Intelligent Agents, EPFL

Auctioning Agent

Jeremy Gotteland & Quentin Praz

December 2, 2015

Improvement of the centralized agent

In this exercice, we chose to use the centralized agent that we implemented before. In order to have better results, we decided to improve it first.
The first improvement was to stop the oscillation of the agent between two equivalent solutions. Indeed, we realize that some solutions were equivalent and that our agent was stuck in these solutions. For exemple two equivalent solutions are:

$$S1 : \{..., Pickup(c1, c2), Deliver(c0, c1), ...\}$$

$$S2 : \{..., Deliver(c0, c1), Pickup(c1, c2), ...\}$$

If the vehicle has enough space to pickup then deliver, these two solutions are equivalent. Then, we add a condition in our validation method that states that when we have a pickup task and and delivery task in the same city, we always deliver first.
The second improvement was to change the stochastic local search. The new method we chose is the following:

- With a probability p, we select the best neighbor.
- With a probability $p - 1$, we select a random neighbor.

And the last improvement was to keep track of the best solution we saw, even if it's not the last one, and to return it.