## WORKSHEET FOR EXERCISES FROM CHAPTER 5

**EXERCISE 5.1**

1.  What is the total SSE for the network after training has finished?

2.  How does this value for SSE compare to the same value that was observed in Exercise 4.1?  What can one conclude from this comparison?

3.  Examine how SSE for this network changed over time.  Compare and contrast the performance in this simulation to that observed for the same training set in Exercise 4.1.  What are the implications of this comparison for Hebb rule learning?

4.  Describe the kind of errors that the network made.  What is the relationship between these errors and the training procedure?

5.  In some sense, there is a degree of correctness in the network's responses to the stimulus vectors.  In what sense are the responses correct, and in what sense are the responses incorrect?

**EXERCISE 5.2**

1.  What is the total SSE for the network after training has finished?

2.  Examine how SSE for this network changed over time.  In general, what can be said about the performance of this network on this problem?

3.  Continuing with an examination of total SSE, did this value ever decrease during training?  How close did this value approach to 0? What are the implications of these observations?

4. **Describe the kind of errors that the network made. Is the network generating errors to a small number of problems, or are errors for all of the training patterns uniformly large?**

5. **Rerun the network on the independ8.net problem, with a maximum number of sweeps set to 100, training with the Hebb rule, and printing out information every sweep. Play with the learning rate a bit, and examine the SSE curve when the program stops training. Are you able to improve the performance of the network in any significant way? What are the implications of these observations? (To answer this question, you should provide some information about what you settings you used to run the study.)**