Bradley Reardon

6202 – HW 4

5/25/21

E.1

1. The “best decision boundaries” means they are places evenly distanced between the two groups they are separating.

**W1** = [-1 2]

**W2** = [1 2]

**b** = 0

1

Revisit

[0 1] -2 + b = 1 🡪 1 - 7 = b = -6



[0 1] 0 1 1 5 -4

W1

W2

ii.

Hard Limit Layer

Input

2

2

a = hardlim(Wp+b)

a

n

2x1

2x1

+

W

b

2x1

2x2

2x1

P

iii.

E.2

i. Four classes

ii.

1

1

W2

W1

1

-1

-1

1

-1

-1

Revisit

iii. n = [1 1] 1 + -2 = -2

[-1 1] -1 0 0

E.3.

DB1

DB2

W1

W2

a.1 = -1 \* 1 + 0.5. = -0.5

1 1 2

a.2 = [1 1] \* -0.5 + [-1] = 0.5

2

E.4

i. a = hardlims(p+1)

p = -2:2

DB1

1

W1

0

ii. a = hardlim(-p+1)

p = -2:2

DB1

1

W1

0

ii. a = purelin(2p+3)

p = -2:2

DB1

1

W1

0