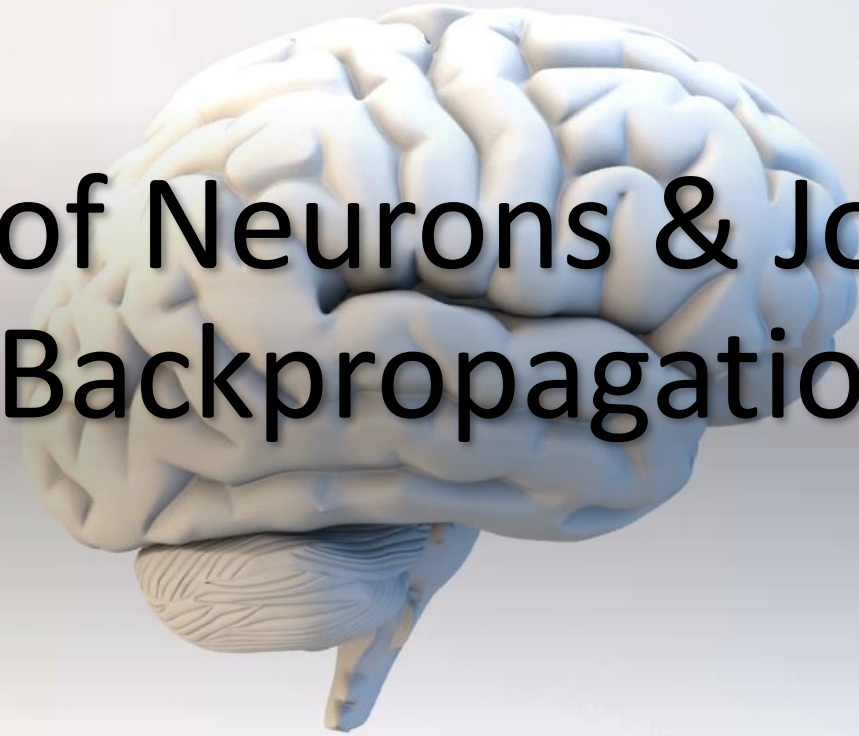


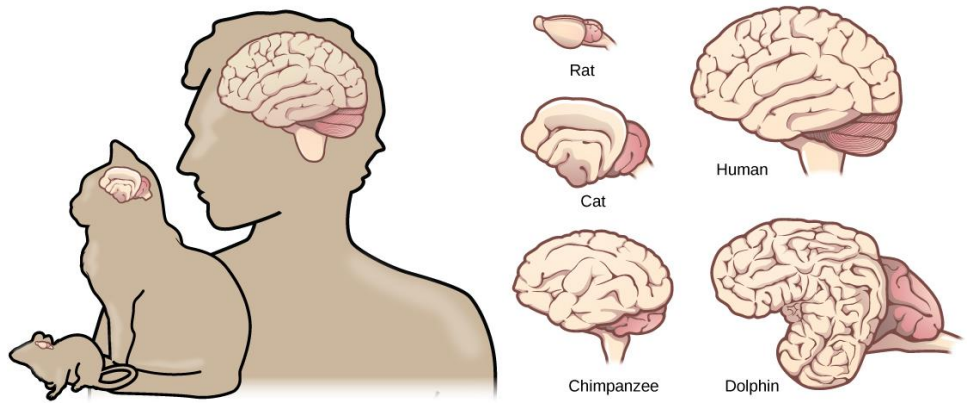
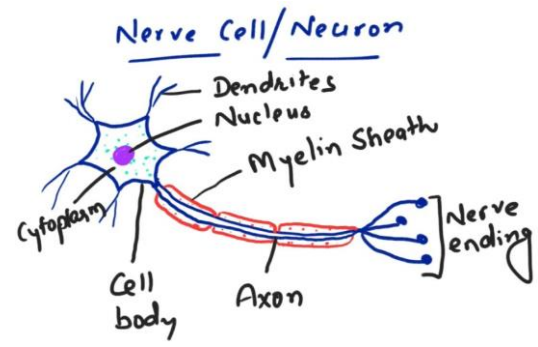
Nature of Neurons & Journey of Backpropagation



