Exercise 2: A Reactive Agent for the Pickup and Delivery Problem

Group №:3 Yannick Grimault, Vincent Petri

October 10, 2016

1 Problem Representation

1.1 Representation Description

We choose for our state representation that s would be a pair $(City, Task)$. Here $City$ represents the current city in which the agent is and $Task$ is the destination of the proposed task. If no task is provided, $Task = null$.

The different action that our agent can take in a state is either accept the proposed task if one is provided or move to a neighbour city. The reward table is defined as follow :

- $R(s, a) = 0$ for move action
- $R(s, a) = r(a)/D$ for pickup actions where $r(a)$ is the given reward for the action and D is the distance between the two cities

With this representation $T(s, a, s') = p(NewCity, NewTask)$ with $s' = (NewCity, NewTask)$

1.2 Implementation Details

In our implementation we choose to repeat the learning process for a maximum of 100000 iteration or when the difference in V(S) between two iteration is smaller than 0.01

2 Results

2.1 Experiment 1: Discount factor

2.1.1 Setting

2.1.2 Observations

2.2 Experiment 2: Comparisons with dummy agents

2.2.1 Setting

2.2.2 Observations

⋮

2.3 Experiment n

2.3.1 Setting

2.3.2 Observations