

Mad Bishops - T2G05

Miguel Pereira Duarte, up201606298

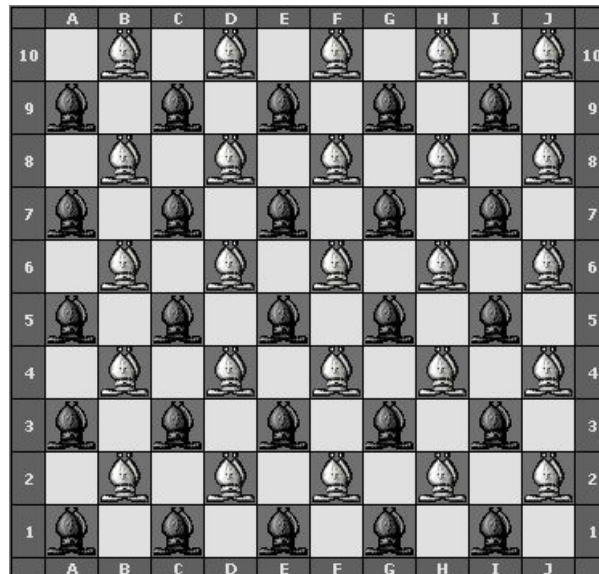
Rui Pedro Moutinho Moreira Alves, up201606746

1. Server Setup

In order to start the prolog server (Mad Bishops RESTful API), *consult* the *server.pl* file (under the *prolog* directory) using Sicstus and run the *server* predicate.

2. Game Rules

Mad Bishops is a game for 2 players. The game is played on a 10x10 cells board and initially contains 25 pieces of each color (black and white), has shown in the picture bellow. All the pieces are placed in the board's dark squares.



Both players play in turns, moving the pieces of its own color, performing a piece movement or capturing an enemy piece, starting with the white player. It's not allowed for a player to pass its turn.

2.1. Game Objective

In order to win the game, a player must capture all the opponent's pieces. The game cannot result in a draw.

2.2. Legal moves

All the pieces can be moved like bishops in the game of chess. As such, they can only move alongside the diagonal directions. Unlike chess, only the moves that will subsequently be described can be performed.

2.2.1. Capturing

If a certain piece is in the same diagonal as an enemy piece, independently of the cells that separate them (as long as there are no pieces between them), the player can remove the enemy piece and replace it by theirs. When a certain piece can perform this move, it is **restricted to this move only**.

2.2.2. Engaging

If a certain piece is not in a position to capture an enemy piece, it may only move into a diagonal containing an enemy piece (engaging the other piece). After this move, the moved piece and an enemy piece will be in the same diagonal, adjacent to each other or separated only by empty cells.

2.2.3. Restrictions

A player can move any piece that can perform a valid move, although that a piece that can capture an enemy piece cannot engage an enemy piece (as explained before). However, a player is not forced to move a piece that can capture an enemy piece (the player may choose to move a piece that can only engage an enemy piece).

3. User Instructions

When the game begins, the user is presented with a set of menus in order to select the game's settings. Firstly, the type of each player (1 and 2) can be chosen, between human or AI-controlled. Secondly, if an AI player was chosen, it is possible to select the AI's difficulty level (between Beginner, Medium or Difficult). Finally, the turn speed can be chosen (if there is at least one human player, to which this turn timeout applies): Bullet (10 seconds), Fast (30 seconds) and Slow (60 seconds).

After the game starts, a set of game tools are present near the board: The clock displays the remaining time for the current move (if the current player is human): if the clock reaches 0, the current player loses. The scoreboard displays the current game score (which is calculated by subtracting the number of white piece and the number of black pieces. For example, +4 means that white is winning by four pieces and -2 means that black is winning by two pieces). Lastly, a box with the game controls is also present, allowing the user to undo / redo played moves. When the game finishes, the user may also use the game controls box to replay the whole game and to restart the game, going back to the initial menu described above.

In order to perform a move, the player should click the desired piece (of its own color) and select its target square. If the target square is valid, the game clock will turn green and the move will be performed, switching to the opponent's turn. If the move is invalid, the clock will turn red, notifying the user that the move is invalid.