

REDES DE KOHONEN

$$\boxed{4.2} \quad x = (0'5, 0'2) \quad \alpha = 0'2$$

$$\begin{aligned} a) \quad D(1) &= [(w_{11} - x_1)^2 + (w_{21} - x_2)^2] = \\ &= [(0'3 - 0'5)^2 + (0'7 - 0'2)^2] = 0'29 \end{aligned}$$

$$D(2) = [(0'6 - 0'5)^2 + (0'9 - 0'2)^2] = 0'5$$

$$D(3) = [(0'1 - 0'5)^2 + (0'5 - 0'2)^2] = 0'25$$

$$D(4) = [(0'4 - 0'5)^2 + (0'3 - 0'2)^2] = 0'02$$

$$D(5) = [(0'8 - 0'5)^2 + (0'2 - 0'2)^2] = 0'09$$

\Rightarrow distancia mínima es a J=4.

$$b) \quad w_{14} = 0'4 + 0'2(0'5 - 0'4) = 0'42$$

$$w_{24} = 0'3 + 0'2(0'2 - 0'3) = 0'28$$

$$c) \quad w_{13} = 0'1 + 0'2(0'5 - 0'1) = 0'18$$

$$w_{23} = 0'5 + 0'2(0'2 - 0'5) = 0'44$$

$$w_{15} = 0'8 + 0'2(0'5 - 0'8) = 0'74$$

$$w_{25} = 0'2 + 0'2(0'2 - 0'2) = 0'2$$

4.3 $x = (0'5, 0'5)$ $\alpha = 0'1$

a) $D(1) = [(0'3 - 0'5)^2 + (0'7 - 0'5)^2] = 0'08$

$D(2) = [(0'6 - 0'5)^2 + (0'9 - 0'5)^2] = 0'17$

$D(3) = [(0'1 - 0'5)^2 + (0'5 - 0'5)^2] = 0'16$

$D(4) = [(0'4 - 0'5)^2 + (0'3 - 0'5)^2] = 0'05$

$D(5) = [(0'8 - 0'5)^2 + (0'2 - 0'5)^2] = 0'18$

b) $w_{14} = 0'4 + 0'1(0'5 - 0'4) = 0'41$

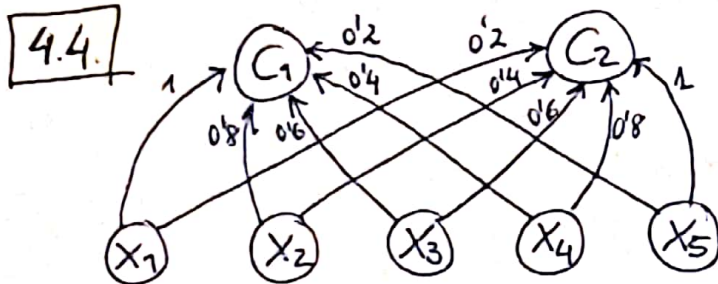
$w_{24} = 0'3 + 0'1(0'5 - 0'3) = 0'32$

c) $w_{13} = 0'1 + 0'1(0'5 - 0'1) = 0'14$

$w_{23} = 0'5 + 0'1(0'5 - 0'5) = 0'5$

$w_{15} = 0'8 + 0'1(0'5 - 0'8) = 0'77$

$w_{25} = 0'2 + 0'1(0'5 - 0'2) = 0'23$



a) $D(1) = [(1 - 0'5)^2 + (0'8 - 1)^2 + (0'6 - 0'5)^2 + (0'4 - 0)^2 + (0'2 - 0)^2] = 0'5$

$D(2) = [(0'2 - 0'5)^2 + (0'4 - 1)^2 + (0'6 - 0'5)^2 + 0'8^2 + 1^2] = 2'1$

b) $w_{11} = 1 + 0'2(0'5 - 1) = 0'9$

$w_{21} = 0'8 + 0'2(1 - 0'8) = 0'84$

$w_{31} = 0'6 + 0'2(0'5 - 0'6) = 0'58$

$w_{41} = 0'4 + 0'2(0 - 0'4) = 0'32$

$w_{51} = 0'2 + 0'2(0 - 0'2) = 0'16$