MAS report week 2

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1 Introduction

The goal of the complete assignment is to model a hypothetical Multi-Agent System for the public transport of Amsterdam in NetLogo. This is the first weekly progress report, reporting on the activities in week 2.

2 Sub-assignment

Implement a first version of the multi-agent transportation system in which vehicles pick up passengers, travel to the final destination and drop off passengers according to a fixed schedule (no intelligence / coordination needed).

3 Activities

In this elementary version of the system the buses do not communicate. There are 4 buses/agents (this is an arbitrary number), each of which get assigned some fixed routes within the map. All agents call at Centraal. Each agent picks up any passenger it can and drops off any passenger that is currently on its route. If the bus reaches Centraal it drops off all remaining passengers, as these should either have Centraal as a destination or their destination lies on a different route. It then picks up any passenger that needs to go to any of the stations on its route. This makes Centraal the only transit hub.

- The belief an agent has of the world is very local. It only knows the passengers at this stop, the passengers in the bus and the rule of transiting at Centraal.
- The desire of an agent is to pick up all passengers and drop off any passenger at their station or at Centraal.
- The intention of the agent is directly its desire.

Both desire and intention are hard-coded in the algorithm. For next week it is useful to express them more explicitly as a list. Desire and intention can now be represented as:

"Call at Lelylaan. Drop off relevant passengers. Pick up all passengers"

"Call at Sloterdijk. Drop off relevant passengers. Pick up all passengers"

"Call at Centraal. Drop off all passengers. Pick up all relevant passengers"

We could encode desire explicitly as an agent-only list containing:

"Get passenger 100 to Lelylaan"

"Get passenger 106 to Sloterdijk"

"Get passenger 110 to Centraal"

"Get passenger 111 to Centraal"

From this representation it may be easier to determine an intention that maximizes utility. Perhaps even to communicate with other agents how to maximize mutual (or global) utility. There must also be some desire present to pick up passengers from stops that have not been visited for some time, lest the people there get anxious.