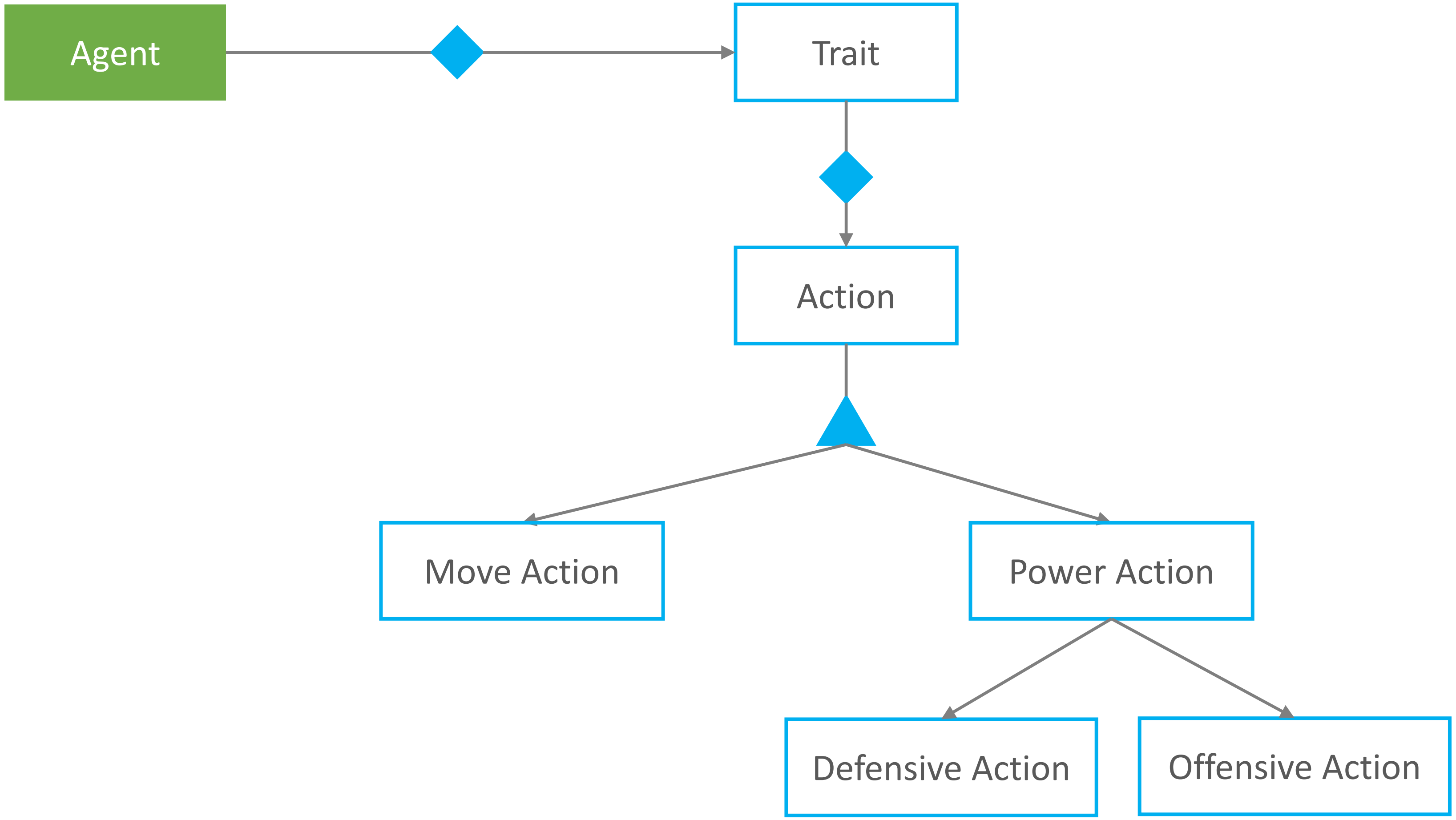


Agent

Trait

Action

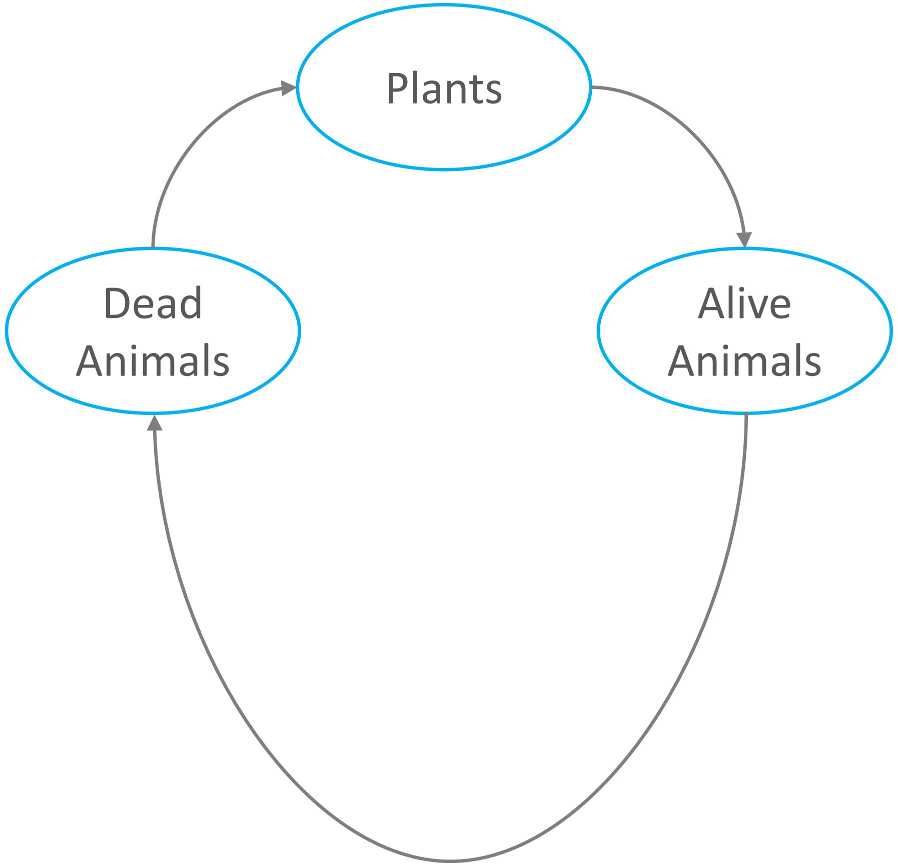
Move Action

Power Action

Defensive Action

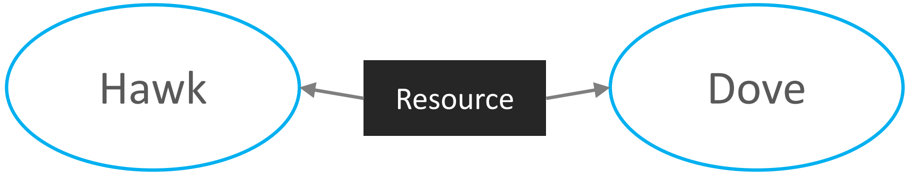
Offensive Action

A sample game of food

