

# Report for TPK4186 assignment 2

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## **Contents**

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## **Modules**

- chessgame.py
- chessgames.py
- move.py
- Newdoc.py
- tree.py
- Main.py

- tests of the different tasks can be found in this file

## **Info**

Every single task is performed when running main.py, it will create both all files to write to, so that these can be checked out if they work

## **Tasks**

These are the tasks of the assignment.

### **2.1 Games**

This task focuses on encoding games and structure data.

#### **Task 1**

The structure is implemented in chessgame.py.

#### **Task 2**

The function is implemented in chessgame.py.

#### **Task 3**

The function is implemented in chessgames.py.

#### **Task 4**

The structure is implemented in chessgames.py.

#### **Task 5**

The functions are implemented in chessgame.py.

### **2.2 Statistics**

This task focuses on treating the data. Here, we tested the functions and created the doc seen in attachments.

#### **Task 6**

The functions are implemented in Newdoc.py. Word docx files are here being used as the file format.

#### **Task 7**

The functions are implemented in Newdoc.py

#### **Task 8**

The plot functions are implemented in Main.py

### **2.3 Openings**

#### **Task 9**

The structure is implemented in tree.py.

#### **Task 10**

The function is implemented as a part of the first function in main.py. It also reads the games metadata into account

#### **Task 11**

The function is implemented in tree.py. `printTreetodepth()` Takes in the depth to search in halfmoves and the documentstructure which we want to print to

#### **Task 12**

The function is implemented in tree.py. called `printTreetocount()` Takes in the number of times we have seen a move to search and the documentstructure which we want to print to

explanation for task 11 and 12 as a drawing:

depth: 1, previous moves: [], move: W d4, counted: 861, Whitewins: 232, Blackwins: 87, draws: 542

depth: 2, previous moves: ['W, d4'], move: B Nf6, counted: 552, Whitewins: 154, Blackwins: 57, draws: 341

depth: 3, previous moves: ['W, d4', 'B, Nf6'], move: W c4, counted: 472, Whitewins: 133, Blackwins: 50, draws: 289

depth: 1, previous moves: [], move: W e4, counted: 1240, Whitewins: 345, Blackwins: 149, draws: 746

Here we have the first move being d4, then Nf6, c4. another branch will then start at depth 1 given first move e4.

each time the depth doesnt increase by one, that means that it is a branch of the last time a move with the given depth -1 was printed

### **Attachments**

Below is the docx file that was created with the statistics of the games.

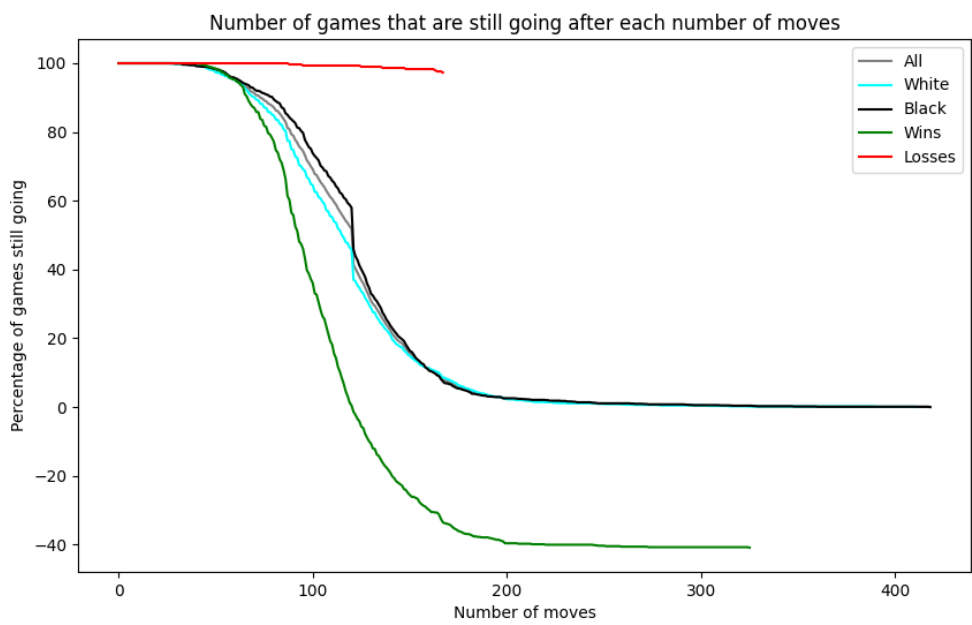
# My Report

Stockfish 15 64-bit

Total number of games: [704, 296, 1599]

