

Concordia Workshop

1. What are Generative Agent-Based Models and what is Concordia (5-10 minutes)
2. Group Formation and installation instructions (ca. 5 minutes)
3. Work through tutorial notebooks in small groups (5-15 minutes)
4. Create own Agent-Based Models in small groups (rest of workshop)

Agent-Based Models (ABM)

- ABMs are stochastic simulations to study interactions between agents
- Agents are treated as individuals with certain traits / attributes.

Generative Agent-Based Models (GABM)

- ABM in language space using LLM as core component
- LLM applies "common sense" to situation, allows agents to act "reasonably"

Concordia

- Framework for GABMs in python
- "Game Master" simulates an environment and computes consequences of players actions
- Players are made "agentic" by components such as self-reflection, memory or chain-of-thought

Players

Situation / self description

Alice's Identity:
Name: Alice
Alice is a passionate and politically engaged individual who is dedicated to advancing her cause through democratic means. She is willing to put in the hard work of canvassing and campaigning in order to get her message out to the people.
Alice is discussing campaign strategy.
Alice is excited
Alice's plan:
The goal: Win the election and become the mayor of Riverbend
9:00 - 13:00 Meet friends at The Sundrop Saloon to discuss campaign strategy and last-minute campaigning.
13:00 - 15:00 Have lunch and relax before the polls open.
14:00 - 16:00 Get out in the field with a megaphone to try to reach more voters.
16:00 - 18:00 Call volunteers to make sure they go out to vote.
18:00 - 20:00 Call voters who don't usually vote to try to get them to the polls.
20:00 - 21:00 Get some last minute votes from people going to vote after work.

What does a person such as I do in a situation such as this?

Action

\mathbf{z}_t



$P(\cdot | f^a(\mathbf{z}_t))$



a_t



GM

\mathbf{z}_{t+1}



$P(\cdot | f^z(\mathbf{m}_t))$



$\mathbf{m}_{t+1} = \mathbf{m}_t + o_t$

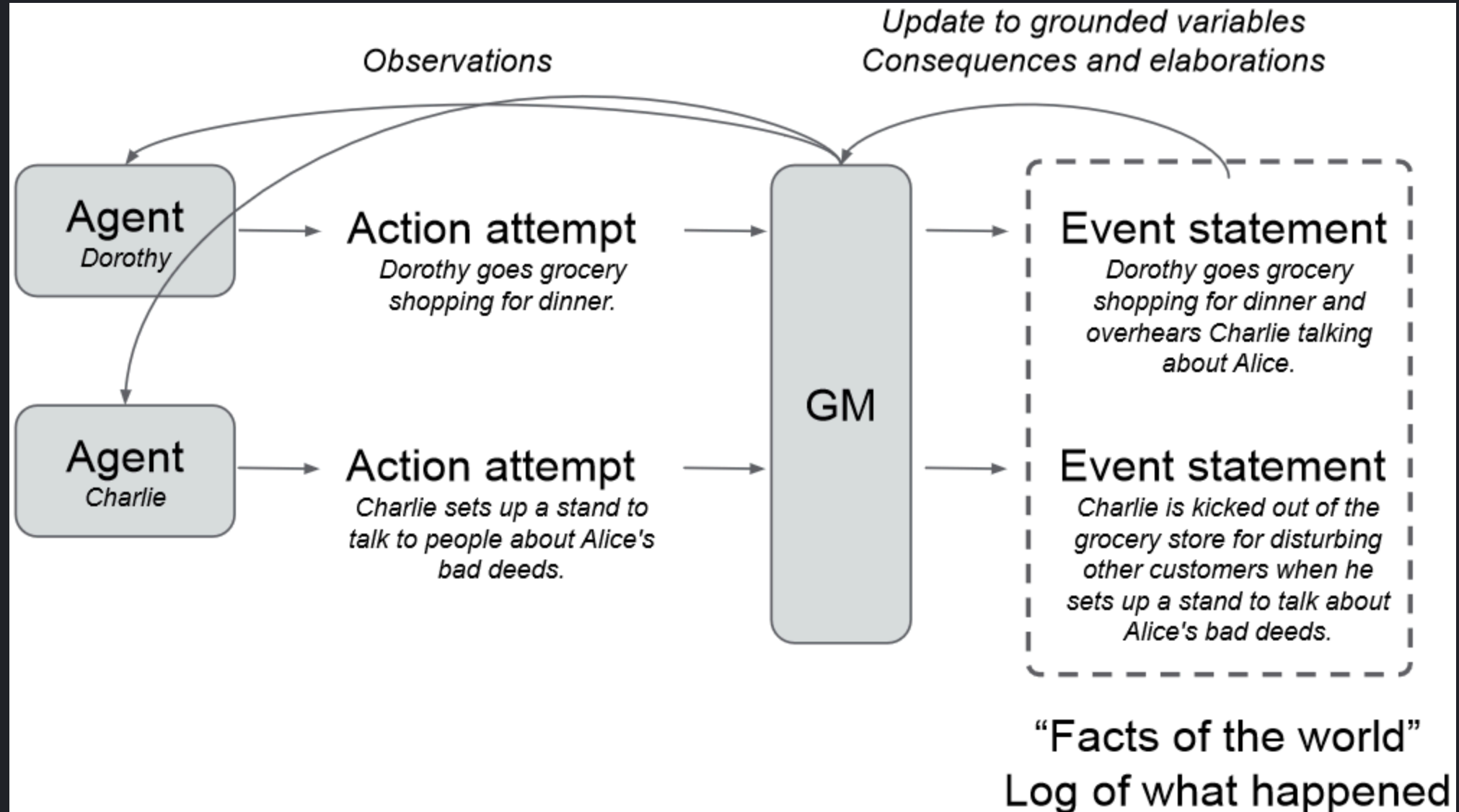


Alice's Identity:
Name: Alice
Alice is a passionate and politically engaged individual who is dedicated to advancing her cause through democratic means. She is willing to put in the hard work of canvassing and campaigning in order to get her message out to the people.
Alice is discussing campaign strategy.
Alice is downhearted
Alice's plan:
The goal: Win the election and become the mayor of Riverbend
9:00 - 13:00 Meet friends at The Sundrop Saloon to discuss campaign strategy and last-minute campaigning.
13:00 - 15:00 Have lunch and relax before the polls open.
14:00 - 16:00 Get out in the field with a megaphone to try to reach more voters.
16:00 - 18:00 Call volunteers to make sure they go out to vote.
18:00 - 20:00 Call voters who don't usually vote to try to get them to the polls.
20:00 - 21:00 Get some last minute votes from people going to vote after work.

What kind of person am I?
What kind of situation is this?

Add observation to memory

Game Master



Installation instructions

https://github.com/center-for-humans-and-machines/concordia/installation_instructions.md

Group work

1. Work through `agent_basic_tutorial` and `agent_components_tutorial` in `examples/tutorial` (5-15 minutes)
2. Check the outputs in my notebook `examples/lets_get_lunch.ipynb` to get an understanding of how a full system works (No need to execute cells yet).
3. Bootstrap from the notebook to create your own scenarios and play around with components to run your own agent-based simulations.