

MASSACHUSETTS INSTITUTE OF TECHNOLOGY
Department of Electrical Engineering and Computer Science
6.01—Introduction to EECS I
Spring Semester, 2008

Week 11 NanoQuiz: Sections 1 and 2

Name:

Consider a robot that moves in an (unbounded) two dimensional grid. The robot's state is specified by (x, y, o) , where x, y indicate a grid position and o indicates one of the four cardinal directions (N,S,E,W). The orientation N has the robot pointing in the positive y direction. The robot has actions: 'Stay' (do not move), 'Rotate' (rotate 90 deg. counterclockwise), 'Move' (advance one grid square along the current direction), and 'Jump' (advance two grid squares along the current direction).

1. How would you represent the state where the robot is at location 3,4 and facing N(orth).
2. Write down the successors of this state.
3. Write a successor function in Python. You can assume that you have a function `advance(state,n)` which returns a new state obtained after advancing `n` grid squares and a function `rotate(state)` which returns a new state obtained by rotating 90 deg. counterclockwise.