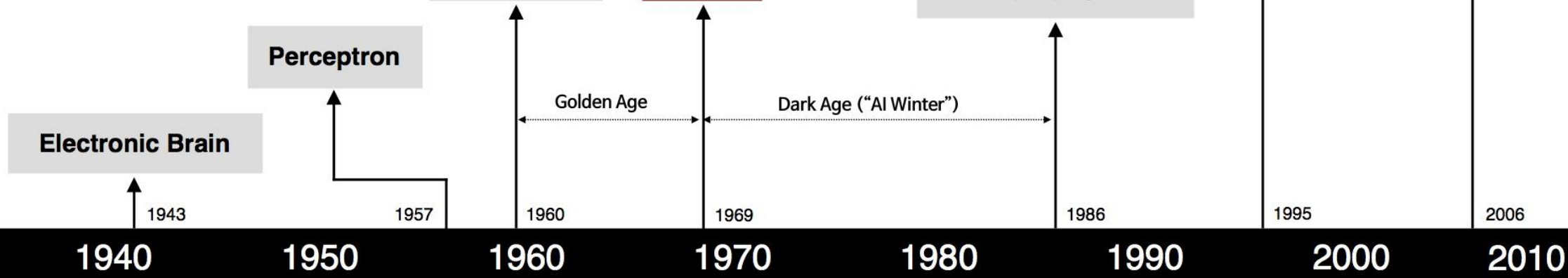


Hand Drawn Sketch of Biological Neural Network

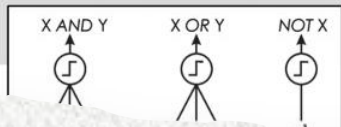




Correlation between
Cognitive abilities and
number of neurons



S. McCulloch - W. Pitts



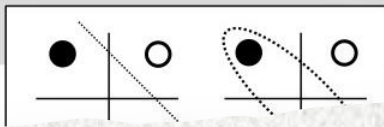
F. Rosenblatt



B. Widrow - M. Hoff



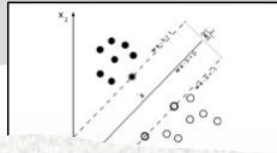
M. Minsky - S. Papert



