# Connect N

Bram Pulles

October 5, 2022

| test set | total | timeouts | mean time | max time | mean count | max count | count per sec |
|---|---|---|---|---|---|---|---|
| 30-07 | 30 | 1 | 0.095417 | 2.011071 | 197 | 146619 | 38598 |
| 20-07 | 30 | 7 | 0.108103 | 2.660797 | 278 | 216104 | 52110 |
| 30-14 | 30 | 1 | 0.222108 | 5.05804 | 6886 | 323909 | 52655 |
| 20-14 | 30 | 4 | 0.921285 | 6.190709 | 61932 | 468116 | 67406 |

Table 1: Insane AI with iterative deepening

| test set | total | timeouts | mean time | max time | mean count | max count | count per sec |
|---|---|---|---|---|---|---|---|
| 30-07 | 30 | 0 | 0.13946 | 3.717605 | 1519 | 246017 | 45682 |
| 20-07 | 30 | 30 | 0 | 0 | 0 | 0 | 0 |
| 30-14 | 30 | 0 | 0.183881 | 0.819843 | 4072 | 50014 | 39368 |
| 20-14 | 30 | 28 | 8.018537 | 8.018537 | 670090 | 670090 | 81651 |

Table 2: Insane AI with MTD(f)

| test set | total | timeouts | mean time | max time | mean count | max count | count per sec |
|---|---|---|---|---|---|---|---|
| 30-07 | 30 | 1 | 0.095708 | 4.261424 | 377 | 339069 | 55753 |
| 20-07 | 30 | 8 | 0.118574 | 4.366139 | 660 | 335230 | 59456 |
| 30-14 | 30 | 1 | 0.415391 | 9.557776 | 20226 | 664495 | 61041 |
| 20-14 | 30 | 6 | 2.968389 | 9.57551 | 209221 | 643107 | 71115 |

Table 3: Insane AI with iterative deepening and MTD(f)

| test set | total | timeouts | mean time | max time | mean count | max count | count per sec |
|----------|-------|----------|-----------|----------|------------|-----------|---------------|
| 30-07 | 30 | 0 | 0.031056 | 0.809639 | 2909 | 73283 | 90247 |
| 20-07 | 30 | 27 | 6.843755 | 9.205496 | 560175 | 824355 | 86068 |
| 30-14 | 30 | 0 | 0.058018 | 0.635897 | 4228 | 46229 | 79448 |
| 20-14 | 30 | 29 | 2.546612 | 2.546612 | 202736 | 202736 | 79610 |

Table 4: Alpha beta pruning

| test set | total | timeouts | mean time | max time | mean count | max count | count per sec |
|----------|-------|----------|-----------|----------|------------|-----------|---------------|
| 30-07 | 30 | 2 | 0.253901 | 9.589689 | 28040 | 1051029 | 110008 |
| 20-07 | 30 | 30 | 0 | 0 | 0 | 0 | 0 |
| 30-14 | 30 | 1 | 0.719904 | 8.746326 | 67918 | 832406 | 96602 |
| 20-14 | 30 | 30 | 0 | 0 | 0 | 0 | 0 |

Table 5: Negamax / minimax