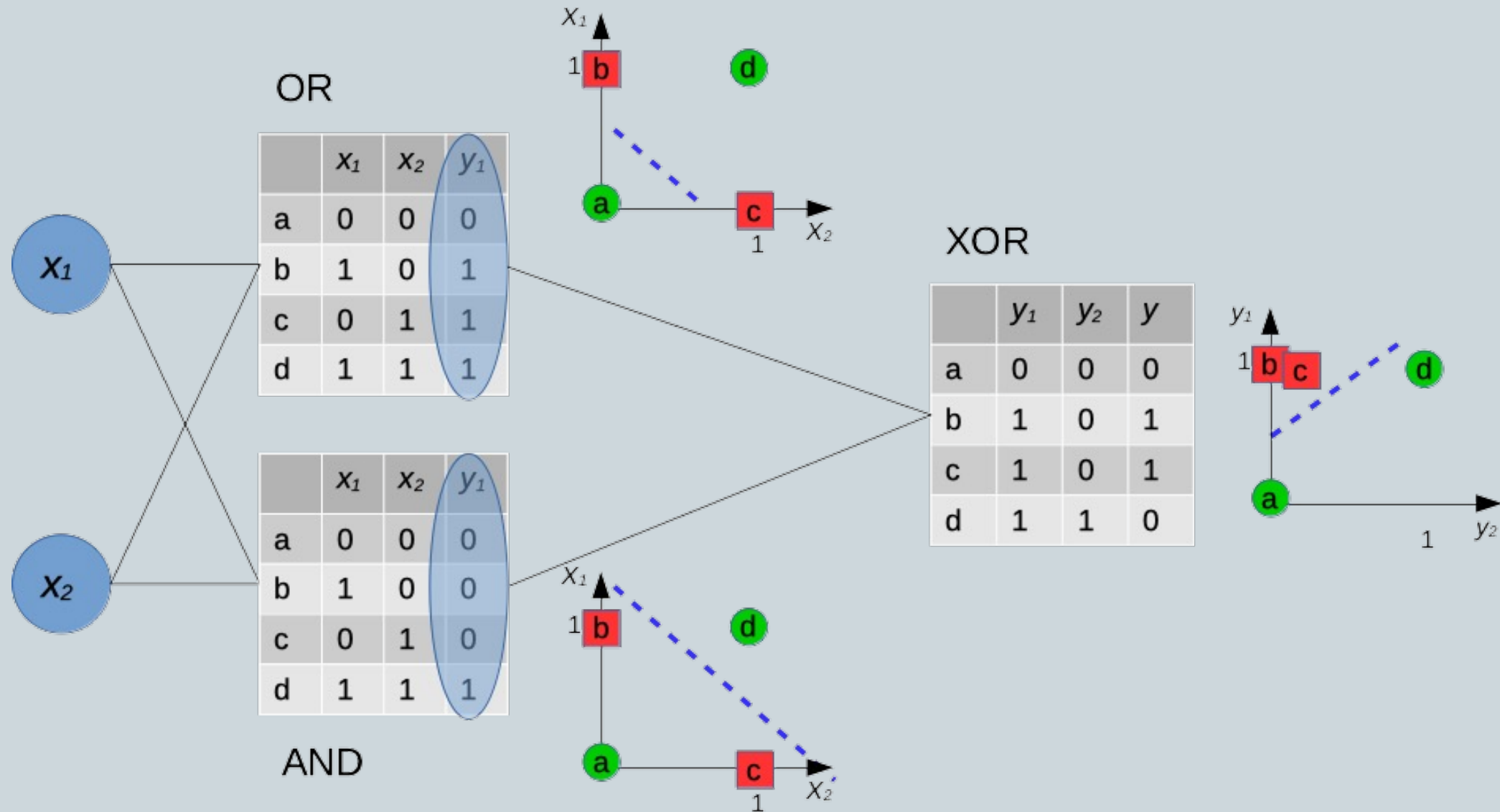
XOR is not linearly separable

XOR