Wins, Losses, Draws

	Wins	Losses	Draws
Total	704	296	1599
White	698	2	600
Black	6	294	999



	Average	Standard Deviation
Total	120.24855713736052	39.11921495726059
White	117.2976923076923	39.49494410755852
Black	123.20169361046959	38.513858380522365
Wins	154.75	46.72422968714195
Losses	3.695945945945946	7.732752908769183

Moves up to count 3

depth: 1, previous moves: [], move: W f4, counted: 16, Whitewins: 3, Blackwins: 6, draws: 7

depth: 2, previous moves: ['W, f4'], move: B d5, counted: 10, Whitewins: 2, Blackwins: 6, draws: 2

depth: 3, previous moves: ['W, f4', 'B, d5'], move: W b3, counted: 6, Whitewins: 1, Blackwins: 3, draws: 2

depth: 3, previous moves: ['W, f4', 'B, d5'], move: W Nf3, counted: 2, Whitewins: 1, Blackwins: 1, draws: 0

depth: 3, previous moves: ['W, f4', 'B, d5'], move: W g3, counted: 2, Whitewins: 0, Blackwins: 2, draws: 0

depth: 2, previous moves: ['W, f4'], move: B g6, counted: 2, Whitewins: 1, Blackwins: 0, draws: 1

depth: 3, previous moves: ['W, f4', 'B, g6'], move: W e4, counted: 2, Whitewins: 1, Blackwins: 0, draws: 1

depth: 2, previous moves: ['W, f4'], move: B e5, counted: 2, Whitewins: 0, Blackwins: 0, draws: 2

depth: 3, previous moves: ['W, f4', 'B, e5'], move: W fxe5, counted: 2, Whitewins: 0, Blackwins: 0, draws: 2

depth: 2, previous moves: ['W, f4'], move: B Nf6, counted: 2, Whitewins: 0, Blackwins: 0, draws: 2

depth: 3, previous moves: ['W, f4', 'B, Nf6'], move: W b3, counted: 2, Whitewins: 0, Blackwins: 0, draws: 2

depth: 1, previous moves: [], move: W d4, counted: 861, Whitewins: 232, Blackwins: 87, draws: 542

depth: 2, previous moves: ['W, d4'], move: B Nf6, counted: 552, Whitewins: 154, Blackwins: 57, draws: 341

depth: 3, previous moves: ['W, d4', 'B, Nf6'], move: W c4, counted: 472, Whitewins: 133, Blackwins: 50, draws: 289

depth: 3, previous moves: ['W, d4', 'B, Nf6'], move: W Nf3, counted: 48, Whitewins: 12, Blackwins: 3, draws: 33

depth: 3, previous moves: ['W, d4', 'B, Nf6'], move: W Bg5, counted: 13, Whitewins: 2,

Blackwins: 2, draws: 9

depth: 3, previous moves: ['W, d4', 'B, Nf6'], move: W c3, counted: 2, Whitewins: 0, Blackwins: 0, draws: 2

depth: 3, previous moves: ['W, d4', 'B, Nf6'], move: W Bf4, counted: 10, Whitewins: 4, Blackwins: 1, draws: 5

depth: 3, previous moves: ['W, d4', 'B, Nf6'], move: W g3, counted: 3, Whitewins: 1, Blackwins: 0, draws: 2

depth: 3, previous moves: ['W, d4', 'B, Nf6'], move: W Nc3, counted: 4, Whitewins: 2, Blackwins: 1, draws: 1

depth: 2, previous moves: ['W, d4'], move: B d5, counted: 237, Whitewins: 55, Blackwins: 19, draws: 163

depth: 3, previous moves: ['W, d4', 'B, d5'], move: W c4, counted: 193, Whitewins: 47, Blackwins: 16, draws: 130

depth: 3, previous moves: ['W, d4', 'B, d5'], move: W Nf3, counted: 26, Whitewins: 3, Blackwins: 1, draws: 22

depth: 3, previous moves: ['W, d4', 'B, d5'], move: W Bf4, counted: 10, Whitewins: 3, Blackwins: 1, draws: 6