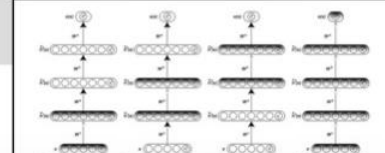
D. Rumelhart - G. Hinton - R. Williams



V. Vapnik - C. Cortes



G. Hinton - S. Ruslan

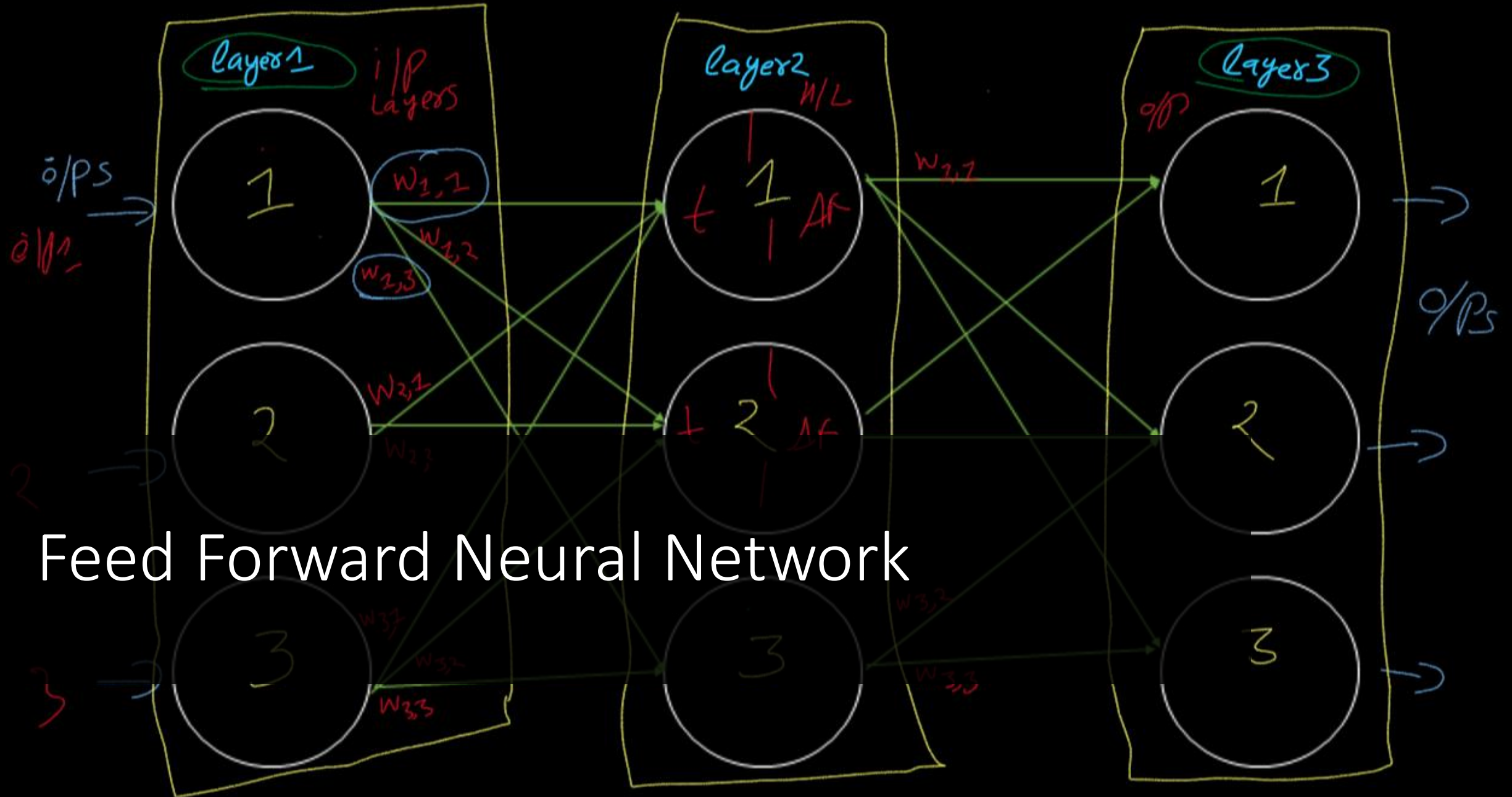


History of ANN



Activation Function

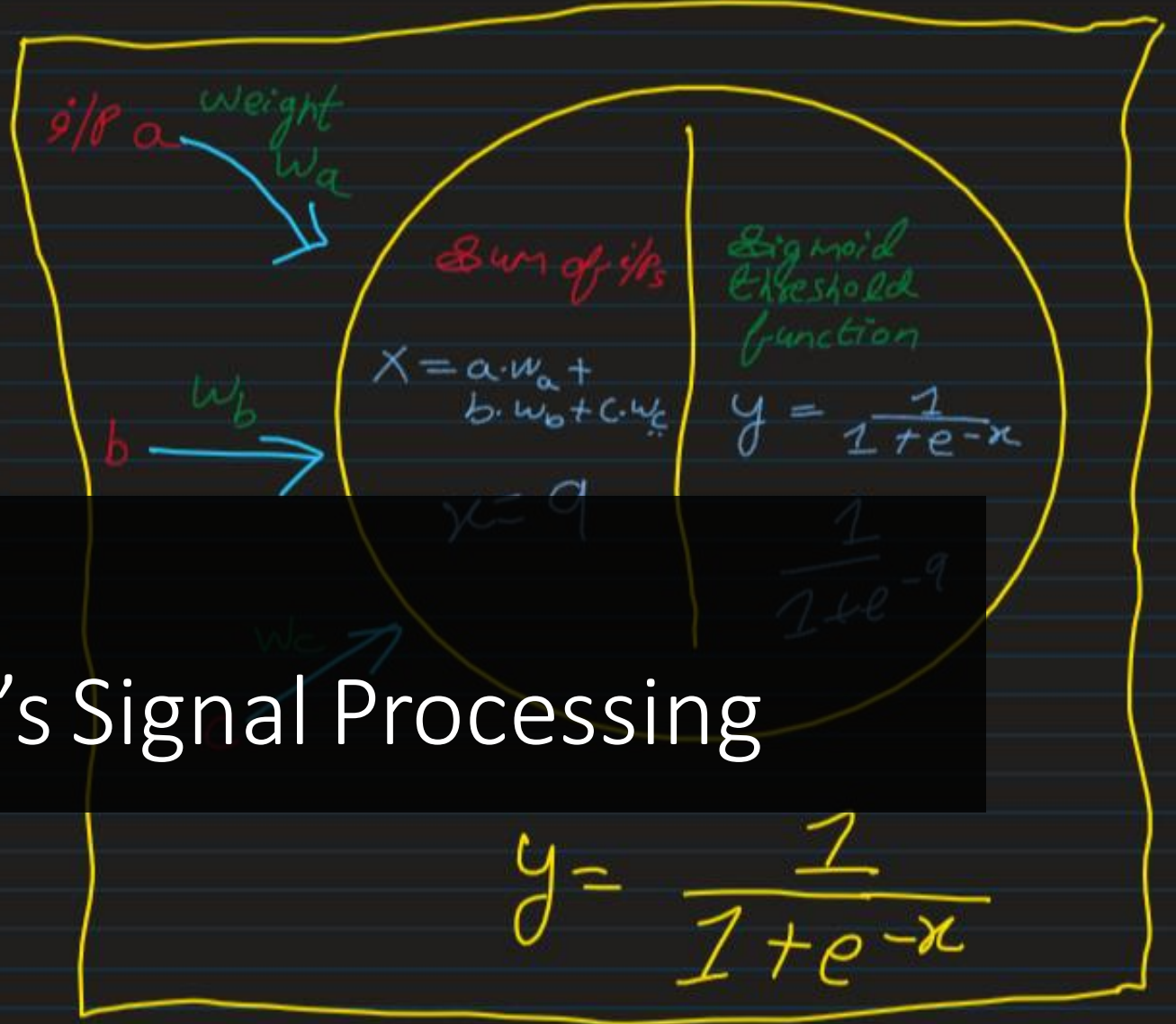




Feed Forward Neural Network

Signals through Neural Network

(and Matrix Multiplication)



Maths Behind Neuron's Signal Processing

