



In the graph, the purple line represents the modified bot, and the green line represents the vanilla bot. The y-axis is the total number of wins, and the x-axis is the number of nodes.

Our modified bot won most of the time against vanilla, even with fewer nodes. Unfortunately, we didn't have time to test it with high node numbers, but we still simulated it in 4 different tests.

100 nodes in both Vanilla and Modified led to the same results. We won 52 games of the 100 games. This is because our bot needed more simulations to evaluate the position of each node correctly. Both bots needed more information to make good predictions.

We start to see improvements in 200 nodes, with only 34 losses. The heuristics are working, and our bot gets the best action in each of the smaller boards, creating a huge lead compared to the vanilla bot. We make more optimal moves compared to the vanilla bots.

Using 500 nodes, our modified bot slows down a bit, and we start to see more losses, with a 60% win rate. This dip can be explained because we ignored the bigger picture when choosing moves. We prioritize making moves that lead to a win in the smaller boxes rather than ensuring that we keep the opponent from going into boxes that can lead to their win. We also didn't attempt to block the opponent. This dip in wins may also be a result of the vanilla bot making better moves since now it can work with more information.