

David Shull
CSC380: Artificial Intelligence
Dr. Salgian

Project 2: Wargame Write-up

Following are the stats for each player combination for each board:

Random vs. Random (Numbers displayed are averages from 50 games)

Kalamazoo			
Name - Type	Score	Number of Moves	Average move time (microseconds)
B - Random	18	13	20
G - Random	17	12	13
B - Random	17	12	14
G - Random	18	13	13

Peoria			
Name - Type	Score	Number of Moves	Average move time (microseconds)
B - Random	655	13	17
G - Random	643	12	17
B - Random	643	12	16
G - Random	655	13	15

Piqua			
Name - Type	Score	Number of Moves	Average move time (microseconds)
B - Random	13	13	17
G - Random	11	12	19
B - Random	11	12	13
G - Random	13	13	19

Punxsutawney			
Name - Type	Score	Number of Moves	Average move time (microseconds)
B - Random	53	13	15
G - Random	41	12	15
B - Random	42	12	15
G - Random	52	13	20

Wallawalla			
Name - Type	Score	Number of Moves	Average move time (microseconds)
B - Random	41	13	18
G - Random	34	12	15
B - Random	34	12	17
G - Random	41	13	16

Minimax vs. Minimax

Kalamazoo			
Name - Type	Score	Number of Moves	Average move time (microseconds)
B – Minimax	19	13	110944
G – Minimax	16	12	106580
B – Minimax	16	12	96049
G – Minimax	19	13	110784

Peoria			
Name - Type	Score	Number of Moves	Average move time (microseconds)
B – Minimax	699	13	106582
G – Minimax	600	12	102445
B – Minimax	600	12	96388
G – Minimax	699	13	104036

Piqua			
Name - Type	Score	Number of Moves	Average move time (microseconds)
B – Minimax	13	13	104901
G – Minimax	12	12	92006
B – Minimax	12	12	93018
G – Minimax	13	13	104666

Punxsutawney			
Name - Type	Score	Number of Moves	Average move time (microseconds)
B – Minimax	51	13	97547
G – Minimax	44	12	92704
B – Minimax	44	12	92929
G – Minimax	51	13	100323

Wallawalla			
Name - Type	Score	Number of Moves	Average move time (microseconds)
B – Minimax	40	13	102938
G – Minimax	36	12	99076
B – Minimax	36	12	96687
G – Minimax	40	13	104276

AlphaBeta vs. AlphaBeta

Kalamazoo			
Name - Type	Score	Number of Moves	Average move time (microseconds)
B – AlphaBeta	16	13	9557
G - AlphaBeta	19	12	8710
B - AlphaBeta	19	12	9265
G - AlphaBeta	16	13	10192

Peoria			
Name - Type	Score	Number of Moves	Average move time (microseconds)
B - AlphaBeta	699	13	8887
G - AlphaBeta	600	12	8957
B - AlphaBeta	600	12	9143
G - AlphaBeta	699	13	8939

Piqua			
Name - Type	Score	Number of Moves	Average move time (microseconds)
B - AlphaBeta	13	13	6354
G - AlphaBeta	12	12	6479
B - AlphaBeta	12	12	5683
G - AlphaBeta	13	13	5321

Punxsutawney			
Name - Type	Score	Number of Moves	Average move time (microseconds)
B - AlphaBeta	54	13	10705
G - AlphaBeta	41	12	10644
B - AlphaBeta	41	12	9716
G - AlphaBeta	54	13	9774

Walla Walla			
Name - Type	Score	Number of Moves	Average move time (microseconds)
B - AlphaBeta	38	13	12054
G - AlphaBeta	38	12	13017
B - AlphaBeta	38	12	13194
G - AlphaBeta	38	13	12090

Random vs. Minimax (Numbers displayed are averages from 50 games)

Kalamazoo			
Name - Type	Score	Number of Moves	Average move time (microseconds)
B – Random	13	13	33
G – Minimax	22	12	91958
B – Minimax	24	13	84736
G – Random	11	12	23

Peoria			
Name - Type	Score	Number of Moves	Average move time (microseconds)
B – Random	595	13	24
G – Minimax	703	12	75047
B – Minimax	791	13	80448
G – Random	507	12	21

Piqua			
Name - Type	Score	Number of Moves	Average move time (microseconds)
B – Random	8	13	24
G – Minimax	17	12	76849
B – Minimax	18	13	82991
G – Random	7	12	21

Punxsutawney			
Name - Type	Score	Number of Moves	Average move time (microseconds)
B – Random	19	13	22
G – Minimax	76	12	85657
B – Minimax	81	13	82500
G – Random	14	12	23

Wallawalla			
Name - Type	Score	Number of Moves	Average move time (microseconds)
B – Random	31	13	23
G – Minimax	44	12	77348
B – Minimax	49	13	85818
G – Random	26	12	20

Random vs. AlphaBeta (Numbers displayed are averages from 50 games)

Kalamazoo			
Name - Type	Score	Number of Moves	Average move time (microseconds)
B – Random	13	13	22
G – AlphaBeta	22	12	11699
B – AlphaBeta	24	13	13436
G – Random	11	12	18

Peoria			
Name - Type	Score	Number of Moves	Average move time (microseconds)
B – Random	583	13	19
G – AlphaBeta	715	12	10770
B – AlphaBeta	813	13	12106
G – Random	485	12	25

Piqua			
Name - Type	Score	Number of Moves	Average move time (microseconds)
B – Random	9	13	25
G – AlphaBeta	16	12	7088
B – AlphaBeta	18	13	6724
G – Random	7	12	20

Punxsutawney			
Name - Type	Score	Number of Moves	Average move time (microseconds)
B – Random	17	13	21
G – AlphaBeta	78	12	12136
B – AlphaBeta	80	13	14999
G – Random	15	12	24

Wallawalla			
Name - Type	Score	Number of Moves	Average move time (microseconds)
B – Random	30	13	18
G – AlphaBeta	45	12	14851
B – AlphaBeta	49	13	15125
G – Random	26	12	23

Minimax vs. AlphaBeta

Kalamazoo			
Name - Type	Score	Number of Moves	Average move time (microseconds)
B – Minimax	16	13	80136
G – AlphaBeta	19	12	8500
B – AlphaBeta	16	13	9006
G – Minimax	19	12	79604

Peoria			
Name - Type	Score	Number of Moves	Average move time (microseconds)
B – Minimax	699	13	72854
G – AlphaBeta	600	12	8216
B – AlphaBeta	600	13	8278
G – Minimax	699	12	69944

Piqua			
Name - Type	Score	Number of Moves	Average move time (microseconds)
B – Minimax	13	13	83265
G – AlphaBeta	12	12	6083
B – AlphaBeta	13	13	6353
G – Minimax	12	12	85729

Punxsutawney			
Name - Type	Score	Number of Moves	Average move time (microseconds)
B – Minimax	54	13	78707
G – AlphaBeta	41	12	10087
B – AlphaBeta	41	13	9697
G – Minimax	54	12	75441

Wallawalla			
Name - Type	Score	Number of Moves	Average move time (microseconds)
B – Minimax	38	13	90917
G – AlphaBeta	38	12	14113
B – AlphaBeta	38	13	11436
G – Minimax	38	12	77244