

Exploring Depth and Evaluation in Chess

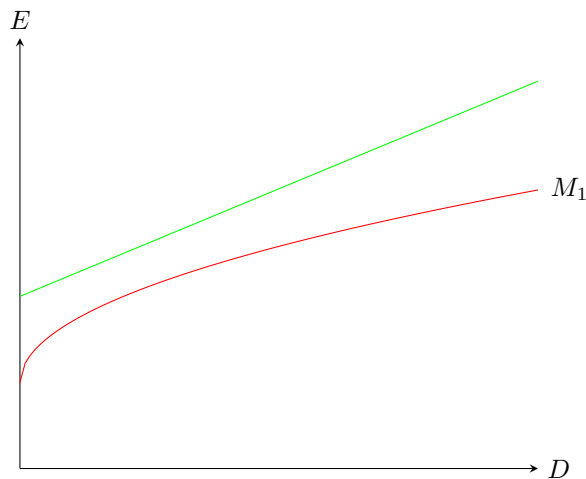
10 December 2023

1 Introduction

Aside from long-term strategical ability, the awareness of critical positions are essential for strong chess ability. The evaluation of these positions greatly change with deep calculation. This report aims to investigate how the computer evaluation of the position across different depths can inform us on the importance to study.

2 Diagrams

This report will heavily utilise diagrams to display the evaluation (E) of a position across different depths (D). Though depth is discrete, a continuous graph will be used for aesthetics.



We will use a green line to denote the evaluation of the best move in the position. This would likely change across different depths. A red line will be used to denote the evaluation of a certain move. If we are looking at many moves, these may be labelled with M . If a red \times is used, this indicates that the

move was selected on some condition at that depth. Unless otherwise stated, this condition is the best move.

3 Theory

3.1 Simple Graphs

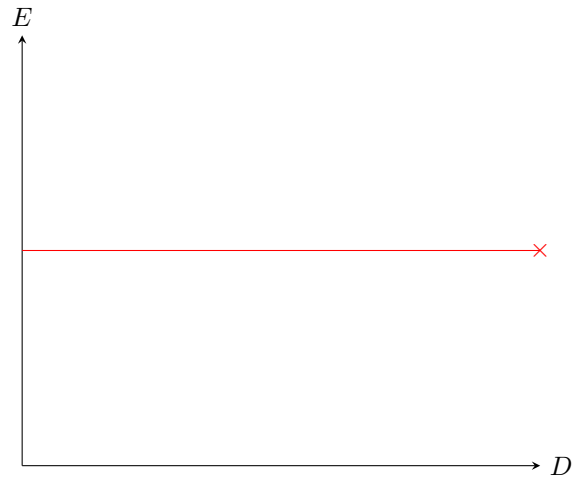


Figure 1:

Figure 1 shows a position with a constant evaluation across the depth. The red move is the best move at depth \times . This generally means that intuitive play is sufficient for good play. Though rare, it is possible that there are exceptions.

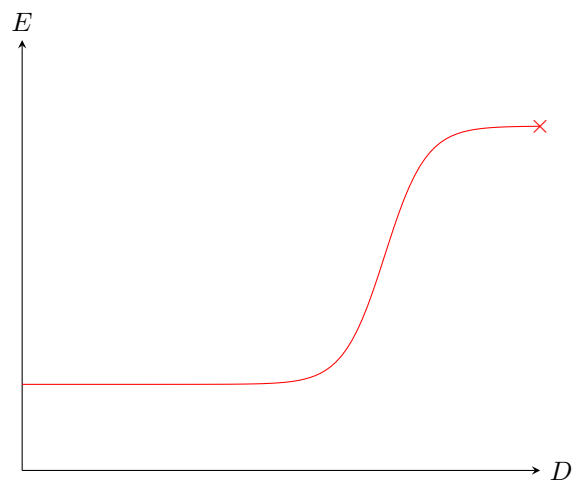


Figure 2:

