

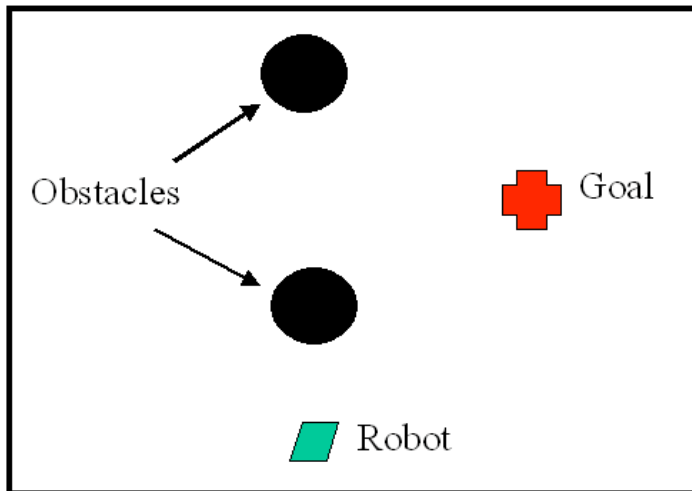
Homework 3

Problem 1

Explain in one or two sentences each of the following terms

- a) reflexes
- b) taxes
- c) fixed-action patterns
- d) schema
- e) affordance

Problem 2



- a) Draw the combined potential field for this world (by hand or otherwise). Assume that there are repulsive fields about the obstacles and an attractive field about the goal.
- b) Draw the resulting path of the robot to the goal.
- c) Suppose the robot was being too safe, and you wanted the robot to move closer to the obstacles on its path to the goal. How would you customize one of the potential fields to result in this new behavior?

Problem 3

Consider the Khepera robot and its IR sensors with the *runaway* behavior instantiated for each sensor as in the example in Fig. 4.19. What happens if an IR breaks and always returns a range reading of N , meaning an obstacle is N cm away? What will be the emergent behavior? Can a reactive robot notice that it is malfunctioning? Why or why not?