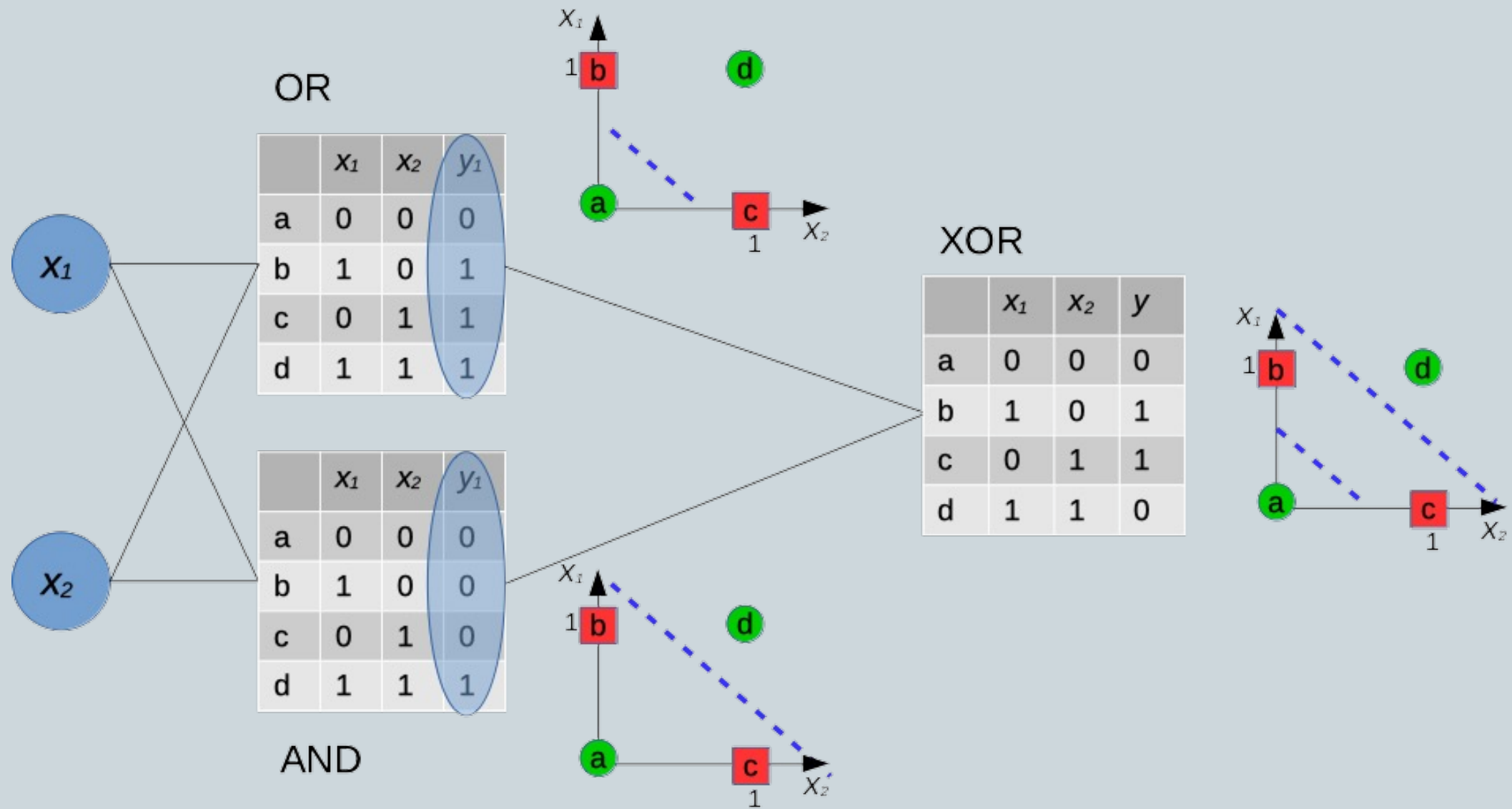
	x_1	x_2	y
a	0	0	0
b	1	0	1
c	0	1	1
d	1	1	0