$$y = \frac{1}{1 + e^{-x}}$$

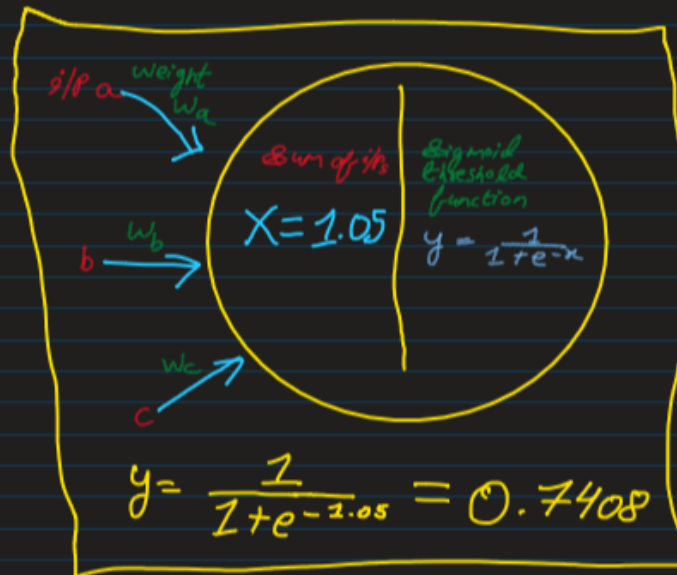
Node 1 in Layer 2 \Rightarrow

(O/P from 1st node * link's weight) + (O/P from 2nd node * link's

$$(1 * 0.9) + (0.5 * 0.3)$$

$$0.9 + 0.15$$

$$1.05$$



Node 2 in Layer 2 \Rightarrow

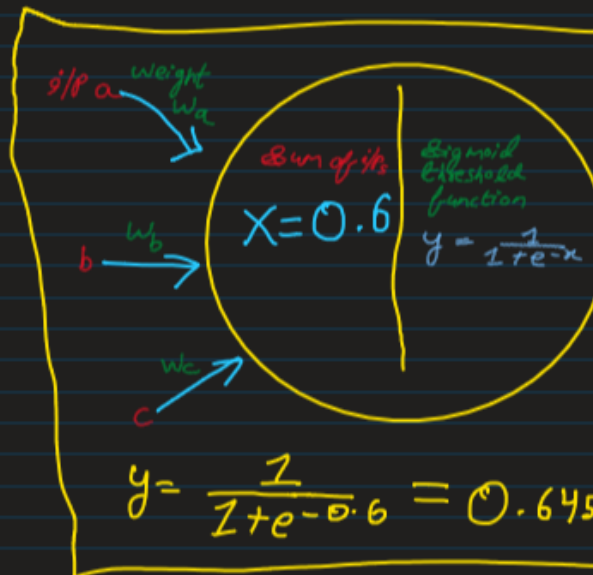
(O/P from 1st node * link's weight) +

(O/P from 2nd node * link's weight)

