Learning...

Epoch 1

Epoch 2

Epoch 3

Epoch 4

Epoch 5

Epoch 6

Epoch 7

Epoch 8

Epoch 9

Epoch 10

Done.

----------------------------------------

Parameters:

----------------------------------------

Epochs: 10

Grid size: 5x5

h (neighbourhood function) type: bubble

alpha function type: simple\_div

Starting vicinities: 3

Random seed: 0

----------------------------------------

Quantization error: 0.5757316842265364

Topographic error: 0.05925925925925926

----------------------------------------

Resulting grid:

(showing input vectors' classes)

1 2 3 4 5

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1 |\_\_\_\_33\_|\_\_\_\_\_3\_|\_\_\_\_\_\_\_|\_\_\_\_33\_|\_\_\_\_\_\_\_|

2 |\_\_\_\_\_\_\_|\_\_\_\_\_\_\_|\_\_\_\_\_2\_|\_\_\_\_\_2\_|\_\_\_\_\_\_\_|

3 |\_\_\_\_\_\_\_|\_\_\_\_\_\_\_|\_\_\_\_\_\_\_|\_\_\_\_\_2\_|\_\_\_\_\_\_\_|

4 |\_\_\_\_\_\_\_|\_\_\_\_\_\_\_|\_\_\_\_\_\_\_|\_\_\_\_\_\_\_|\_\_\_\_\_\_\_|

5 |\_11111\_|\_\_\_\_\_\_\_|\_\_\_\_\_\_\_|\_\_\_\_\_2\_|\_\_\_\_\_2\_|

........................................

Training statistics:

........................................

Grid after training:

[[[6.5027023 2.97156379 5.50904548 2.00774389]

[6.53193899 2.98860125 5.26451155 1.84607632]

[6.4776358 2.9619583 5.16243258 1.78217855]

[6.39028158 2.94337465 5.03496844 1.73566381]

[6.42635347 2.99415294 4.70356984 1.55231879]]

[[5.9292849 3.1024883 3.92745385 1.29898784]

[6.06913693 3.01571819 4.27930818 1.42076546]

[6.02962399 2.97349927 4.24511192 1.38355611]

[5.88770507 2.96184165 3.99775168 1.2835579 ]

[6.21552092 2.88156928 4.60216825 1.51050266]]

[[5.71823957 3.18505347 3.35540266 1.04718045]

[5.84643773 3.1061598 3.67727154 1.16427637]

[5.88208503 3.03980729 3.81376596 1.20353165]

[5.86874035 2.932713 3.9716843 1.2706667 ]

[6.16828218 2.85160157 4.53706196 1.47766795]]

[[5.45263906 3.21926928 2.77834332 0.81768308]

[5.57193713 3.14555244 3.06169836 0.91256913]

[5.68156567 3.03811682 3.46086493 1.0630921 ]

[5.79338592 2.91961997 3.89645075 1.23360334]

[6.10679396 2.83555993 4.50053135 1.4549815 ]]

[[5.02001697 3.32942666 1.62062685 0.3064686 ]

[5.19582821 3.21530869 2.17348117 0.52925977]

[5.31419827 3.10937974 2.5833441 0.68476586]

[5.34986092 3.00051978 2.84325032 0.78001563]

[5.84685468 2.73036127 4.29795849 1.37779367]]]

Winner neurons together with a list of pairs indicating

associated input vectors' classes and their numbers:

(4, 0): [[1, 1], [1, 2], [1, 3], [1, 4], [1, 5]]

(1, 3): [[2, 6]]

(4, 4): [[2, 7]]

(1, 2): [[2, 8]]

(4, 3): [[2, 9]]

(2, 3): [[2, 10]]

(0, 0): [[3, 11], [3, 14]]

(0, 3): [[3, 12], [3, 15]]

(0, 1): [[3, 13]]