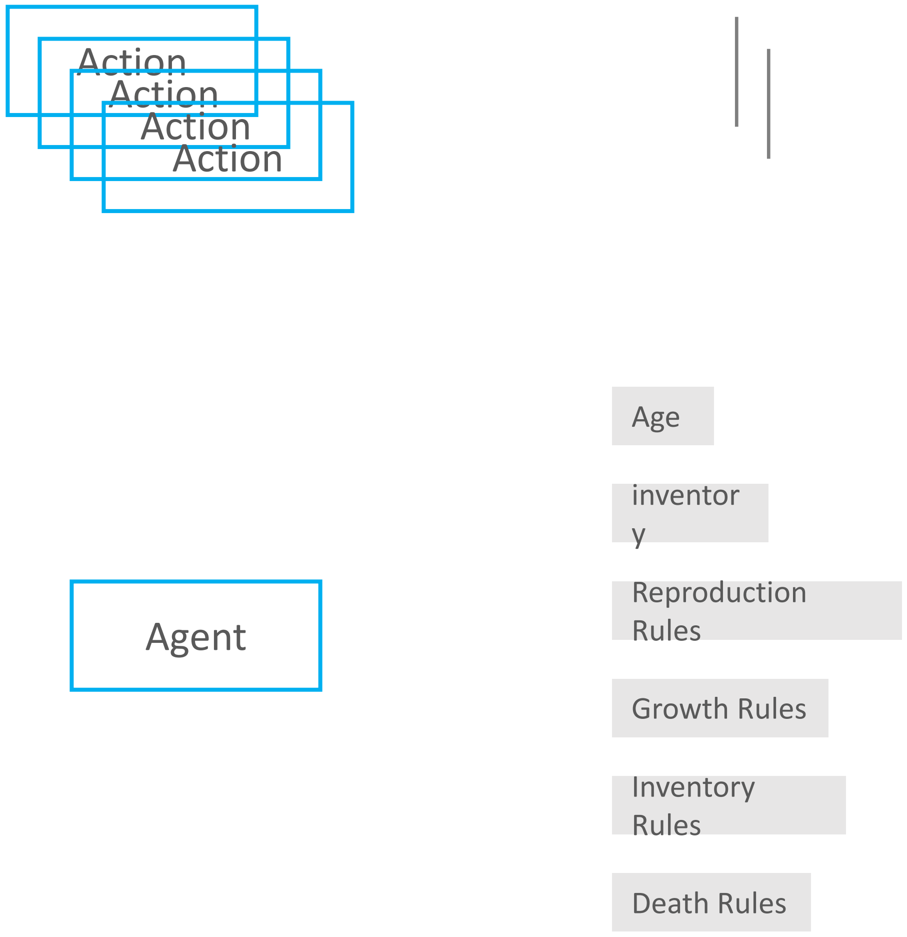


So, each of the agent has a type of resource that can be consumed by some other agent

A sample game of war



Interestingly, here the resource is something that's unlimited.



