

### Results:

	Random	Minimax	Dumb	Smart
Random	1)Random- 45% 2)Random- 55%	1)Minimax- 60% 2)Random- 40%	1)Dumb- 80% 2)Random- 20%	1)Smart- 96% 2)Random- 4%
Minimax	1)Random- 51% 2)Minimax- 49%	1)Minimax- 100% 2)Minimax- 0%	1)Dumb- 0% 2)Minimax- 100%	1)Smart- 100% 2)Minimax- 0%
Dumb	1)Random- 36% 2)Dumb- 64%	1)Minimax- 0% 2)Dumb- 100%	1)Dumb- 100% 2)Dumb- 0%	1)Smart- 100% 2)Dumb- 0%
Smart	1)Random- 3% 2)Smart- 97%	1)Minimax- 0% 2)Smart- 100%	1)Dumb- 0% 2)Smart- 100%	1)Smart- 100% 2)Smart- 0%

### Discussion:

The data above shows that the best player is the SmartPlayer as it won the majority of the games it played in all situations. Unfortunately for me, this shows that my Minimax Player is not as smart as it could be. In fact, my minimax player is almost identical to the DumbPlayer if not worse. In some cases being the first player was an advantage. This was especially true when each player competed against another version of itself. The exception to this would be the random player in which the second player won more often. Another case for first player advantage would be when the Random and Minimax Player compete, the first player wins more often. However, in some cases it is not advantageous to be the first player. When the Minimax and Dumb Players compete it is always the second player who wins.

### Evaluation Function:

To write my evaluation function I researched various strategies for winning Konane. I found one strategy that said to maximize the number of corners and edges the player occupies. Another strategy is to maximize "islands" that form on the board. These islands would be groups of three pieces like "XOX" or "OXO" where the player in the middle has the advantage. I did this first for searching through the Board to find the number of the specified player's pieces located in corners and on the edges of the board. I then recreated a map of the board in a 2D array to see which pieces were where and counted the number of advantageous islands. Unfortunately, this proved to be an ineffective method as it did not make my Minimax Player smarter than the SmartPlayer.

Source of strategy: <http://everything2.com/title/konane>