WORKSHEET FOR EXERCISES FROM CHAPTER 19

EXERCISE 19.1

1. **How many sweeps of training were required before the network converged?**

2. **What was the sum of squared error (SSE) for the network when it converged?**

3. **Remember that the hidden units and the output units use the logistic activation function, and that the bias of this function is analogous to the threshold of the step function. In the spreadsheet that you saved, examine all of the biases and connection weights in the trained network. Use this information to explain how the network uses its hidden units to solve this linearly separable problem. (Hint: an example of this approach to the network can be found in Dawson (2004)).**

EXERCISE 19.2

1. **How many sweeps of training were required before the network converged?**

2. **What was the sum of squared error (SSE) for the network when it converged?**

3. **You probably found in Exercise 19.1 that when the two-hidden unit was trained, it was temperamental, and as a result you might have had to restart training on more than one occasion. Is this also the case for the one-hidden unit network, or was it better behaved? (To answer this question, you should conduct several different runs with the one-hidden unit network.)**

4. **Remember that the hidden units and the output units use the logistic activation function, and that the bias of this function is analogous to the threshold of the step function. In the spreadsheet that you saved, examine all of the biases and connection weights in the trained network. Use this information to explain how the network uses its hidden units to solve this linearly separable problem. How does this solution compare to the one that you discovered in the two-hidden unit network? (Hint: an example of this approach to the network can be found in Dawson (2004)).**