|  |  |  |  |
| --- | --- | --- | --- |
|  | seed | randomPlayer | betterPlayer |
|  | 1 | 2 | 198 |
|  | 2 | 3 | 197 |
|  | 3 | 2 | 198 |
|  | 4 | 5 | 195 |
|  | 5 | 4 | 196 |
|  | 6 | 5 | 195 |
|  | 7 | 7 | 193 |
|  | 8 | 10 | 190 |
|  | 9 | 5 | 195 |
|  | 10 | 4 | 196 |
|  | 11 | 5 | 195 |
|  | 12 | 2 | 198 |
|  | 13 | 6 | 194 |
|  | 14 | 6 | 194 |
|  | 15 | 1 | 199 |
|  | 16 | 2 | 198 |
|  | 17 | 3 | 197 |
|  | 18 | 2 | 198 |
|  | 19 | 2 | 198 |
|  | 20 | 5 | 195 |
| Winpercent |  | 0.02025 | 0.97975 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| randomPlayer | maxPlayer |  | randomPlayer | simplePlayer |
| 3 | 197 |  | 87 | 113 |
| 5 | 195 |  | 101 | 99 |
| 1 | 199 |  | 90 | 110 |
| 5 | 195 |  | 92 | 108 |
| 2 | 198 |  | 76 | 124 |
| 3 | 197 |  | 77 | 123 |
| 1 | 199 |  | 78 | 122 |
| 3 | 197 |  | 97 | 103 |
| 3 | 197 |  | 84 | 116 |
| 4 | 196 |  | 73 | 127 |
| 3 | 197 |  | 82 | 118 |
| 1 | 199 |  | 82 | 118 |
| 4 | 196 |  | 84 | 116 |
| 3 | 197 |  | 81 | 119 |
| 3 | 197 |  | 84 | 116 |
| 2 | 198 |  | 91 | 109 |
| 2 | 198 |  | 80 | 120 |
| 4 | 196 |  | 79 | 121 |
| 3 | 197 |  | 80 | 120 |
| 2 | 198 |  | 79 | 121 |
| 0.01425 | 0.98575 |  | 0.41925 | 0.58075 |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| betterPlayer | maxPlayer |  | betterPlayer | simplePlayer |  | maxPlayer | simplePlayer |
| 96 | 104 |  | 197 | 3 |  | 197 | 3 |
| 98 | 102 |  | 192 | 8 |  | 195 | 5 |
| 87 | 113 |  | 197 | 3 |  | 195 | 5 |
| 88 | 112 |  | 191 | 9 |  | 198 | 2 |
| 86 | 114 |  | 198 | 2 |  | 197 | 3 |
| 94 | 106 |  | 197 | 3 |  | 195 | 5 |
| 89 | 111 |  | 195 | 5 |  | 197 | 3 |
| 107 | 93 |  | 199 | 1 |  | 198 | 2 |
| 94 | 106 |  | 198 | 2 |  | 194 | 6 |
| 86 | 114 |  | 195 | 5 |  | 197 | 3 |
| 99 | 101 |  | 196 | 4 |  | 196 | 4 |
| 93 | 107 |  | 198 | 2 |  | 197 | 3 |
| 95 | 105 |  | 196 | 4 |  | 195 | 5 |
| 95 | 105 |  | 194 | 6 |  | 196 | 4 |
| 80 | 120 |  | 194 | 6 |  | 197 | 3 |
| 97 | 103 |  | 191 | 9 |  | 193 | 7 |
| 88 | 112 |  | 193 | 7 |  | 193 | 7 |
| 95 | 105 |  | 191 | 9 |  | 192 | 8 |
| 89 | 111 |  | 196 | 4 |  | 192 | 8 |
| 91 | 109 |  | 193 | 7 |  | 197 | 3 |
| 0.46175 | 0.53825 |  | 0.97525 | 0.02475 |  | 0.97775 | 0.02225 |

Above are the test results for every combination of player except when a player is against itself as neither have a tactical advantage so is a pointless test.

randomPlayer is the given player in domsMatch.  
maxPlayer implements only tacticMaximise, playing the highest scoring domino each turn.  
simplePlayer implements only special tactics, meaning it would play the optimal first turn and would try to keep the other player knocking.  
betterPlayer implements both tacticMaximise and special tactics, this means it should play optimally when it can, and player highest scoring dominos

First, I tested each player against the given randomPlayer to see how much of an improvement each tactic has over not using one at all. maxPlayer has the greatest win percentage with 0.98575 followed closely by betterPlayer with 0.97975, despite performing much worst than the previous players simplePlayer showed that the tactics do cause an improvement with a 0.58075 win rate.

Then I stacked each new player against each other to see how they would perform against a smarter players. maxPlayer having the highest win rate between both games 0.97775 against simplePlayer and 0.53825 against betterPlayer, this is odd as it implements fewer tactics than betterPlayer yet wins more scenarios. Coming last was simple player losing both match ups but faired marginally better aginst betterPlayer than maxPlayer, 0.02475 vs 0.02225. betterPlayer performed worst than expect considering it has all tactics implemented, so it’s expected to play more optimally in more situations and therefore win more, as these tactics have been shown to work as simplePlayer works better than randomPlayer.

In conclusion, despite being able to handle more complex situations, betterPlayer is beaten by just playing the maximum scoring domino each turn. I think to beat maxPlayer, betterPlayer would need to implement more advanced tactics, primarily thinking forward and deducing the other players dominos to block and force them to have low scores, as currently betterPlayer only thinks only in very specific situations, which is proven to be worst than playing a high scoring domino.