

Cooperating Intelligent Systems

Exercise 4

October 5, 2009

This homework covers chapter 13, 14 and 16 in AIMA. The homework is due at the latest on October 15. You report it by emailing your written report (either as a PDF file or as a MS Word file) to SB (Stefan.Byttner@hh.se). Each homework assignment handed in on time gives one bonus-point for the oral exam. Homework handed in too late gives no bonus-points but each student must hand in all homework before the oral exam (or else he/she will not be allowed to take the oral exam). Read Chapters 13, 14 (not 14.6 and 14.7) and 16 in AIMA.

- Exercise 13.5 AIMA
- Exercise 13.8 AIMA
- Exercise 13.15 AIMA
- Exercise 14.2 AIMA
- Exercise 14.3 AIMA
- Design a Bayesian network for the game of Poker. The task for the Bayesian network should be to determine the posterior probability that your hand is better than the opponents, given the number of cards changed by each player (one change is allowed per player) and the number of raises made by the players. This means that you should:
 1. Draw a graph with nodes and directed arcs, with symbols and explanations what they denote.

2. Indicate the type of distribution that is produced by each node, i.e. boolean, discrete, or continuous.
3. Indicate the probabilities involved (not necessarily computing them but describing how they should be computed). (Note 1: There is no correct answer here; you are supposed to provide your opinion on this. Note 2: You are not required to implement the Bayesian network.)