ID2209 – Distributed Artificial Intelligence and Intelligent Agents

Assignment 2 – GAMA and Agents

Group 38

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Introduction

In this assignment, we were tasked with simulating agents performing a Dutch. We were given the option to build up on last assignment's model or create a new one. I decided to create a new model for simplification. After the additions other features would only add noise.

There were challenges to improve upon and increase the detail level of the simulation. Such as adding multiple auctions, different settings or self-imposed creativity challenges.

How to Run

Extract the folder *Assignment-2* from the .zip file and import as a project to GAMA 1.8 version built for Linux. There is a model file AuctionHouse.*gaml* that contains a single experiment which can be run to observe the simulation through the console.

Species

Initiator

Initiator agents initiate and regulate auctions. They converse with the participants and get their decision on the current price. When a buy decision is made, initiator sends the signal to pause the simulation. Initiators also have current price, minimum price and price decrement size variables. These are used to perform a Dutch auction.

Participant

Participant agents consider and decide on the offers from the initiator. Each participant has a preferred price, where if an offer below their preferred price is made then they always decide to buy. In order to keep the simulation more dynamic I added randomized decisions where participants can decide to buy where the price is above their preferred price. However, this randomization is made in a way so that closer to a participant's preferred price, more likely it is to decide to buy.

Results

The results are not very interesting. Initiator lowers the prices repeatedly until a participant decides to buy.

Challenge 1

I did not attempt this challenge.

Challenge 2

I did not attempt this challenge.

Creative Implementation

I implemented dynamic participant decisions through preferred prices and randomization that gives weight to prices closer to the preferred price of participants.

Conclusion

Overall, it was a good introduction to FIPA. I tried to follow the example given in the assignment slides and although the base level logic works, exceptions occur during executions. Then it results in the piece of code to pause the simulation not running. It is a bug I am hoping to solve in the future.