

Emulsion User's Manual

3MIEICo1 – Grupo 7

Graphical Applications Laboratory

Luís Silva up201808912@fe.up.pt

Rita Peixoto up201806257@fe.up.pt

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Game Description

Emulsion is a two-player game: Black and White. It is played on a square board of any size (in the implementation available, the boards were limited from 4x4 to 8x8). At the start of the game, the pieces are displayed in a checkered pattern.

In this game pieces have value. A piece's value is the number of pieces of its color orthogonally adjacent to it plus half the number of board edges adjacent to it.

A group is a piece along with all other pieces one could reach from it through a series of steps between orthogonally adjacent pieces of the same color. The size of a group is the number of pieces in it.

The game starts with a black player and then turns alternate. On each turn, the player must swap two orthogonally or diagonally adjacent pieces of different colors so that the value of the players' piece in the pair is increased.

The game ends when there are no more moves available. The player with the higher score in the final position wins. The score is determined by the size of the largest group the player formed. If there is a tie, each player adds to their score the size of their second-largest group, which might be equal to that of the already scored group. If the tie persists, the third-largest group is counted in as well, and so on. On even-sized boards, if it's tied all the way down, whoever made the last move wins.

How to run the program?

To run the program, it is necessary to have the SICStus Prolog development system to run the server. For that, open the SICStus in the subfolder Prolog SRC of the source code, compile the file 'server.pl' and run 'server.' command.

After that, all that is left to do for the program to run is to open the localhost server on the source folder of the project.

Make sure the prolog server is running when trying to play the game, since the game logic is made using this server.

User instructions

When the program starts, main menu displayed where the user must choose the player type (Player or Bot) and in case of choosing Bot must also choose the difficulty level. It has also to choose the board size and the playtime that is the only thing that is changeable during the game from this menu. After that, presses play to start the game.

When pressing play the game is displayed and a GUI interface where the user can choose the playtime, the animation speed, the background theme, the lights that are on, and what view it wants to see.

There is also a quit button, that can be used to close the server.

There is also an information panel with the current player, each player's score, the remaining time for that play, info, and error messages.

There is also a 3D menu, with different options and availability depending on the game state, including:

- Undo – that reverses the last play.
- Reset, goes back to the main menu to make the initial choices again.
- Pause/Play, to pause and play the game.
- Restart, to start the game from the beginning with the same game choices.
- Play Movie, to play the game movie.
- Main Menu goes back to the main menu to make the initial choices again.

At the start of the game, it is seen the pieces coming from a box to the board, setting it up to play.

When is the player's turn, the pieces that can be chosen are highlighted in red and when one of those pieces is chosen, the opponent pieces that can be chosen are highlighted. After choosing the opponent piece to move, the pieces switch position and the next player's turn starts.

There is playtime, when the players time is up, the player loses his turn.

When the game ends, the end menu is displayed.