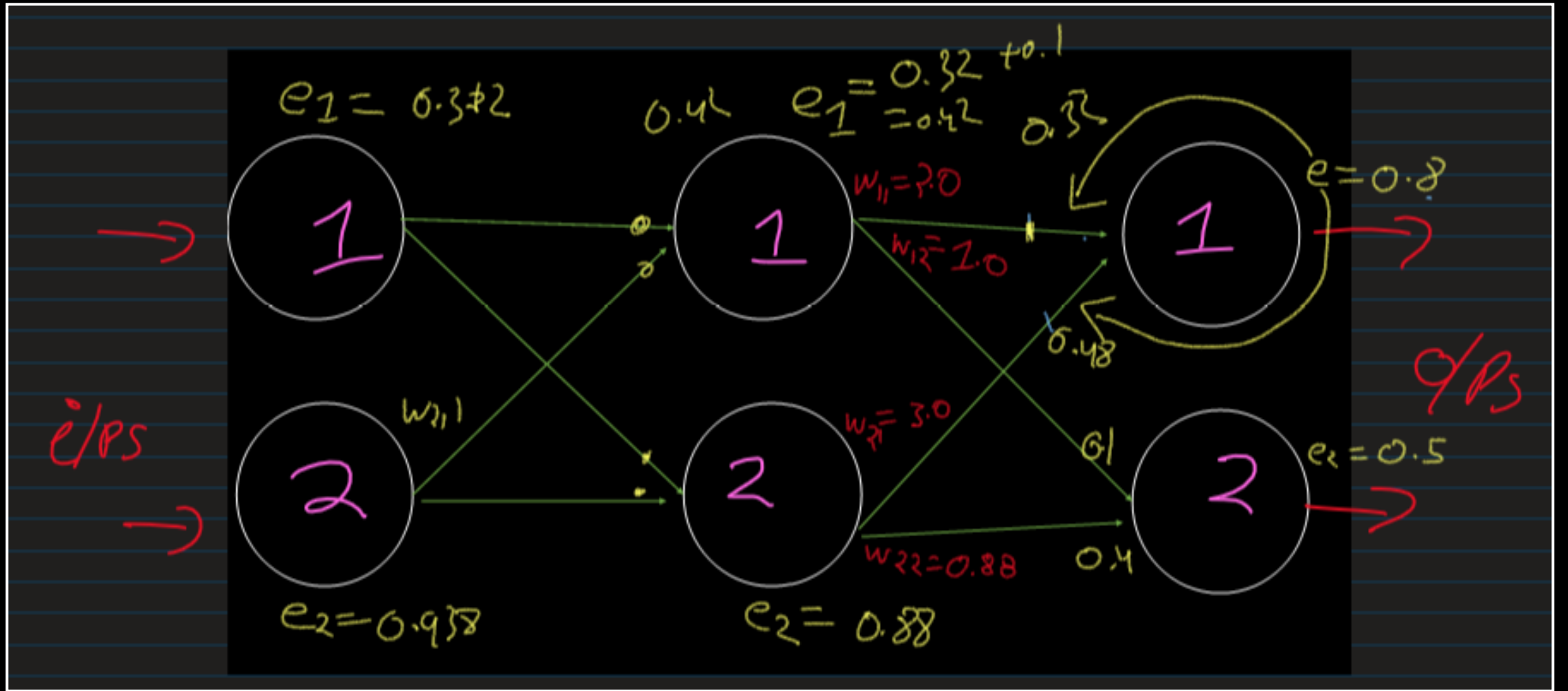
$$(1 * 0.2) + (0.5 * 0.8)$$

$$0.2 + 0.4$$

$$0.6$$



Neuron's O/P Calculations



Backpropagation Calculation

Thank You

