Flatland encoding

> Week 3

Progress

We have an encoding that produces a correct result for a single agent. Congrats!

Comments

👍 Positive feedback

> With this logic:
> `{ occur(Edge, T) } 1 :- transition(Edge), time(T).`
> if we include an upper limit, we are saying "choose between the action or a wait."

> For all possible transitions, pick one and do that. with your approach, you would need a constraint:
> `:- T1, T2.`

> Otherwise, you will end up with all waits. If we rewrite it like this:
> `{ occur(Edge, T) : transition(Edge) } = 1 :- time(T).`
> we can simplify what we have. For every transition, every possible action (wrt this transition) can happen, or you can wait.

⚠️ Making improvements

The encoding is long and written in such a manner that is a bit challenging to read the first time through. Take some time to review the structure of the encoding and consider whether there are redundancies that can be removed.

Next steps for Week 4

- Knowing where the train is between transitions—this isn't a problem for one train, but it will be when we have multiple trains

    - Track the trains' positions
    - We will have to adjust the actions associated with each time step
- Knowing whether two or more trains will collide
    - Conflict detection
- Alternatives for representing transitions

Conflict detection:

1. focus on **node conflicts**
    i. This can be done by determining whether two agents are on the same node at the same time
2. focus on **swapping conflicts**

Housekeeping: Meet next week. In two weeks we will not meet.