

Homework 1

CS 3793 – Fall 2008
Tom Bylander, Instructor

assigned August 27, 2008
due September 8, 2008

Consider the solitaire Mancala problem that you are solving for Lab 1.

1. (40 pts.) Suppose the initial state is one stone each in the 4th and 5th pockets and no stones anywhere else. Display the whole state space as a directed graph. Whenever it is possible to go from one state to another in one move, then draw a directed edge. Do not display any state twice. Hint: including the initial state and the goal state there are 14 states.
2. (30 pts.) Suppose the initial state is one stone each in the 4th, and 5th pockets and no stones anywhere else. Show the sequence of states that are visited for breadth-first search (BFS) and iterative deepening (ID). A state is considered “visited” if a goal test is performed. Assume that BFS does not visit any state twice (p. 82 talks about a “closed list” and an “open list” to implement this)
3. (30 pts.) If there are n stones, estimate the size of the state space, i.e., all states with n stones or less. Justify your estimate.