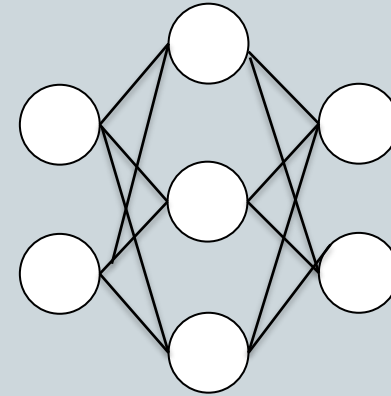
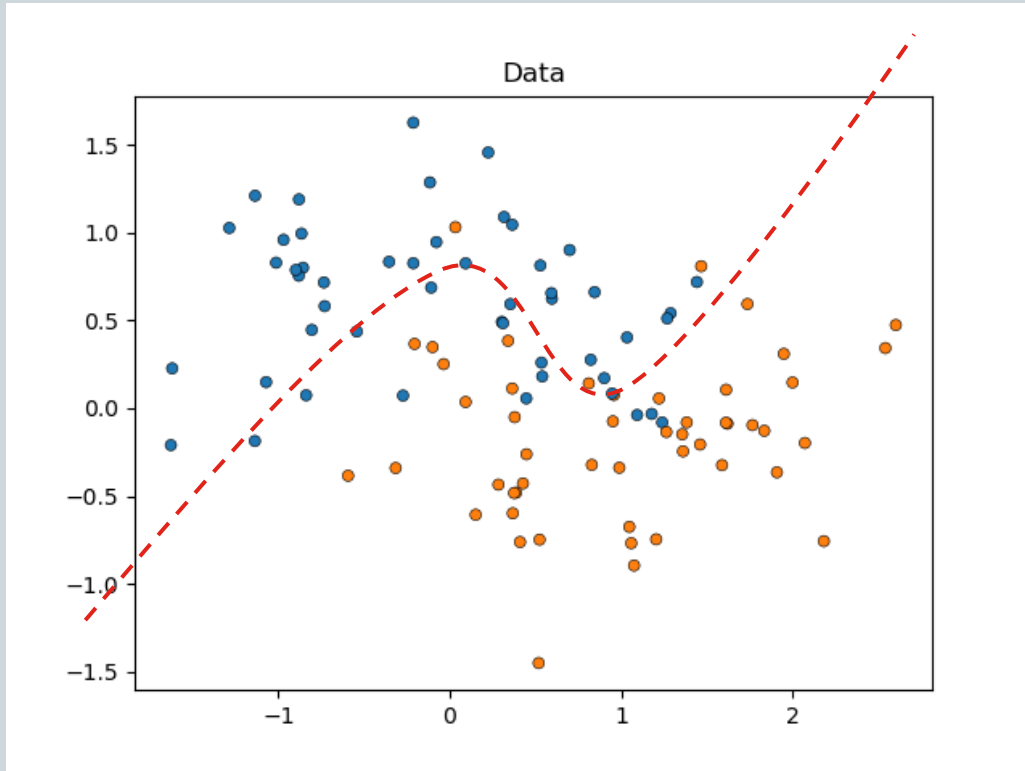
Solving a non-linear problem



