## WORKSHEET FOR EXERCISES FROM CHAPTER 13

### EXERCISE 13.1

1. **What was the sum of squared error at the end of training?**

2. **How many of training were required before the program stopped training the network?**

3. **Given your answers to questions 1 and 2, what are the implications of this particular network for the claim that perceptrons are unable to represent solutions to linearly nonseparable problems?**

4. **Remembering that this network uses the Gaussian equation described in Chapter 9, and that the bias or threshold of the output unit is equal to the value of $\mu$ in the equation, examine the two connection weights that feed into the output unit, as well as the bias of the unit. How does this perceptron compute this particular logical operation?**

### EXERCISE 13.2

1. **What was the sum of squared error at the end of training?**

2. **How many of training were required before the program stopped training the network?**

3. **Given your answers to questions 1 and 2, what are the implications of this particular network for the claim that perceptrons are unable to represent solutions to linearly nonseparable problems?**

**4. Remembering that this network uses the Gaussian equation described in Chapter 9, and that the bias or threshold of the output unit is equal to the value of $\mu$ in the equation, examine the two connection weights that feed into the output unit, as well as the bias of the unit. How does this perceptron compute this particular predicate?**

**5. Many would argue – legitimately – that this exercise is just a parlour trick. To get a sense of what I mean by this, answer the following question: What is the relationship between how this network solves the connectedness problem and how the previous perceptron solved the XOR problem? To answer this question, you should have already generated answers to question 4 in both this exercise and in the previous one.**