depth: 3, previous moves: ['W, d4', 'B, d5'], move: W e4, counted: 4, Whitewins: 1, Blackwins: 1, draws: 2

depth: 3, previous moves: ['W, d4', 'B, d5'], move: W Nc3, counted: 2, Whitewins: 1, Blackwins: 0, draws: 1

depth: 3, previous moves: ['W, d4', 'B, d5'], move: W Bg5, counted: 2, Whitewins: 0, Blackwins: 0, draws: 2

depth: 2, previous moves: ['W, d4'], move: B g6, counted: 16, Whitewins: 5, Blackwins: 4, draws: 7

depth: 3, previous moves: ['W, d4', 'B, g6'], move: W c4, counted: 5, Whitewins: 2, Blackwins: 0, draws: 3

depth: 3, previous moves: ['W, d4', 'B, g6'], move: W e4, counted: 11, Whitewins: 3, Blackwins: 4, draws: 4

depth: 2, previous moves: ['W, d4'], move: B e6, counted: 14, Whitewins: 5, Blackwins: 2, draws: 7

depth: 3, previous moves: ['W, d4', 'B, e6'], move: W c4, counted: 6, Whitewins: 2,

Blackwins: 1, draws: 3

depth: 3, previous moves: ['W, d4', 'B, e6'], move: W e4, counted: 8, Whitewins: 3,  
Blackwins: 1, draws: 4

depth: 2, previous moves: ['W, d4'], move: B Nc6, counted: 4, Whitewins: 2, Blackwins: 0,  
draws: 2

depth: 3, previous moves: ['W, d4', 'B, Nc6'], move: W c4, counted: 2, Whitewins: 1,  
Blackwins: 0, draws: 1

depth: 3, previous moves: ['W, d4', 'B, Nc6'], move: W e4, counted: 2, Whitewins: 1,  
Blackwins: 0, draws: 1

depth: 2, previous moves: ['W, d4'], move: B f5, counted: 24, Whitewins: 6, Blackwins: 4,  
draws: 14

depth: 3, previous moves: ['W, d4', 'B, f5'], move: W g3, counted: 12, Whitewins: 4,  
Blackwins: 1, draws: 7

depth: 3, previous moves: ['W, d4', 'B, f5'], move: W c4, counted: 4, Whitewins: 0,  
Blackwins: 0, draws: 4

depth: 3, previous moves: ['W, d4', 'B, f5'], move: W Bg5, counted: 4, Whitewins: 1,  
Blackwins: 2, draws: 1

depth: 3, previous moves: ['W, d4', 'B, f5'], move: W d5, counted: 2, Whitewins: 1,  
Blackwins: 1, draws: 0

depth: 3, previous moves: ['W, d4', 'B, f5'], move: W Nc3, counted: 2, Whitewins: 0,  
Blackwins: 0, draws: 2

depth: 2, previous moves: ['W, d4'], move: B c5, counted: 4, Whitewins: 2, Blackwins: 0,  
draws: 2

depth: 3, previous moves: ['W, d4', 'B, c5'], move: W d5, counted: 2, Whitewins: 1,  
Blackwins: 0, draws: 1

depth: 3, previous moves: ['W, d4', 'B, c5'], move: W e3, counted: 2, Whitewins: 1,  
Blackwins: 0, draws: 1

depth: 2, previous moves: ['W, d4'], move: B d6, counted: 6, Whitewins: 2, Blackwins: 1,  
draws: 3

depth: 3, previous moves: ['W, d4', 'B, d6'], move: W Nf3, counted: 6, Whitewins: 2,  
Blackwins: 1, draws: 3

depth: 2, previous moves: ['W, d4'], move: B b6, counted: 2, Whitewins: 0, Blackwins: 0,

draws: 2

depth: 3, previous moves: ['W, d4', 'B, b6'], move: W e4, counted: 2, Whitewins: 0, Blackwins: 0, draws: 2

depth: 2, previous moves: ['W, d4'], move: B c6, counted: 2, Whitewins: 1, Blackwins: 0, draws: 1

depth: 3, previous moves: ['W, d4', 'B, c6'], move: W Nf3, counted: 2, Whitewins: 1, Blackwins: 0, draws: 1

