Artificial Intelligence: Extra Credit Assignment

Due date: April 28 (Thursday)

If you turn in this assignment then your lowest homework grade (including your score on this assignment) will be dropped from the calculation of the overall Homework grade. The points that you earned on that homework (the lowest scoring) will be added as bonus points to your lowest test grade.

Problem 1 (4 points)

Read Chapters 11 and 12 of the text and answer the following questions in your own words:

(a) What is the difference between operators and inference rules?

(b) Can a partial-order planner handle inference rules? If it can, briefly explain how you can modify the POP algorithm to use inferences. If not, discuss the main obstacles.

Problem 2 (6 points)

The *Tower-of-Hanoi puzzle* consists of three vertical pegs and several disks of different sizes. Every disk has a hole in the middle, and several disks may be stacked on a peg. The rules allow moving disks from peg to peg, one disk at a time; however, the rules do *not* allow placing any disk above a smaller one. Initially, all disks are on the leftmost peg, and the task is to move them to the rightmost peg.

Consider the puzzle with *three disks*, and represent it as a planning problem, using the STRIPS language. You should encode the initial state, goal, and operators for moving disks. The STRIPS operators must have conjuctive preconditions, and no conditional effects.