Heuristic Report

# Heuristic Descriptions

I will start by going through the three heuristics I created, and describing how they work from a high level:

* Custom\_Score can be described as an extended AB\_improved
* Custom\_Score\_2 is a copy cat strategy, trying as hard as it can to do what the other player did their previous move
* Custom\_Score\_3 can be described as a modified AB\_improved

## Custom\_Score Description

Custom\_Score can be described as an extended AB\_improved:

* Custom\_Score calculates the difference between it’s moves, and its opponents moves the same way that AB\_Improved does,
  + If Custom\_Score is ahead of the opponent, it will try to place pieces as close to the bottom right corner as possible
  + Otherwise, if Custom\_Score is behind, it will play the same AB\_Improved
* The thinking behind Custom\_Score’s strategy, is that if placing pieces in the bottom right corner is outperforming AB\_Improved, then it will continue to keep placing pieces in the bottom right corner, which should lead to it winning,
  + If placing pieces in the bottom right, isn’t working, then it will revert to the same strategy as AB\_Improved, which should give it a chance to win a game it is falling behind in

## Custom\_Score\_2 Description

Custom\_Score\_2 is a copy cat strategy:

It is incredibly simple: it will try to place pieces as close to where the other player placed their piece last turn. Despite this, it seems to work fairly well, since both players get to be a starting player, it effectively gets to piggy back off the other players strategy somewhat.

## Custom\_Score\_3 Description

Custom\_Score\_3 can be described as a modified AB\_Improved:

* It uses two parts to calculate utility:
  + Part 1: the difference between players and the opponents moves
  + Part 2: the distance between the player and the opponent, the player is incentivized to try to get away from the other player
  + These two parts are then added together and returned to drive the agents behaviour

# Heuristic Performance

## Custom\_Score Performance

## Custom\_Score\_2 Performance

## Custom\_Score\_3 Performance