1 A_ Simple

1.1 Key structures

1.1.1 Key Lists

Since a lot of the important information are stored in C# Dictionaries, a list containing the keys are needed since the keys themselves are lists. This is to ensure the reference to key for each dictionary are consistent. Due to how the agent initializes, the first key is always the pair of anchor the agent wants to build a path in.

1.1.2 paths and zones

Each of those contains a pair of anchor and the corresponding path/general zone of these anchors. there will be a path between every anchors, but only the first path is the one the AI will try to complete.

1.2 Game Flow

1.2.1 initialization

At the start of the game, the agent will pick the central most anchor, and its nearest anchor, as the pair of anchors it will try to build a path in.

Afterwards, iniKeys
function will find all the pair of anchors as a list. After we have our anchor pairs, the agent will find all the paths and zones using getAllZones and getAllPaths, and initialize the suspicion model using iniSuspicion.

1.2.2 Decision making

every turn, the agent will add all the human blocks to a list of blocks, increase the turn count, and update all the paths based on where the blocks are.

Then, each shuttle will pick up the generators with the most red tokens, and place the red tokens based on what predictNext predicted to be the best move. If the tokens are not yellow they will be placed according to nonRedTokenPlacement, which at the time of writing is just placing it randomly. If the path can be complete with the current number of reds, the game finishes instead.

1.2.3 Predicting

predictNext takes in the number of red tokens and how many times we want to generate a simulation (1000 at the time of writing).

for each simulation, the agent will place the available red tokens randomly on a grid in any of the paths. Then the agent assumes the human player will place each block next to a random newly placed red token using blockPredict.

This means if all the red tokens are placed in the same place, the human will place all 3 blocks around the same place.

After obtaining where the predicted blocks are, the agent assess how this would affect the suspicion model and the game using BoardScore . This updates the predicted suspicion, then by using the suspicion model and how much further we completed the path in this simulation, we get a score.

The simulation with the best score will be chosen, and that is where the red tokens will be placed

2 B_Simple

extremely simple agent that simply blocks randomly next to a red token placed in the previous turn. The placement of blocks must not be on top of the token, on an anchor, or in a non-empty grid.