depth: 1, previous moves: [], move: W e4, counted: 1240, Whitewins: 345, Blackwins: 149, draws: 746

depth: 2, previous moves: ['W, e4'], move: B c5, counted: 618, Whitewins: 166, Blackwins: 92, draws: 360

depth: 3, previous moves: ['W, e4', 'B, c5'], move: W Nf3, counted: 524, Whitewins: 151, Blackwins: 77, draws: 296

depth: 3, previous moves: ['W, e4', 'B, c5'], move: W f4, counted: 8, Whitewins: 1, Blackwins: 0, draws: 7

depth: 3, previous moves: ['W, e4', 'B, c5'], move: W Nc3, counted: 32, Whitewins: 5, Blackwins: 11, draws: 16

depth: 3, previous moves: ['W, e4', 'B, c5'], move: W c3, counted: 32, Whitewins: 6, Blackwins: 3, draws: 23

depth: 3, previous moves: ['W, e4', 'B, c5'], move: W d4, counted: 10, Whitewins: 2, Blackwins: 1, draws: 7

depth: 3, previous moves: ['W, e4', 'B, c5'], move: W h3, counted: 4, Whitewins: 0, Blackwins: 0, draws: 4

depth: 3, previous moves: ['W, e4', 'B, c5'], move: W b4, counted: 2, Whitewins: 0, Blackwins: 0, draws: 2

depth: 3, previous moves: ['W, e4', 'B, c5'], move: W Ne2, counted: 4, Whitewins: 0, Blackwins: 0, draws: 4

depth: 3, previous moves: ['W, e4', 'B, c5'], move: W d3, counted: 2, Whitewins: 1, Blackwins: 0, draws: 1

depth: 2, previous moves: ['W, e4'], move: B e6, counted: 114, Whitewins: 37, Blackwins: 10, draws: 67

depth: 3, previous moves: ['W, e4', 'B, e6'], move: W d4, counted: 106, Whitewins: 35,

Blackwins: 10, draws: 61

depth: 3, previous moves: ['W, e4', 'B, e6'], move: W Qe2, counted: 4, Whitewins: 1, Blackwins: 0, draws: 3

depth: 3, previous moves: ['W, e4', 'B, e6'], move: W Nc3, counted: 4, Whitewins: 1, Blackwins: 0, draws: 3

depth: 2, previous moves: ['W, e4'], move: B e5, counted: 305, Whitewins: 79, Blackwins: 27, draws: 199

depth: 3, previous moves: ['W, e4', 'B, e5'], move: W Nf3, counted: 271, Whitewins: 73, Blackwins: 23, draws: 175

depth: 3, previous moves: ['W, e4', 'B, e5'], move: W Nc3, counted: 4, Whitewins: 1, Blackwins: 0, draws: 3

depth: 3, previous moves: ['W, e4', 'B, e5'], move: W f4, counted: 10, Whitewins: 1, Blackwins: 1, draws: 8

depth: 3, previous moves: ['W, e4', 'B, e5'], move: W Bc4, counted: 12, Whitewins: 3, Blackwins: 2, draws: 7

depth: 3, previous moves: ['W, e4', 'B, e5'], move: W Qh5, counted: 2, Whitewins: 0, Blackwins: 1, draws: 1

depth: 3, previous moves: ['W, e4', 'B, e5'], move: W d4, counted: 4, Whitewins: 1, Blackwins: 0, draws: 3

depth: 3, previous moves: ['W, e4', 'B, e5'], move: W d3, counted: 2, Whitewins: 0, Blackwins: 0, draws: 2

depth: 2, previous moves: ['W, e4'], move: B c6, counted: 122, Whitewins: 37, Blackwins: 10, draws: 75

depth: 3, previous moves: ['W, e4', 'B, c6'], move: W d4, counted: 96, Whitewins: 29, Blackwins: 7, draws: 60

depth: 3, previous moves: ['W, e4', 'B, c6'], move: W c4, counted: 12, Whitewins: 2, Blackwins: 1, draws: 9

depth: 3, previous moves: ['W, e4', 'B, c6'], move: W Nf3, counted: 6, Whitewins: 3, Blackwins: 0, draws: 3

depth: 3, previous moves: ['W, e4', 'B, c6'], move: W Nc3, counted: 4, Whitewins: 1, Blackwins: 1, draws: 2

depth: 3, previous moves: ['W, e4', 'B, c6'], move: W d3, counted: 4, Whitewins: 2,



