ASSIGNMENT 5

Due April 14, 2008 (before start of class)

Problem 5

Consider a Bidirectional Associative Memory neural network with the BAM transfer function **and biases** as discussed in class.

Consider the training set:

$$\mathbf{s}^{(1)} = \begin{bmatrix} 1 & 1 & -1 & -1 \end{bmatrix}, \qquad \mathbf{t}^{(1)} = \begin{bmatrix} 1 & 1 \end{bmatrix}$$

$$\mathbf{s}^{(2)} = \begin{bmatrix} 1 & 1 & 1 & 1 \end{bmatrix}, \qquad \mathbf{t}^{(2)} = \begin{bmatrix} 1 & -1 \end{bmatrix}$$

$$\mathbf{s}^{(3)} = \begin{bmatrix} -1 & -1 & 1 & 1 \end{bmatrix}, \qquad \mathbf{t}^{(3)} = \begin{bmatrix} -1 & 1 \end{bmatrix}$$

1. Use the Hebb rule to find the set of weights and biases.
2. Does this neural net correctly classify the original three training vectors?