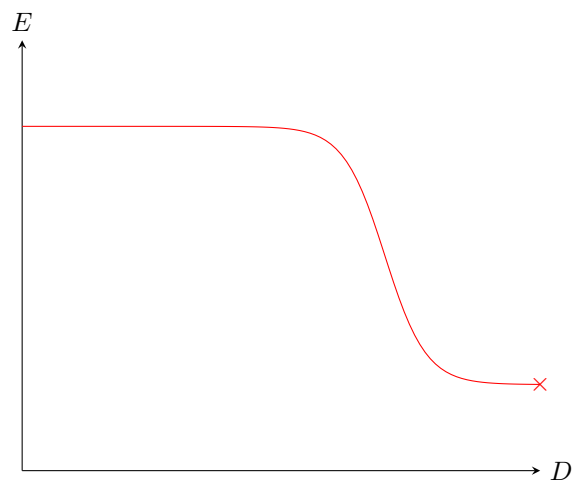


Figure 3:

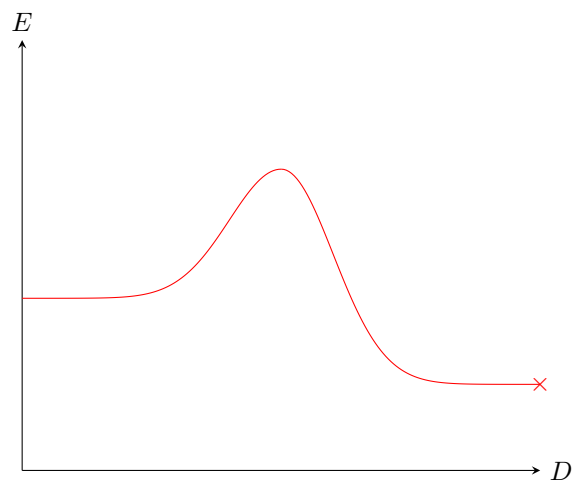


Figure 4:

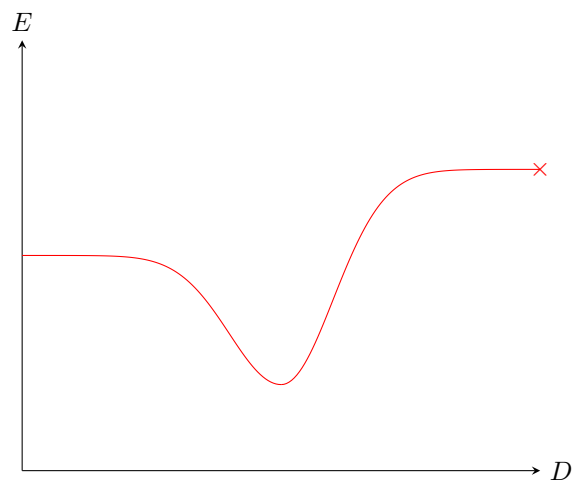


Figure 5:

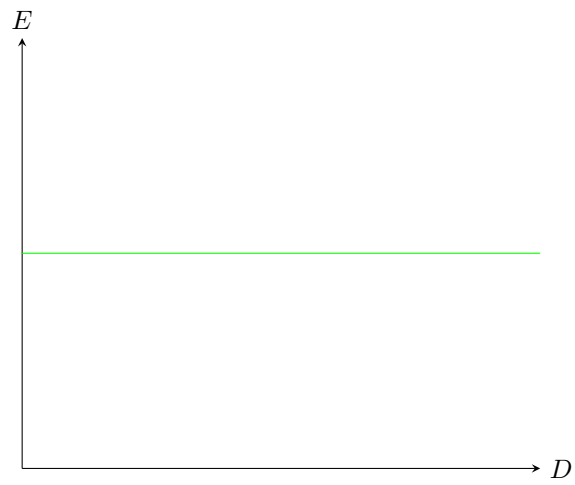


Figure 6:

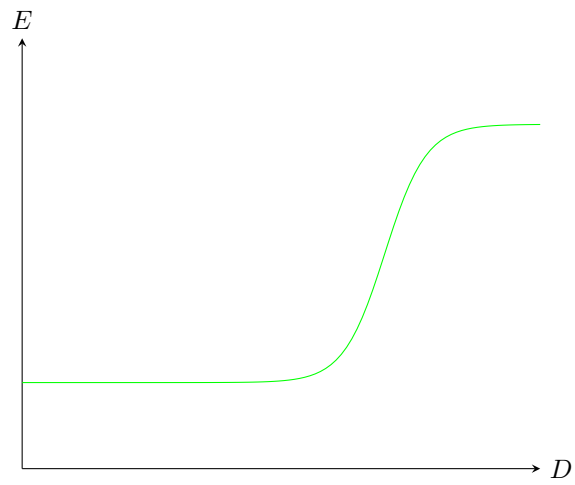


Figure 7:

