Assignment: Integrate two agent-based models – evacuation

The base model of this assignment is an evacuation model that you can find in GAMAs model library. In this model, persons evacuate a labyrinth using the shortest path to the exit (Fig. 1).

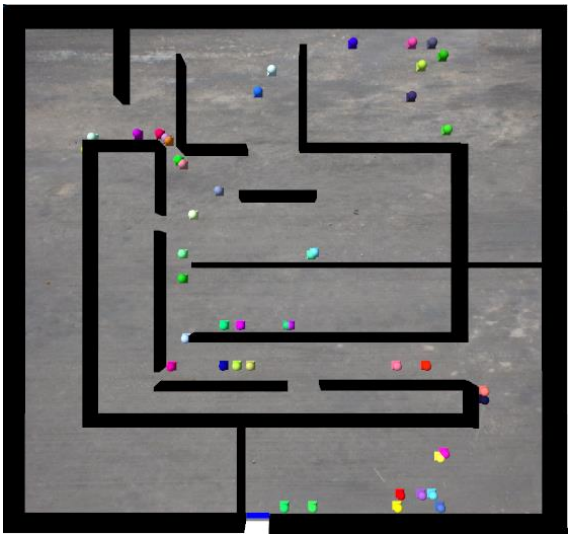

Figure 1. GAMA evacuation model

Your task:
In this assignment, you are asked to modify the above evacuation model in order to simulate persons, who do not know, where the exit is and thus wander around randomly in the labyrinth. Only, when the exit comes into their sight, they move straight to the exit and leave. To model this, you need to integrate the *field of perception* concept from the "Continuous Field of Vision" model (Fig. 2) into the evacuation model (Fig. 1).

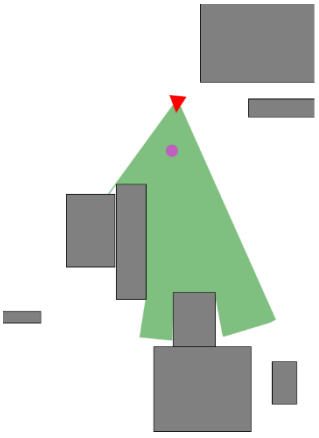

Figure 2. GAMA "Continuous Field of Vision" model

Instructions:

1. *Import the two library models into your workspace*

   - Library model ->Toy Models -> Evacuation -> models -> Goto on Grid
   - Library models -> Modeling -> Spatial topology -> Agent movement -> models -> Contious Field of Vision.gaml

2. *Integrate the models*

   Take the *evacuation model* and

   - modify the simulated persons from purposeful movements (goto target) to random wandering with an amplitude for direction change of 90° each time step,
   - integrate the field of vision from the *Continuous Field of Vision* model and use the walls as obstacles (Fig. 3).
   - If the exit comes into sight of the agent (i.e. overlaps the perceived area), it changes its movement behaviour to straight walking towards the exit. Else the agent wanders around randomly. Once the agent has reached the exit it leaves the simulation (i.e. 'dies').
   - Add a chart that displays the mean distance to the exit of all agents (using the collect statement) and execute the model.

Submit

1. A brief documentation of a) the changes that you implemented and b) two screenshots (one for the map, one for the chart), together with a brief description and interpretation of the simulation results (1 paragraph).
2. The GAMA model as part of the zipped "UNIGIS models" project.