Report of assignment 5

First evaluation function

For the first evaluation function we have multiple different features.

Features

Currently used

- Penalty if the agent stops
- Eating food or pellets will be rewarded
- Penalty based on how much food is left
- Reward if the next position is closer to the food
- Reward if we go closer to scared ghost and penalty if we go further away
- Penalty if we go closer to non scared ghost and reward if we go further away
- Win is inf
- Lose is -inf

Tried but didn't work

- Adding multipliers on some of the features → This one resulted in a worse result, for instance adding it on the action of stop will result in a less fruitful result. Because this one is just a constant.

Which feature weights proved the most fruitful? Why would you (not) use reciprocals of the features?

Adding weight on the amount of food it ate instead of just adding notting on it. And adding a penalty on how much food is left, also increased our results.

Didn't test cases with reciprocals in this function, but based on theory we can assume that it can help in case we wanna put less value on a variable. In case the variable has less of an impact and the impact is based on how many objects it possesses, we can make use of reciprocals to have less of an impact in case it has more objects.

Second evaluation function

Currently used

- Win is inf
- Lose is -inf
- Reward based on the closest food
- Reward based on the closest pellets
- Reward if we get closer to the ghost in case they are scared and penalty if they are not scared

Tried but didn’t work

Adding multipliers on food distance will result in no results or low scores. Also adding divisions, so floating point weights of 10 on pellets will result in death in some test cases.

Which feature weights proved the most fruitful? Why would you (not) use reciprocals of the features?

Division of 2 on the pellets gave us better scores. And division by 10 on the distance of the ghost also resulted in better scores.

In this function we tested some reciprocal on distances of food and ghost distances, but these lead us to worse results. I don’t know anything we can use it for, what would make it better.