**Performance Comparison Between Different Heuristics from AI vs AI Autoplay**

Here,

H1 = (player storage – opponent storage)

H2 = 3\*(player storage – opponent storage) + 2\*(player side stones – opponent side stones)

H3 = 3\*(player storage – opponent storage) +0. 1\*(player side stones – opponent side stones) + 6\*(additional moves earned)

H4 = 3\*(player storage – opponent storage) +0. 1\*(player side stones – opponent side stones)+ 6\*(additional moves earned) + 1/2\*(half of all stones - opponent storage stones)

H5 = 3\*(player storage – opponent storage) + 0. 1\*(player side stones – opponent side stones)+ 6\*(additional moves earned) + 1/2\*{-(half of all stones -player storage stones)}

H6 = 3\*(player storage – opponent storage) +0. 1\*(player side stones – opponent side stones) +6\*(additional moves earned) + 1\*(how many stones captured)

And depth = 10

|  |  |  |
| --- | --- | --- |
| Win% | Lose% | Draw% |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | H1 | | | H2 | | | H3 | | | H4 | | | H5 | | | H6 | | |
| H1 | 90% | 4% | 6% | 93% | 1% | 6% | 98% | 0% | 2% | 99% | 0% | 1% | 100% | 0% | 0% | 96% | 1% | 3% |
| H2 | 57% | 27% | 15% | 100% | 0% | 0% | 64% | 25% | 11% | 65% | 30% | 5% | 49% | 34% | 17% | 47% | 31% | 22% |
| H3 | 87% | 3% | 10% | 100% | 0% | 0% | 96% | 4% | 0% | 88% | 9% | 3% | 87% | 0% | 13% | 81% | 7% | 12% |
| H4 | 92% | 2% | 6% | 100% | 0% | 0% | 90% | 8% | 2% | 92% | 5% | 3% | 88% | 2% | 10% | 90% | 4% | 6% |
| H5 | 92% | 5% | 3% | 100% | 0% | 0% | 89% | 10% | 1% | 93% | 7% | 0% | 83% | 4% | 13% | 80% | 10% | 10% |
| H6 | 81% | 11% | 8% | 100% | 0% | 0% | 73% | 18% | 9% | 80% | 17% | 3% | 73% | 13% | 14% | 64% | 10% | 26% |

Here, from the table above, it is evident that there is a first-move advantage in the game of MANCALA. Between these 6 heuristics, H1, H3, H4, H5 and H6 provide quite similar results but H1 is slightly better than the other ones whereas H2 gives noticeably poor result. That may be because ” (player side stones – opponent side stones)“ does not give a good measure in order to choose a winning move. The statistics of the table above can and will differ if data is taken once again as moves here are ordered randomly.

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