Solving a non-linear problem

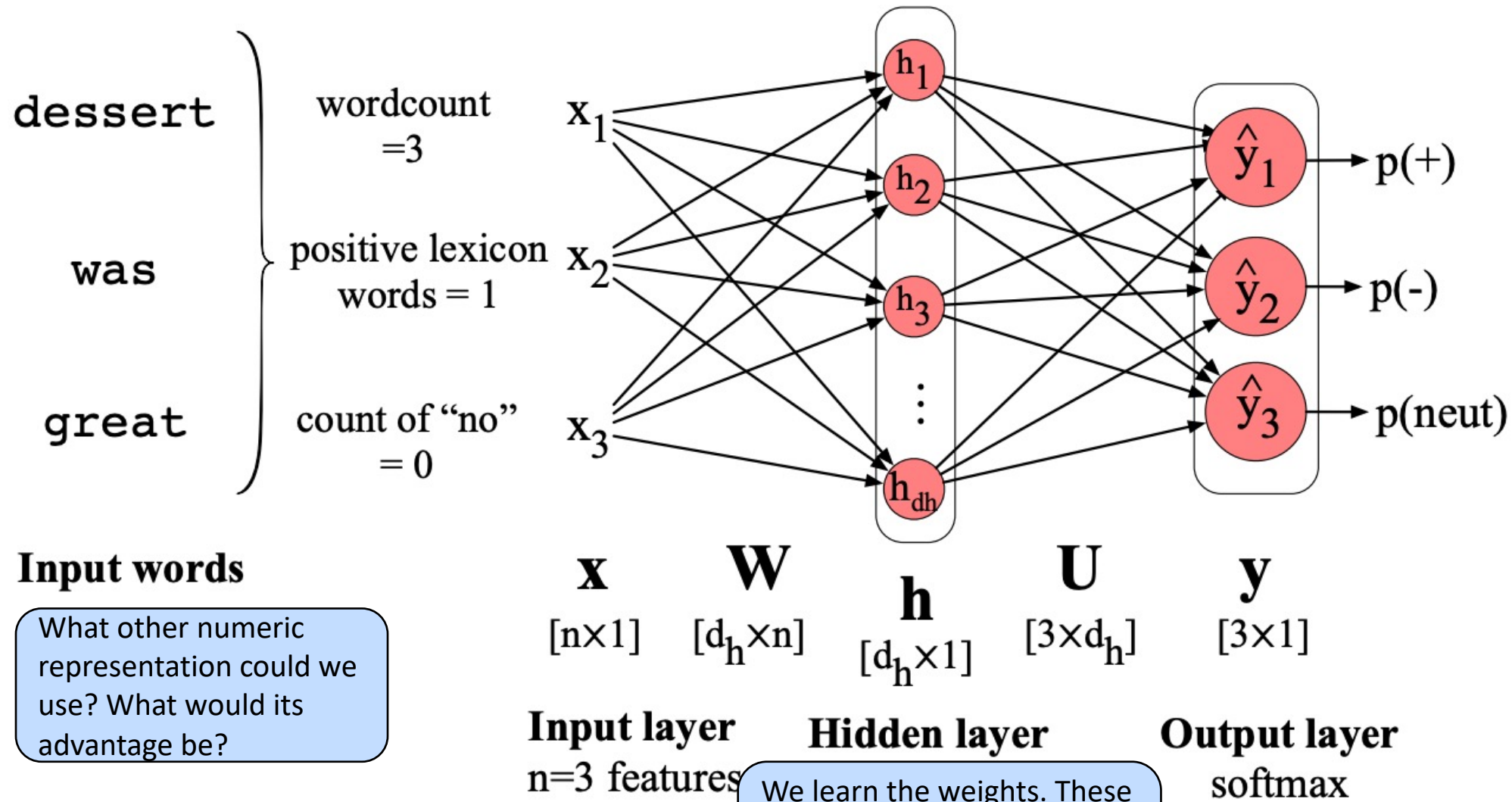


A single perceptron can only model linearly separable problems



Solvable with 12
parameters (weights)