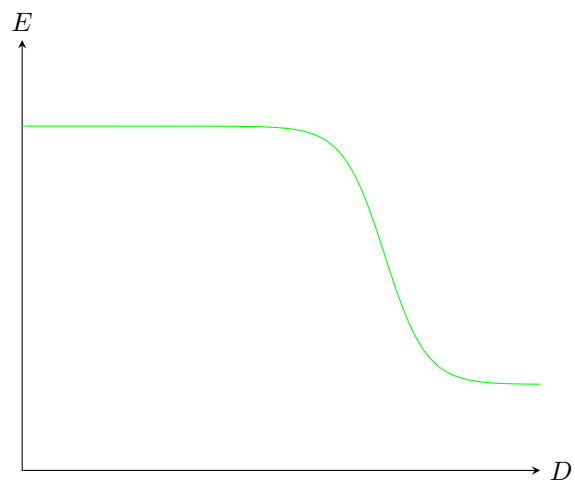


Figure 8:

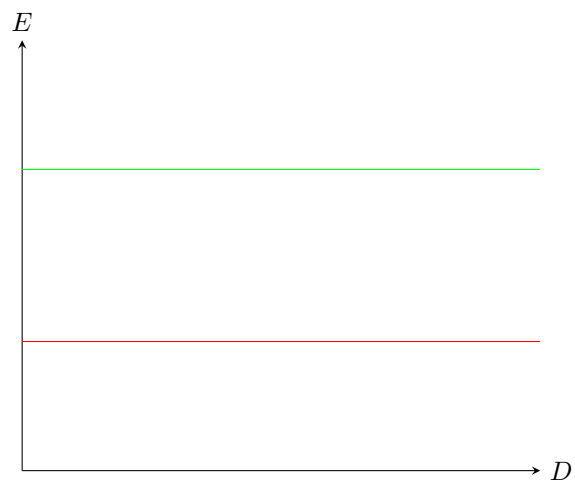


Figure 9:

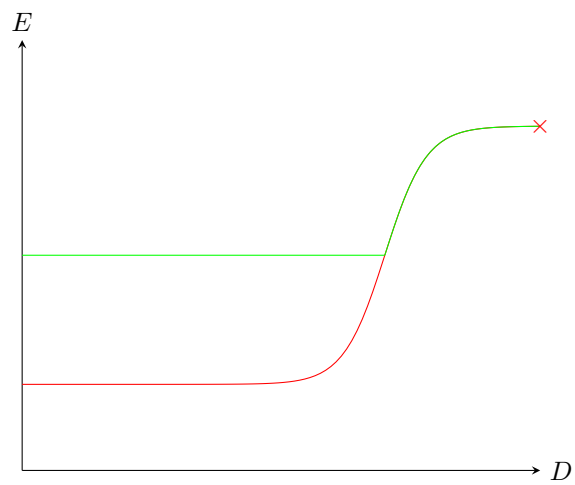


Figure 10:

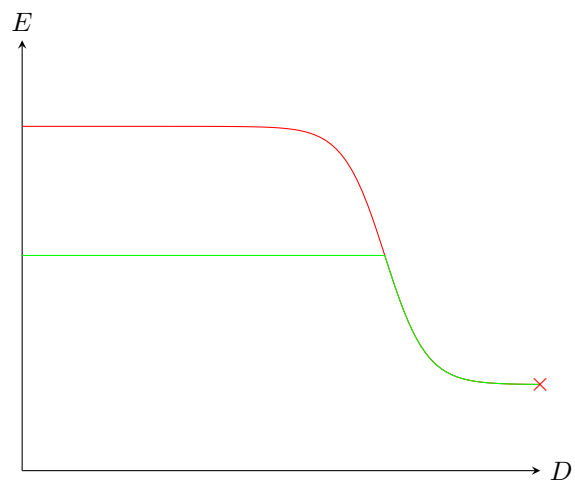


Figure 11: