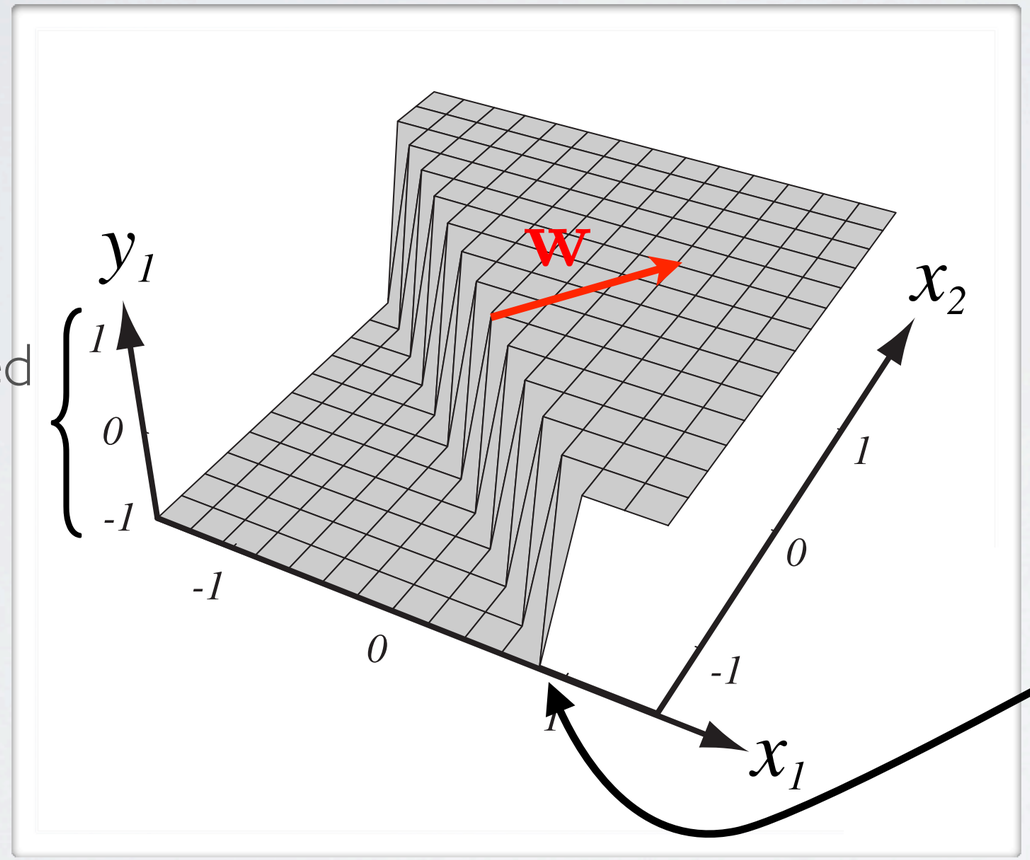
Neural networks

Feedforward neural network - capacity of single neuron

ARTIFICIAL NEURON

Topics: connection weights, bias, activation function

range determined by $g(\cdot)$



bias b only changes the position of the riff

(from Pascal Vincent's slides)