Blackwins: 1, draws: 1

depth: 2, previous moves: ['W, e4'], move: B g6, counted: 25, Whitewins: 9, Blackwins: 5, draws: 11

depth: 3, previous moves: ['W, e4', 'B, g6'], move: W d4, counted: 21, Whitewins: 9, Blackwins: 4, draws: 8

depth: 3, previous moves: ['W, e4', 'B, g6'], move: W Nc3, counted: 4, Whitewins: 0, Blackwins: 1, draws: 3

depth: 2, previous moves: ['W, e4'], move: B Nf6, counted: 14, Whitewins: 6, Blackwins: 1, draws: 7

depth: 3, previous moves: ['W, e4', 'B, Nf6'], move: W e5, counted: 10, Whitewins: 5, Blackwins: 0, draws: 5

depth: 3, previous moves: ['W, e4', 'B, Nf6'], move: W Nc3, counted: 4, Whitewins: 1, Blackwins: 1, draws: 2

depth: 2, previous moves: ['W, e4'], move: B d6, counted: 19, Whitewins: 7, Blackwins: 3, draws: 9

depth: 3, previous moves: ['W, e4', 'B, d6'], move: W d4, counted: 17, Whitewins: 6, Blackwins: 3, draws: 8

depth: 3, previous moves: ['W, e4', 'B, d6'], move: W Nc3, counted: 2, Whitewins: 1, Blackwins: 0, draws: 1

depth: 2, previous moves: ['W, e4'], move: B Nc6, counted: 3, Whitewins: 1, Blackwins: 0, draws: 2

depth: 3, previous moves: ['W, e4', 'B, Nc6'], move: W d4, counted: 2, Whitewins: 1, Blackwins: 0, draws: 1

depth: 3, previous moves: ['W, e4', 'B, Nc6'], move: W Nf3, counted: 1, Whitewins: 0, Blackwins: 0, draws: 1

depth: 2, previous moves: ['W, e4'], move: B d5, counted: 16, Whitewins: 2, Blackwins: 1, draws: 13

depth: 3, previous moves: ['W, e4', 'B, d5'], move: W exd5, counted: 14, Whitewins: 2, Blackwins: 1, draws: 11

depth: 3, previous moves: ['W, e4', 'B, d5'], move: W Nc3, counted: 2, Whitewins: 0, Blackwins: 0, draws: 2

depth: 2, previous moves: ['W, e4'], move: B b6, counted: 2, Whitewins: 0, Blackwins: 0,

draws: 2

depth: 3, previous moves: ['W, e4', 'B, b6'], move: W d4, counted: 2, Whitewins: 0, Blackwins: 0, draws: 2

depth: 2, previous moves: ['W, e4'], move: B a6, counted: 2, Whitewins: 1, Blackwins: 0, draws: 1

depth: 3, previous moves: ['W, e4', 'B, a6'], move: W d4, counted: 2, Whitewins: 1, Blackwins: 0, draws: 1

depth: 1, previous moves: [], move: W c4, counted: 206, Whitewins: 57, Blackwins: 25, draws: 124

depth: 2, previous moves: ['W, c4'], move: B e5, counted: 77, Whitewins: 18, Blackwins: 10, draws: 49

depth: 3, previous moves: ['W, c4', 'B, e5'], move: W g3, counted: 26, Whitewins: 6, Blackwins: 3, draws: 17

depth: 3, previous moves: ['W, c4', 'B, e5'], move: W Nc3, counted: 47, Whitewins: 11, Blackwins: 7, draws: 29

depth: 3, previous moves: ['W, c4', 'B, e5'], move: W d3, counted: 4, Whitewins: 1, Blackwins: 0, draws: 3

depth: 2, previous moves: ['W, c4'], move: B e6, counted: 17, Whitewins: 1, Blackwins: 2, draws: 14

depth: 3, previous moves: ['W, c4', 'B, e6'], move: W Nf3, counted: 8, Whitewins: 1, Blackwins: 1, draws: 6

depth: 3, previous moves: ['W, c4', 'B, e6'], move: W Nc3, counted: 5, Whitewins: 0, Blackwins: 0, draws: 5

