Custom Score 1 – Available Move + Proximity to Close Blank Spaces

Score Definition

Custom Score 1 combines the differential in the available moves between the player and the opponent, and adds a score that counts the number of available spaces that are closer to the player relative to the opponent.

Performance

In 5 trials, custom score 1 outperformed AB_Improved by an average of 5%. This is the score that helped the agent play the best.

Custom Score 2 – Available Move + Positional Scoring

Score Definition

Custom Score 1 combines the differential in the available moves between the player and the opponent, and adds a score that penalizes the positions in the edge or in the corner.

Performance

This outperformed AB_improved by an average of 3%. The penalization of the edge and corner positions based on the intuition that those positions often lead to fewer movements and no available moves down the road, this seems to perform better.

Custom Score 3- Aggressive Move

Score Definition

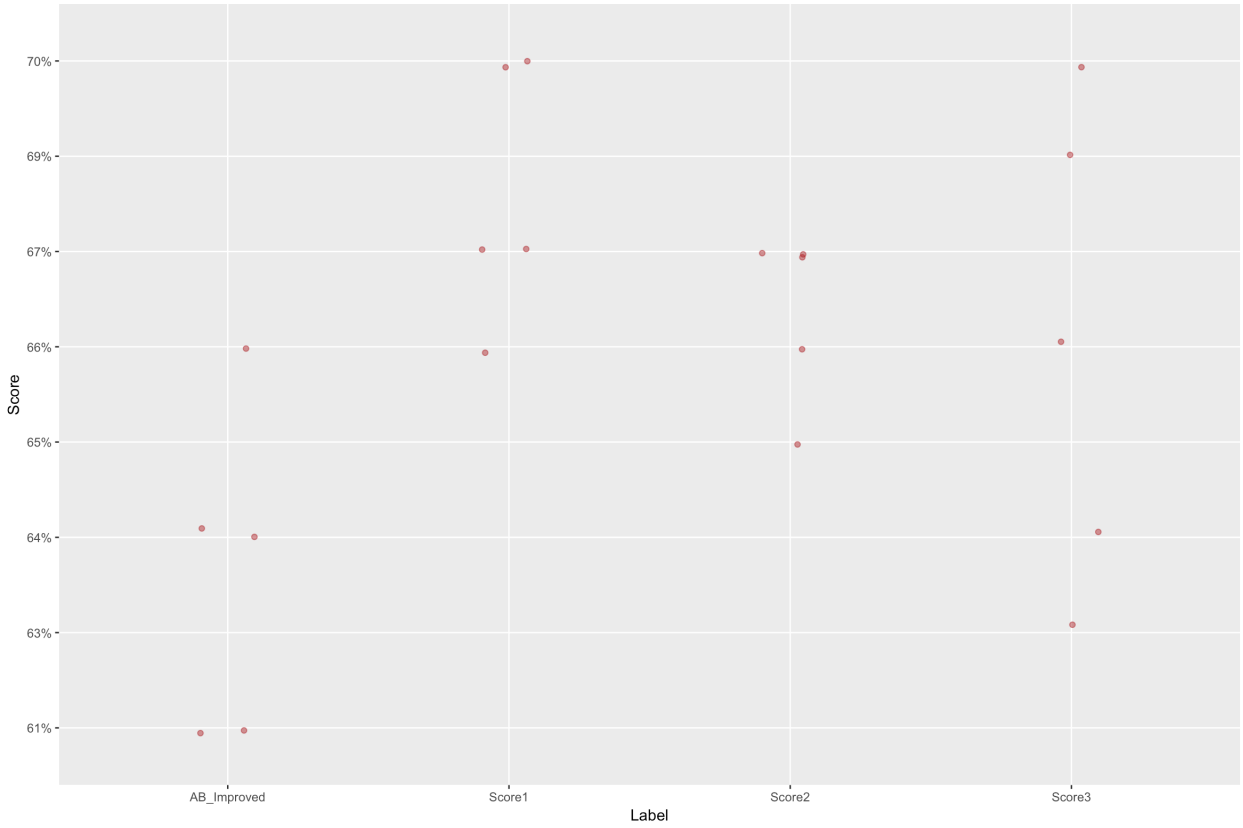
This is identical to improved_score, except that the number of moves available to the opponent is outweighed.

Performance

This outperformed AB_improved by an average of 3% as well. The more aggressive strategy by the player by weighing the number of the opponent's available moves more than the player's own available moves seems to generally outperform.

Summary

The below is a summary of the respective performances of the heuristics based on 5 trials.



(As a side note, the positon jitter is added to deduplicate the points with the same coordinate). As is evident from the plot above, there is a reasonable level of variation in the respective performance of the models. More iterations of the trials and the increase in the number of matches between agents will give a more rigorous comparison of the heuristics.