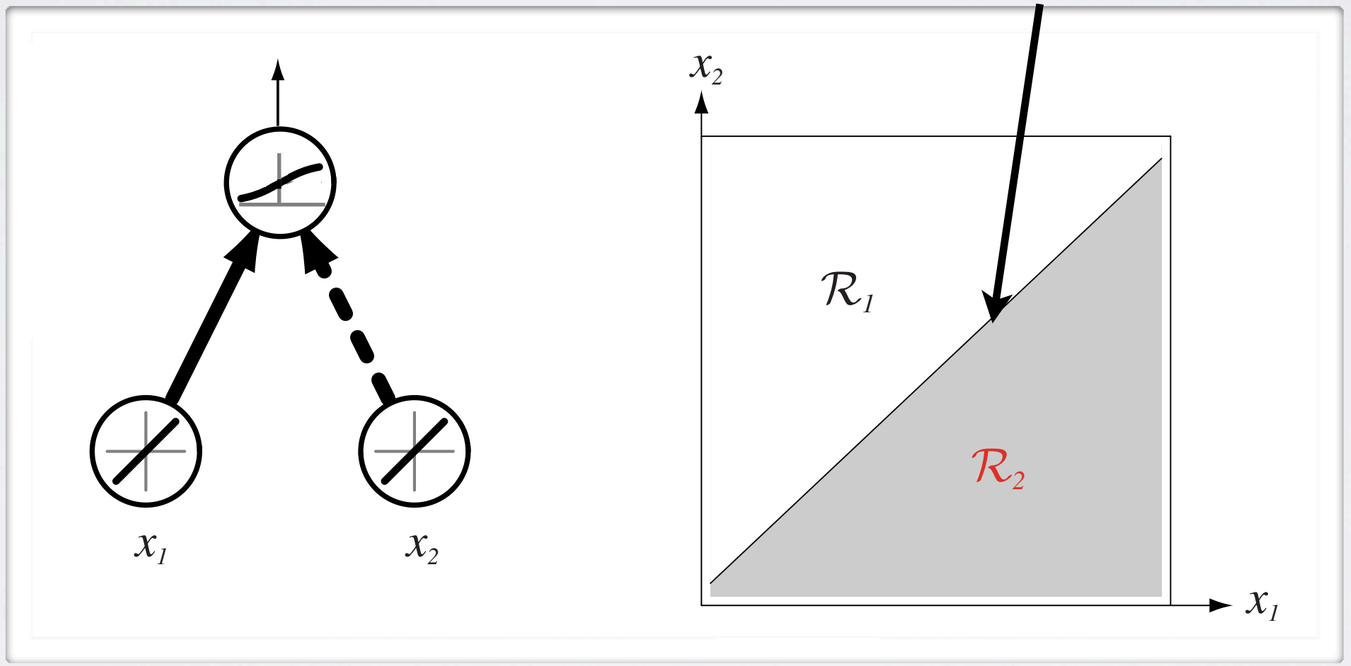
ARTIFICIAL NEURON

Topics: capacity, decision boundary of neuron

- Could do binary classification:
  - with sigmoid, can interpret neuron as estimating $p(y = 1|\mathbf{x})$
  - also known as logistic regression classifier
  - if greater than 0.5, predict class 1
  - otherwise, predict class 0

(similar idea can apply with tanh)

decision boundary is linear

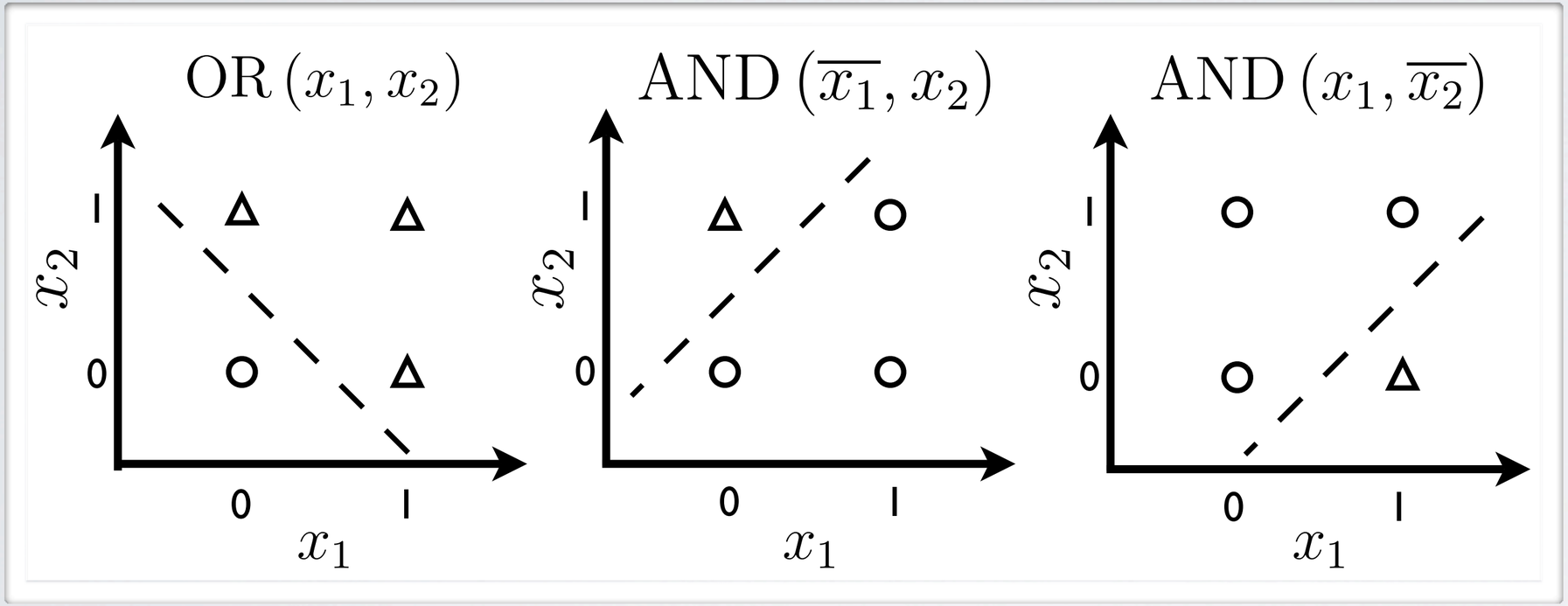


(from Pascal Vincent's slides)