depth: 3, previous moves: ['W, c4', 'B, e6'], move: W g3, counted: 2, Whitewins: 0, Blackwins: 0, draws: 2

depth: 3, previous moves: ['W, c4', 'B, e6'], move: W e3, counted: 2, Whitewins: 0, Blackwins: 1, draws: 1

depth: 2, previous moves: ['W, c4'], move: B Nf6, counted: 53, Whitewins: 18, Blackwins: 6, draws: 29

depth: 3, previous moves: ['W, c4', 'B, Nf6'], move: W Nf3, counted: 6, Whitewins: 1, Blackwins: 1, draws: 4

depth: 3, previous moves: ['W, c4', 'B, Nf6'], move: W Nc3, counted: 43, Whitewins: 16,

Blackwins: 5, draws: 22

depth: 3, previous moves: ['W, c4', 'B, Nf6'], move: W d4, counted: 2, Whitewins: 0, Blackwins: 0, draws: 2

depth: 3, previous moves: ['W, c4', 'B, Nf6'], move: W g3, counted: 2, Whitewins: 1, Blackwins: 0, draws: 1

depth: 2, previous moves: ['W, c4'], move: B c5, counted: 25, Whitewins: 8, Blackwins: 2, draws: 15

depth: 3, previous moves: ['W, c4', 'B, c5'], move: W Nf3, counted: 10, Whitewins: 3, Blackwins: 1, draws: 6

depth: 3, previous moves: ['W, c4', 'B, c5'], move: W g3, counted: 3, Whitewins: 1, Blackwins: 0, draws: 2

depth: 3, previous moves: ['W, c4', 'B, c5'], move: W Nc3, counted: 12, Whitewins: 4, Blackwins: 1, draws: 7

depth: 2, previous moves: ['W, c4'], move: B c6, counted: 12, Whitewins: 3, Blackwins: 2, draws: 7

depth: 3, previous moves: ['W, c4', 'B, c6'], move: W Nf3, counted: 4, Whitewins: 2, Blackwins: 2, draws: 0

depth: 3, previous moves: ['W, c4', 'B, c6'], move: W d4, counted: 2, Whitewins: 0, Blackwins: 0, draws: 2

depth: 3, previous moves: ['W, c4', 'B, c6'], move: W e4, counted: 6, Whitewins: 1, Blackwins: 0, draws: 5

depth: 2, previous moves: ['W, c4'], move: B g6, counted: 14, Whitewins: 5, Blackwins: 2, draws: 7

depth: 3, previous moves: ['W, c4', 'B, g6'], move: W d4, counted: 2, Whitewins: 1, Blackwins: 0, draws: 1

depth: 3, previous moves: ['W, c4', 'B, g6'], move: W g3, counted: 2, Whitewins: 1, Blackwins: 1, draws: 0

depth: 3, previous moves: ['W, c4', 'B, g6'], move: W e4, counted: 4, Whitewins: 0, Blackwins: 0, draws: 4

depth: 3, previous moves: ['W, c4', 'B, g6'], move: W Nc3, counted: 6, Whitewins: 3, Blackwins: 1, draws: 2

depth: 2, previous moves: ['W, c4'], move: B f5, counted: 6, Whitewins: 3, Blackwins: 1,

draws: 2

depth: 3, previous moves: ['W, c4', 'B, f5'], move: W g3, counted: 2, Whitewins: 1, Blackwins: 0, draws: 1

depth: 3, previous moves: ['W, c4', 'B, f5'], move: W Nc3, counted: 2, Whitewins: 1, Blackwins: 1, draws: 0

depth: 3, previous moves: ['W, c4', 'B, f5'], move: W d4, counted: 2, Whitewins: 1, Blackwins: 0, draws: 1

depth: 2, previous moves: ['W, c4'], move: B b6, counted: 2, Whitewins: 1, Blackwins: 0, draws: 1

depth: 3, previous moves: ['W, c4', 'B, b6'], move: W d4, counted: 2, Whitewins: 1, Blackwins: 0, draws: 1

depth: 1, previous moves: [], move: W Nf3, counted: 239, Whitewins: 60, Blackwins: 23, draws: 156

depth: 2, previous moves: ['W, Nf3'], move: B c5, counted: 36, Whitewins: 9, Blackwins: 5, draws: 22

