

# Statistical Theory Chess Dataset Analysis

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## I. INTRODUCTION

Chess is one of humanity's oldest board games. It is played by two players, nicknamed White and Black over an  $8 \times 8$  grid, where each player controls 16 pieces which correspond to its own color. The Goal of each player is to capture the opponents King piece(or, more accurately, to make it so the opponent's King cannot escape capture). Chess doesn't involve any luck, no hidden information. It is determined by the players' knowledge of the game, their strategical and analytical capabilities.

The length of a chess match can be influenced by a variety of factors, including player skill level, strategy, and in-game dynamics. In this project we investigate the relationship between player ratings and the duration of chess matches, seeking to determine whether higher-rated players tend to play shorter or longer games. In addition to player ratings, we explore other game-related variables that might impact match length, such as opening moves, the type of result (checkmate, resignation, or draw) and more.

Using a dataset of chess games, we apply statistical methods such as correlation analysis and regression models to analyze the influence of these factors. The study aims to offer insights into how skill level and game dynamics affect the length of a match, contributing to a broader understanding of player performance in chess.