

## WORKSHEET FOR EXERCISES FROM CHAPTER 25

### EXERCISE 25.1

1. Consider Hidden Unit 1. What range of activities would a pattern require to fall into the first band? What range of activities would a pattern require to fall into the second band? What range of activities would a pattern require to fall into the third band?
2. Consider Hidden Unit 2. What range of activities would a pattern require to fall into the first band? What range of activities would a pattern require to fall into the second band? What range of activities would a pattern require to fall into the third band?
3. Are there any other common patterns of bands that are found when a network is trained on this problem? Describe the general characteristics of the two density plots for one other common pattern that differs from the one that you described above.
4. Did you ever find a solution that did not generate bands? If so, how frequently did this occur?

**5. What are the implications of finding different patterns of bands for different networks that have been trained on the same problem?**

**6. How is it possible for different networks, trained on the same problem with the same settings, to arrive at different solutions to this problem?**

#### **EXERCISE 25.2**

**1. Examine Table 25-2. List any definite unary features revealed in this table.**

**2. If you found any definite unary features, what is their semantic interpretation, and what relevance does this interpretation have to the first monks problem?**

**3. Examine Table 25-3. List any definite binary features revealed in this table.**

4. If you found any definite binary features, what is their semantic interpretation, and what relevance does this interpretation have to the first monks problem?

5. Why are some of the cells in the lower triangle of the correlation matrix (Table 25-3) blank, and why might this be important in terms of identifying the presence of definite unary features?

6. Examine Table 25-4. List any definite unary features revealed in this table.

7. If you found any definite unary features, what is their semantic interpretation, and what relevance does this interpretation have to the first monks problem?

8. Examine Table 25-5. List any definite binary features revealed in this table.

9. **If you found any definite binary features, what is their semantic interpretation, and what relevance does this interpretation have to the first monks problem.**