depth: 3, previous moves: ['W, Nf3', 'B, c5'], move: W b3, counted: 4, Whitewins: 1, Blackwins: 1, draws: 2

depth: 3, previous moves: ['W, Nf3', 'B, c5'], move: W g3, counted: 6, Whitewins: 1, Blackwins: 0, draws: 5

depth: 3, previous moves: ['W, Nf3', 'B, c5'], move: W e4, counted: 8, Whitewins: 2, Blackwins: 1, draws: 5

depth: 3, previous moves: ['W, Nf3', 'B, c5'], move: W c4, counted: 18, Whitewins: 5, Blackwins: 3, draws: 10

depth: 2, previous moves: ['W, Nf3'], move: B d5, counted: 82, Whitewins: 16, Blackwins: 9, draws: 57

depth: 3, previous moves: ['W, Nf3', 'B, d5'], move: W d4, counted: 36, Whitewins: 9, Blackwins: 2, draws: 25

depth: 3, previous moves: ['W, Nf3', 'B, d5'], move: W b3, counted: 4, Whitewins: 0, Blackwins: 1, draws: 3

depth: 3, previous moves: ['W, Nf3', 'B, d5'], move: W g3, counted: 28, Whitewins: 4, Blackwins: 4, draws: 20

depth: 3, previous moves: ['W, Nf3', 'B, d5'], move: W c4, counted: 8, Whitewins: 1,

Blackwins: 2, draws: 5

depth: 3, previous moves: ['W, Nf3', 'B, d5'], move: W Nc3, counted: 2, Whitewins: 1, Blackwins: 0, draws: 1

depth: 3, previous moves: ['W, Nf3', 'B, d5'], move: W a3, counted: 2, Whitewins: 0, Blackwins: 0, draws: 2

depth: 3, previous moves: ['W, Nf3', 'B, d5'], move: W e3, counted: 2, Whitewins: 1, Blackwins: 0, draws: 1

depth: 2, previous moves: ['W, Nf3'], move: B Nf6, counted: 106, Whitewins: 27, Blackwins: 8, draws: 71

depth: 3, previous moves: ['W, Nf3', 'B, Nf6'], move: W c4, counted: 74, Whitewins: 18, Blackwins: 4, draws: 52

depth: 3, previous moves: ['W, Nf3', 'B, Nf6'], move: W g3, counted: 24, Whitewins: 7, Blackwins: 3, draws: 14

depth: 3, previous moves: ['W, Nf3', 'B, Nf6'], move: W d4, counted: 6, Whitewins: 2, Blackwins: 1, draws: 3

depth: 3, previous moves: ['W, Nf3', 'B, Nf6'], move: W e3, counted: 2, Whitewins: 0, Blackwins: 0, draws: 2

depth: 2, previous moves: ['W, Nf3'], move: B f5, counted: 2, Whitewins: 1, Blackwins: 0, draws: 1

depth: 3, previous moves: ['W, Nf3', 'B, f5'], move: W d3, counted: 2, Whitewins: 1, Blackwins: 0, draws: 1

depth: 2, previous moves: ['W, Nf3'], move: B g6, counted: 7, Whitewins: 4, Blackwins: 0, draws: 3

depth: 3, previous moves: ['W, Nf3', 'B, g6'], move: W e4, counted: 5, Whitewins: 3, Blackwins: 0, draws: 2

depth: 3, previous moves: ['W, Nf3', 'B, g6'], move: W c4, counted: 2, Whitewins: 1, Blackwins: 0, draws: 1

depth: 2, previous moves: ['W, Nf3'], move: B e6, counted: 2, Whitewins: 1, Blackwins: 1, draws: 0

depth: 3, previous moves: ['W, Nf3', 'B, e6'], move: W d4, counted: 2, Whitewins: 1, Blackwins: 1, draws: 0

depth: 2, previous moves: ['W, Nf3'], move: B Nc6, counted: 2, Whitewins: 1, Blackwins: 0,

draws: 1

depth: 3, previous moves: ['W, Nf3', 'B, Nc6'], move: W c4, counted: 2, Whitewins: 1, Blackwins: 0, draws: 1

depth: 2, previous moves: ['W, Nf3'], move: B d6, counted: 2, Whitewins: 1, Blackwins: 0, draws: 1

depth: 3, previous moves: ['W, Nf3', 'B, d6'], move: W c4, counted: 2, Whitewins: 1, Blackwins: 0, draws: 1