Action

Action

Action

Action

Agent

Age

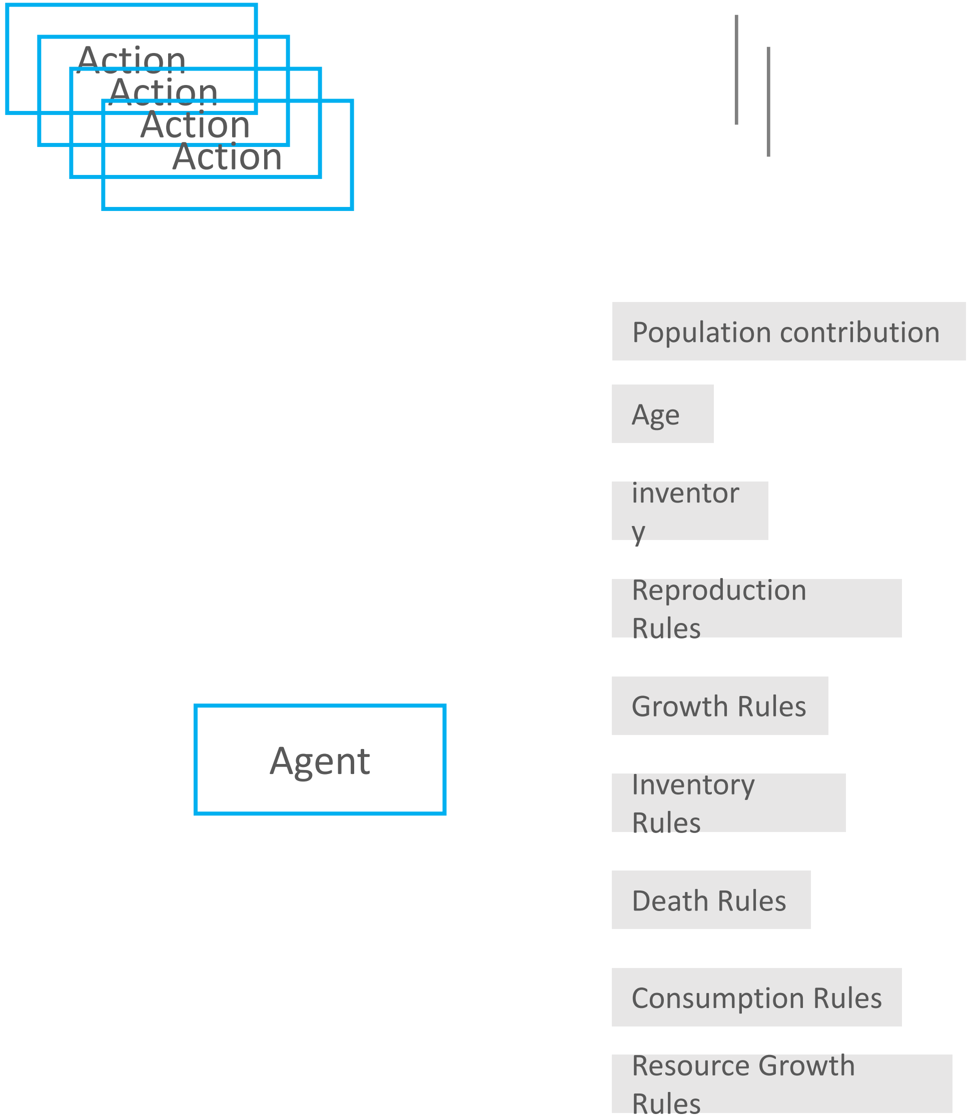
inventor
y

Reproduction Rules

Growth Rules

Inventory Rules

Death Rules



Action

Action

Action

Action

Agent

Population contribution

Age

inventor
y

Reproduction
Rules

Growth Rules

Inventory
Rules

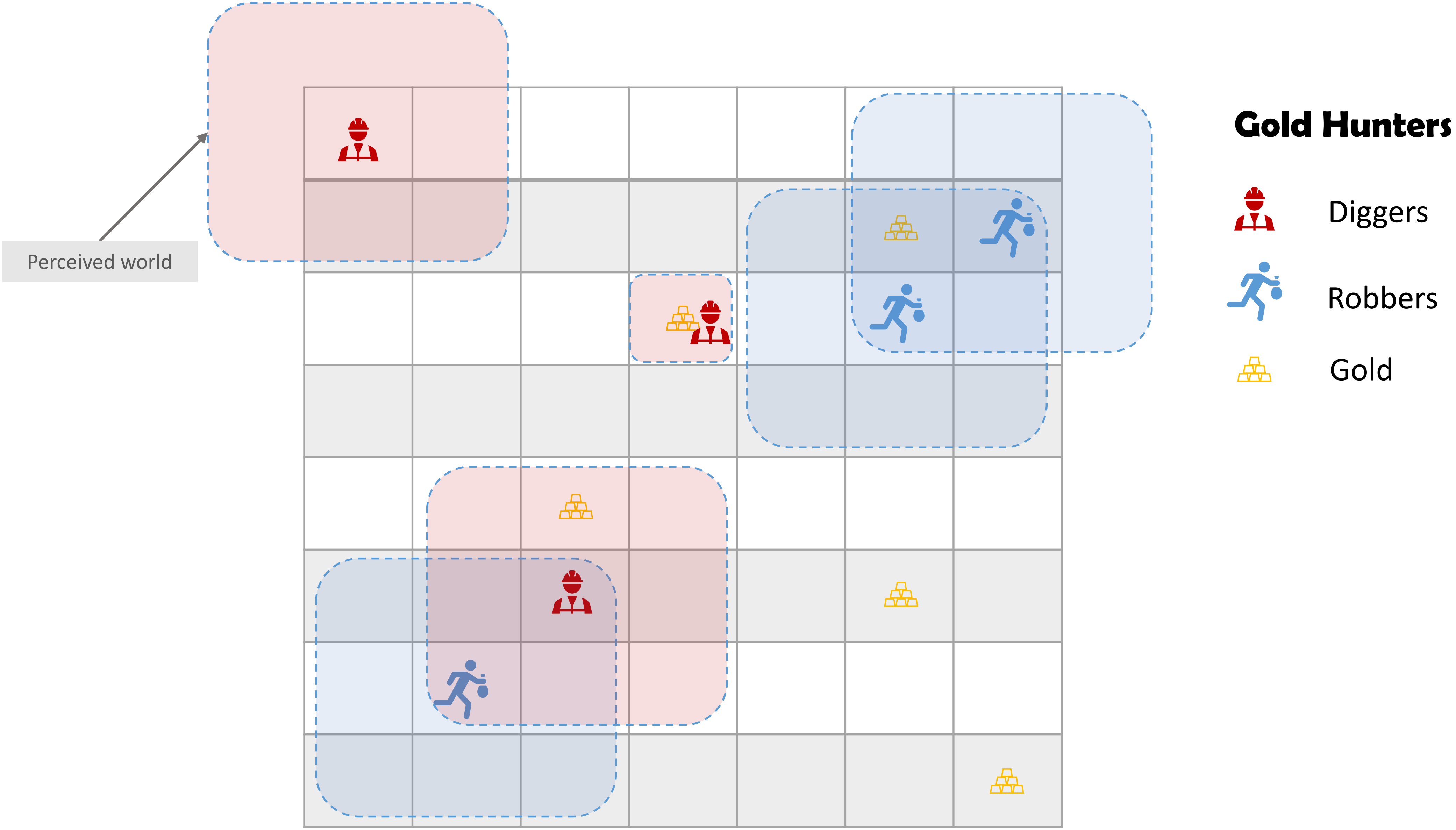
Death Rules

Consumption Rules

Resource Growth
Rules

Making a simple game

- Two animals, they can encounter each other. They fight(!) only if there is gold in the cell.
- Winner gets all the gold
- Both winner and loser lose health.
- No one ever recovers health.
- In case of a draw, they get half of the gold each, and also lose health.
- How do we model no losing health like dove?
- Conditions for encounter: Do they both want to fight or not-fight? If one wants to fight, and the other don’t, then the other flees.
- Agents cannot change their strategy? Because agents are strategies. Are they?