ARTIFICIAL NEURON

Topics: capacity of single neuron

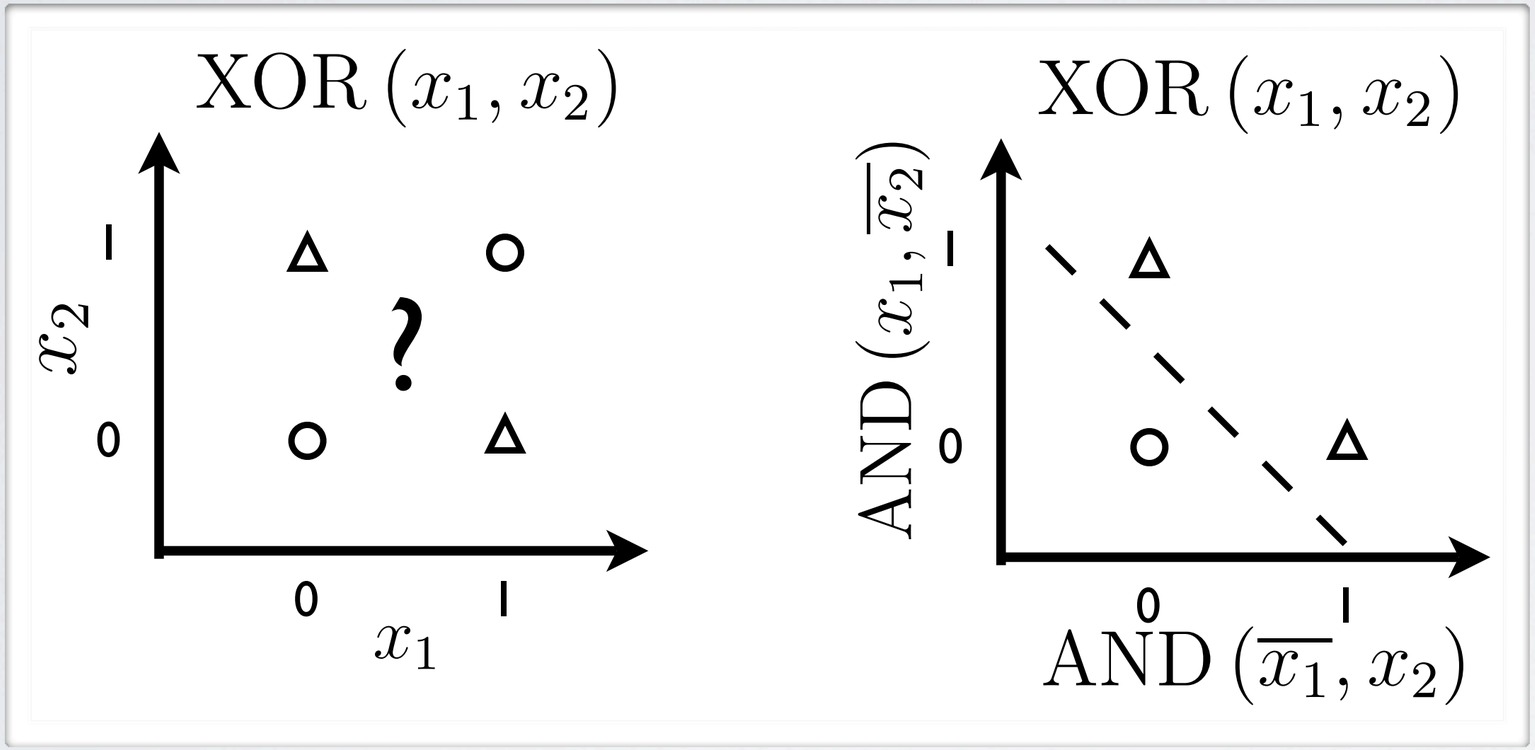
- Can solve linearly separable problems



ARTIFICIAL NEURON

Topics: capacity of single neuron

- Can't solve non linearly separable problems...



- ... unless the input is transformed in a better representation