depth: 1, previous moves: [], move: W Nc3, counted: 8, Whitewins: 2, Blackwins: 3, draws: 3

depth: 2, previous moves: ['W, Nc3'], move: B c5, counted: 6, Whitewins: 1, Blackwins: 2, draws: 3

depth: 3, previous moves: ['W, Nc3', 'B, c5'], move: W f4, counted: 6, Whitewins: 1, Blackwins: 2, draws: 3

depth: 2, previous moves: ['W, Nc3'], move: B d5, counted: 2, Whitewins: 1, Blackwins: 1, draws: 0

depth: 3, previous moves: ['W, Nc3', 'B, d5'], move: W e4, counted: 2, Whitewins: 1, Blackwins: 1, draws: 0

depth: 1, previous moves: [], move: W g3, counted: 18, Whitewins: 3, Blackwins: 0, draws: 15

depth: 2, previous moves: ['W, g3'], move: B e5, counted: 8, Whitewins: 1, Blackwins: 0, draws: 7

depth: 3, previous moves: ['W, g3', 'B, e5'], move: W c4, counted: 4, Whitewins: 1, Blackwins: 0, draws: 3

depth: 3, previous moves: ['W, g3', 'B, e5'], move: W Bg2, counted: 2, Whitewins: 0, Blackwins: 0, draws: 2

depth: 3, previous moves: ['W, g3', 'B, e5'], move: W d4, counted: 2, Whitewins: 0, Blackwins: 0, draws: 2

depth: 2, previous moves: ['W, g3'], move: B d5, counted: 10, Whitewins: 2, Blackwins: 0, draws: 8

depth: 3, previous moves: ['W, g3', 'B, d5'], move: W Nf3, counted: 4, Whitewins: 1, Blackwins: 0, draws: 3

depth: 3, previous moves: ['W, g3', 'B, d5'], move: W Bg2, counted: 6, Whitewins: 1,

Blackwins: 0, draws: 5

depth: 1, previous moves: [], move: W b4, counted: 4, Whitewins: 1, Blackwins: 1, draws: 2

depth: 2, previous moves: ['W, b4'], move: B e5, counted: 4, Whitewins: 1, Blackwins: 1, draws: 2

depth: 3, previous moves: ['W, b4', 'B, e5'], move: W Bb2, counted: 4, Whitewins: 1, Blackwins: 1, draws: 2

depth: 1, previous moves: [], move: W b3, counted: 5, Whitewins: 1, Blackwins: 1, draws: 3

depth: 2, previous moves: ['W, b3'], move: B d5, counted: 5, Whitewins: 1, Blackwins: 1, draws: 3

depth: 3, previous moves: ['W, b3', 'B, d5'], move: W Bb2, counted: 5, Whitewins: 1, Blackwins: 1, draws: 3

depth: 1, previous moves: [], move: W d3, counted: 2, Whitewins: 0, Blackwins: 1, draws: 1

depth: 2, previous moves: ['W, d3'], move: B g6, counted: 2, Whitewins: 0, Blackwins: 1, draws: 1

depth: 3, previous moves: ['W, d3', 'B, g6'], move: W Nd2, counted: 2, Whitewins: 0, Blackwins: 1, draws: 1

Moves up to count 300

depth: 1, previous moves: [], move: W d4, counted: 861, Whitewins: 232, Blackwins: 87, draws: 542

depth: 2, previous moves: ['W, d4'], move: B Nf6, counted: 552, Whitewins: 154, Blackwins: 57, draws: 341

depth: 3, previous moves: ['W, d4', 'B, Nf6'], move: W c4, counted: 472, Whitewins: 133, Blackwins: 50, draws: 289

depth: 1, previous moves: [], move: W e4, counted: 1240, Whitewins: 345, Blackwins: 149, draws: 746

depth: 2, previous moves: ['W, e4'], move: B c5, counted: 618, Whitewins: 166, Blackwins: 92, draws: 360

depth: 3, previous moves: ['W, e4', 'B, c5'], move: W Nf3, counted: 524, Whitewins: 151, Blackwins: 77, draws: 296

depth: 2, previous moves: ['W, e4'], move: B e5, counted: 305, Whitewins: 79, Blackwins: 27, draws: 199