Perceived world

Gold Hunters

Diggers

Robbers

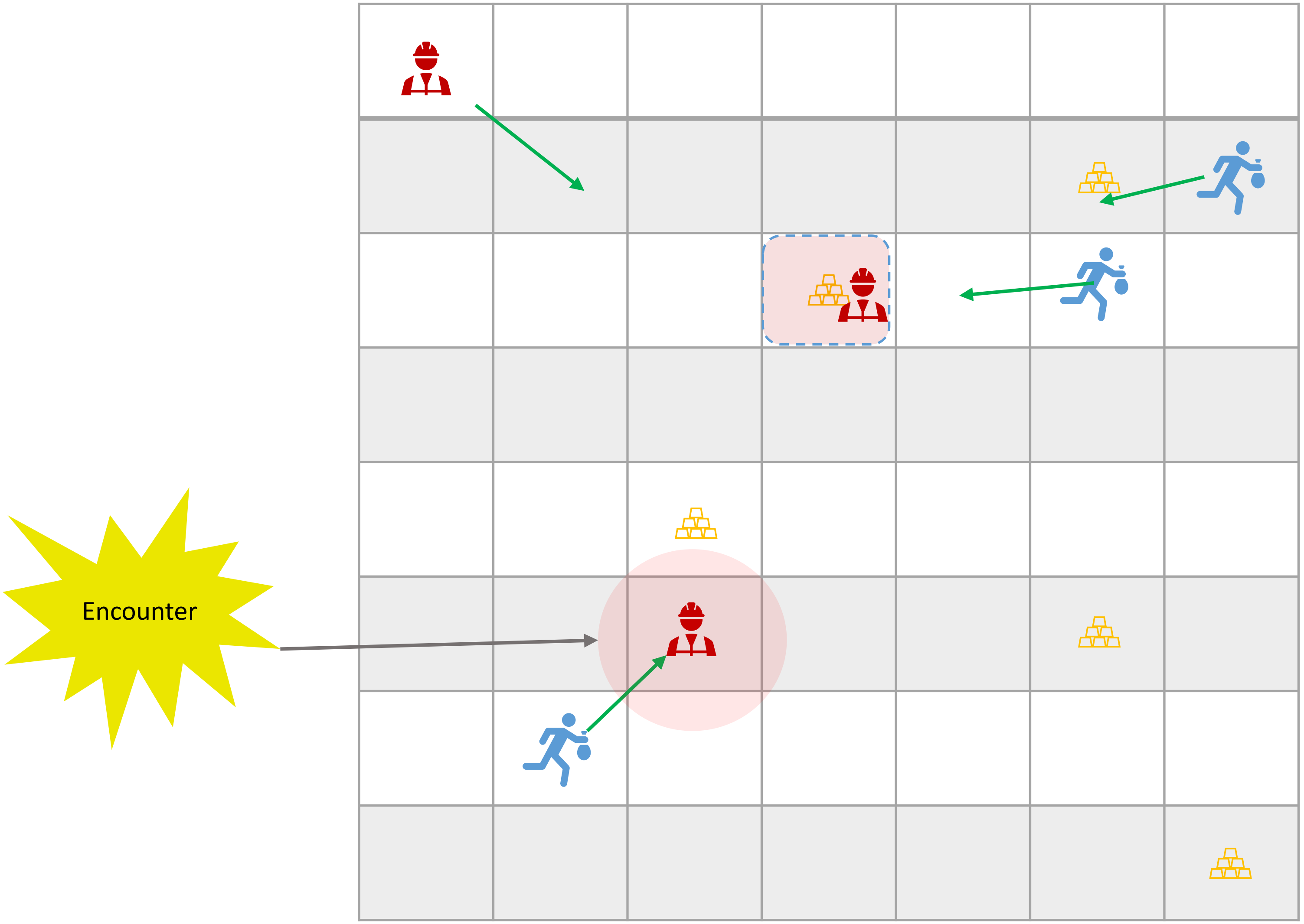
Gold

Gold Hunters

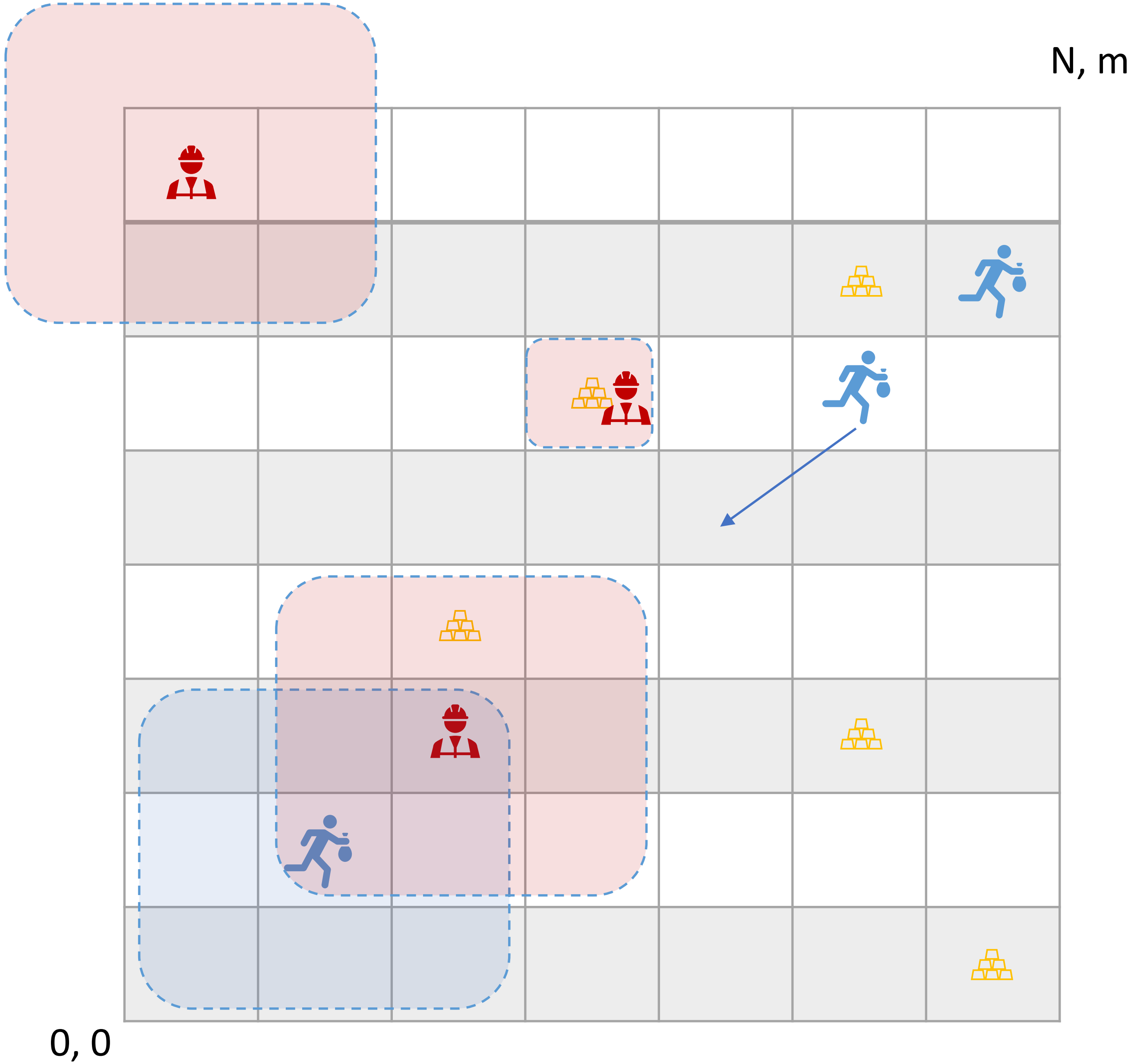
Diggers

Robbers

Gold



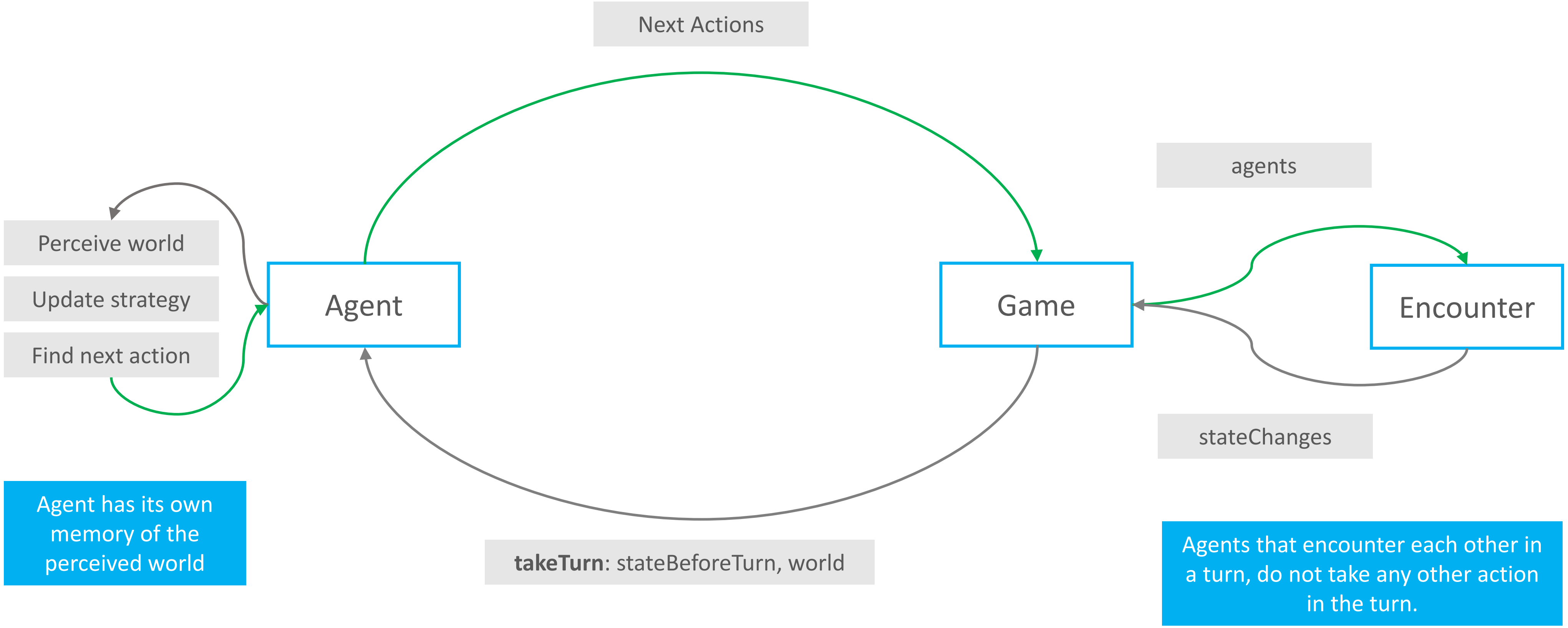
Gold Hunters



Diggers

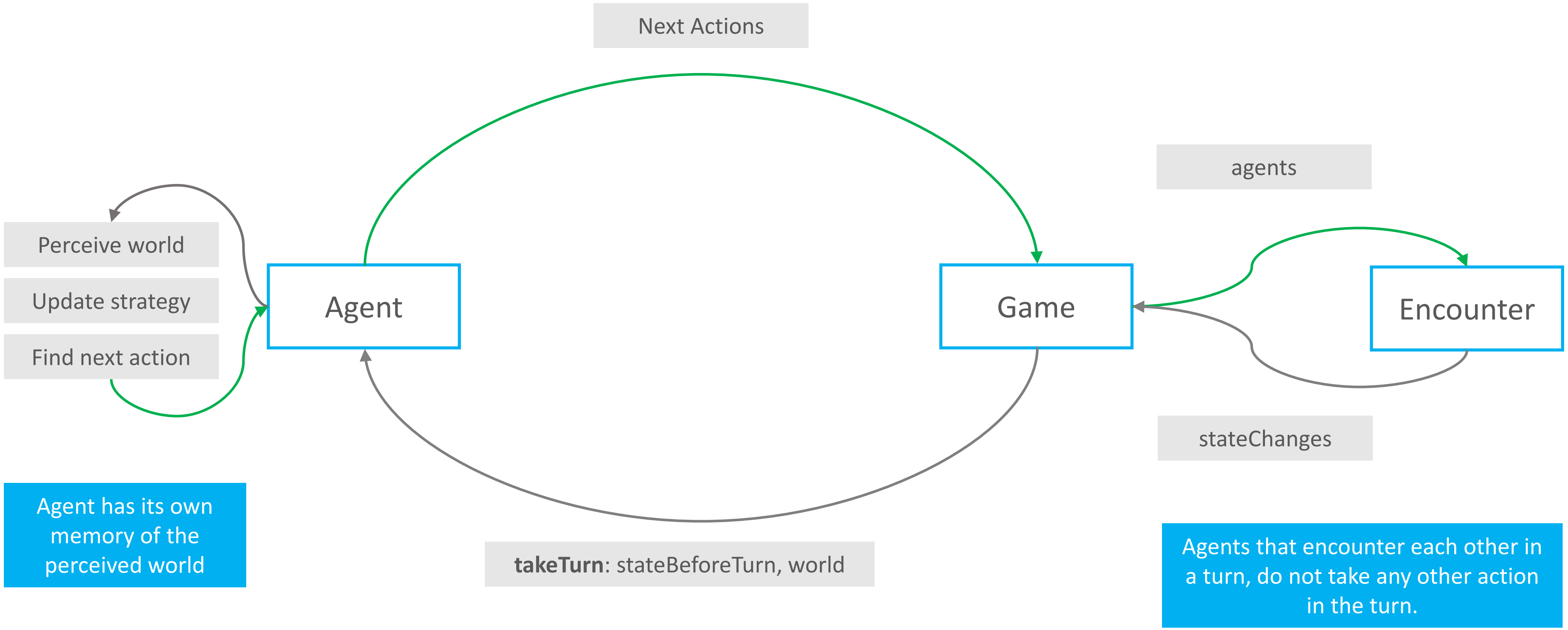
Robbers

Game Loop



Agent has its own memory of the perceived world

Agents that encounter each other in a turn, do not take any other action in the turn.



Next Actions

Perceive world

Update strategy

Find next action

Agent

Game

agents

Encounter

stateChanges

takeTurn: stateBeforeTurn, world

Agent has its own memory of the perceived world

Agents that encounter each other in a turn, do not take any other action in the turn.

Object locations

- In each agent or resource, we will have a position property. But how will the game know about object positions? If we have iterate through the positions everytime we need it, it would be very slow. Can we raise an event if the position is changed in an object? A pub-sub architecture.
- We cannot use reactive programming as we don’t have control over event synchronization. We can use async programming to create coroutines and wait for all the tasks in a turn to be completed.