Search	Heuristic	Time	Fairplay	Depth Limit	~Nodes	Games	Result
Alpha Beta	Liberties	150	Yes	9	50000	100	0.8
Alpha Beta	Custom Heuristic	150	Yes	9	50000	100	0.86
Alpha Beta	Liberties	300	Yes	9	100000	100	0.745
Alpha Beta	Custom Heuristic	300	Yes	9	100000	100	0.84

Baseline

Using #my_moves - #opponent_moves heuristic, I achieve an 80% success rate, over 100 games

Search	Heuristic	Time	Fairplay	Depth Limit	Nodes	Games	Result
Alpha Beta	**Liberties**	**150**	**Yes**	**9**	**50000**	**100**	**0.8**

Custom Heuristic

I assume that the player with more liberties towards the center of the board should have a higher success rate

I set a max distance for each liberty available to each player, then reduce distance from the center

The player with the highest total remaining is considered to be winning (ie most liberties towards the center)

Using my custom heuristic I achieve an 86% success rate, over 100 games

Search	Heuristic	Time	Fairplay	Depth Limit	Nodes	Games	Result
Alpha Beta	**Custom Heuristic**	**150**	**Yes**	**9**	**50000**	**100**	**0.86**

What features of the game does your heuristic incorporate, and why do you think those features matter in evaluating states during search?

I consider it is better to have more liberties towards the center of the board

The baseline heuristic only measures the difference in liberties of players, considering the location of the liberties can give us an edge

Having an edge whilst evaluating can give a better idea of when the player is winning, hence more likely picking the right move

Analyze the search depth your agent achieves using your custom heuristic. Does search speed matter more or less than accuracy to the performance of your heuristic?

According to my analysis, having a better heuristic can be more effective than just going deeper.
For instance, doubling the time to 300ms, the baseline achieved a 82.5% - which was still lower than my custom heuristic at 150ms, and we had to go a lot deeper ~*2 nodes
Given time restriction, it maybe unlikely to reach endgame just by going deep. So I believe it is important to have clever evaluation