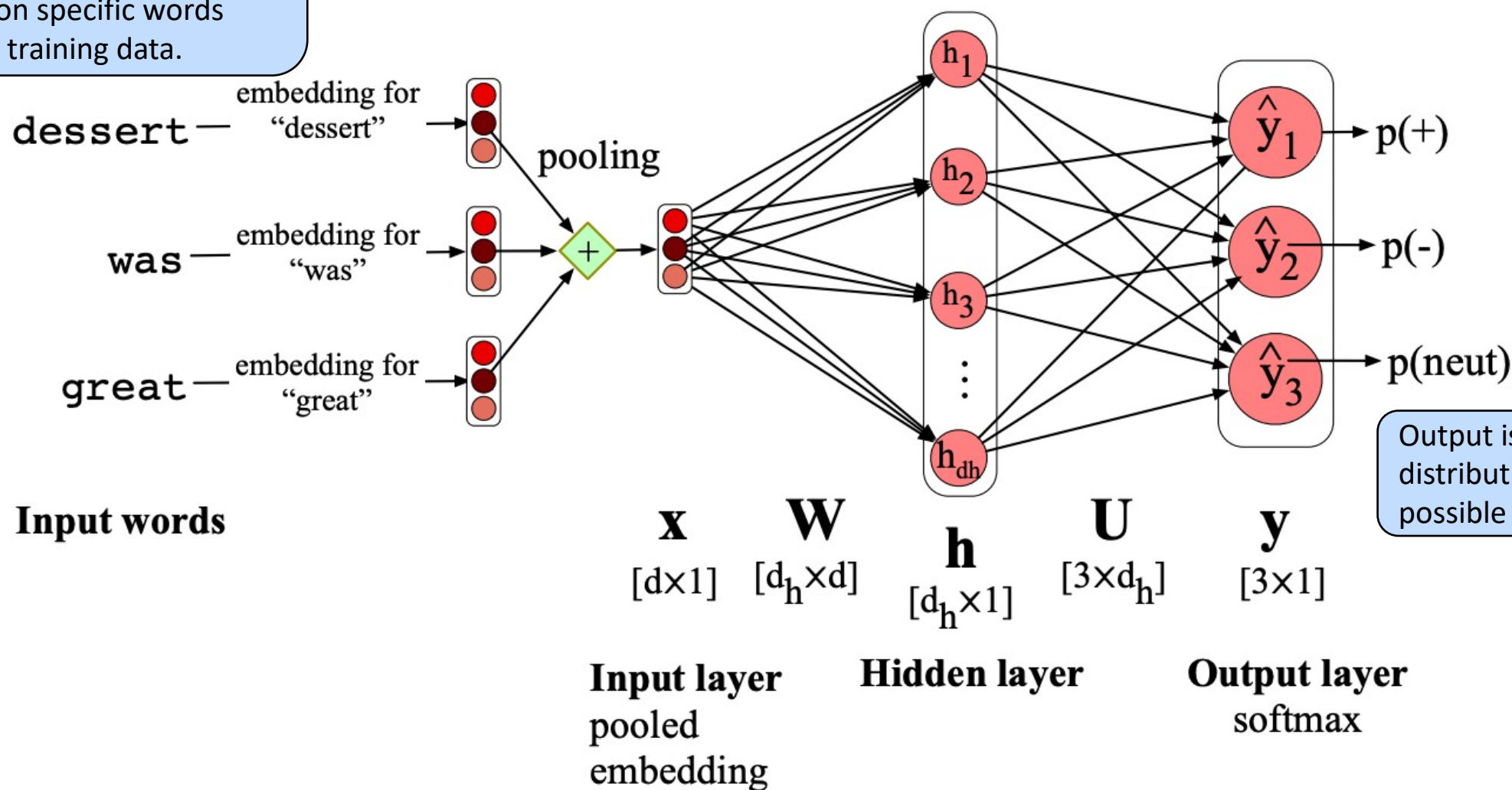
How do we model language in a neural network?



(Jurafsky and Martin, Fig. 7.10)

How do we model language in a neural network?

Replace the words with embeddings. The model will be more general, rather than focused on specific words from the training data.



Output is a probability distribution over all possible values

Thank you

angus.roberts@kcl.ac.uk

<https://www.kcl.ac.uk/people/angus-roberts>