

The cover art features a dark green background with a grid pattern. Several circular pieces, some black and some white, are scattered across the grid. A vibrant rainbow diagonal stripe runs from the top right towards the center. The text is positioned in the upper left and bottom center.

sinclair
ZX Spectrum

REVERSI

also known as Othello

SOFTWARE BY **Moi**[®] — 16K RAM

1. INTRODUCTION TO THE GAME OF REVERSI

Reversi is a late nineteenth century board game also known as Othello. The name reflects the strict contemporary morality and indicates the Victorian love of territorial acquisition.

Reversi is a strategic game of skill played between two adversaries (Black and White) on a square battlefield like chess. The most striking feature of the game for the newcomer is the dramatic reversal in the fortunes of each side as the game progresses: first Black seems to have undisputable territory, then White dominates until Black forces concessions and so on.

Because of the nature of Reversi it is not safe to claim victory until the game ends. By skilful play a large army can be persuaded to change sides – the scores of the two players can therefore fluctuate dramatically and often do so several times in the course of a game! There are many millions of possible games so there is plenty of scope for individual style. And yet – unlike chess – every game is guaranteed to finish within 60 moves each. Most games in fact take about 30 moves each.

This program of Reversi is almost entirely written in machine code and embodies concepts from the domain of Artificial Intelligence. At a recent computer exhibition an earlier version of this program won 28 out of 30 contest games while running at half power! The number of players in the world who can beat the program at 'Expert' level must be very limited .

It is designed to give you a good game at any level of skill. While you are learning the rules and practising, the level of play can be set at 'Novice' and you can also set the initial position in your own favour. As you improve you can increase the skill level and reduce the handicap so that each game is a fair match.

2. RULES OF REVERSI

- 2.1** Reversi is a game of strategy between two players, Black and White, who take turns to move on the 8 x 8 field of play. Black moves first.
- 2.2** You, the human, can choose to start or you can let the computer start. You can also choose a two-person game using the computer as umpire and score-keeper.
- 2.3** A move is made by placing a new piece on the field of play, into a vacant space next to an opponent's piece.
- 2.4** Each move must result in the capture of one or more of the opponent's pieces.
- 2.5** A capture is made by trapping the opponent's piece (or continuous line of pieces) between the one just placed and one of the same colour already in play. Captures can be made in a straight line horizontally, vertically or diagonally, or in any combination of these at once. All the opposing pieces trapped by the piece just played are then converted to its colour.

If you don't quite understand how the capture works, don't worry! The Computer will make sure that all captures are carried out correctly and you can watch the effect on the screen. It is possible to replay the current game

forwards and backwards, and to take over and play on at any time, so feel free to experiment while learning.

- 2.6 Pieces do not move once placed but they do change colour if captured. So a simple ploy of numerical advantage is not always the best approach as you could lose control of your own side.
- 2.7 If a capture is not possible then the player has to 'Pass' and it is then the turn of the other player.
- 2.8 The game ends when neither player can make a move. This happens either when the board is full or when the pieces are so placed that no captures are possible i.e. both players can only 'Pass'. An extreme case is when one player has no pieces in play at all.
- 2.9 The winner is the player owning the largest army at the end of the game. The computer keeps the score as the game progresses.

3. HOW TO PLAY THE GAME ON YOUR COMPUTER

If you have never played before, choose the option for the sample game provided. You can go forwards and backwards through the sample game so that the effect of each move can be seen clearly. At any stage you can take over either Black or White and play on against the computer.

During the game enter your move as the grid reference of the square you have chosen, where a letter from A to H represents the vertical column and a number from 1 to 8 represents the horizontal row. For example, D6 represents the square that is in the column labelled 'D' and the row labelled '6'. Don't forget to press ENTER (or RETURN or NEW LINE) after you have keyed in your move.

The computer will check that the chosen move is actually possible. If not – for instance if the square is already occupied or there are no legal moves – you will be asked to choose your move again. In the situation where you have no legal moves you must 'Pass' by pressing a key as requested.

When it is your turn to move you can call up various game options by pressing the ENTER key alone before making your move. The screen display then switches to a 'Menu' of options (eg Change Sides) each of which is self-explanatory. If you press ENTER again, the screen display switches back to the game in progress and you can continue with your move as before.

To activate one of the game options while the menu is displayed, just pick the menu item that suits you, and key in the corresponding option number.

One of the menu selections changes the 'level of play'. Enter a number from 1 (Novice) to 9 (Expert). The higher levels will take longer to respond as there are many more possibilities to be evaluated by the computer. If you want to interrupt the computer during its move in a high level game, keep your finger on the Break key. The program will eventually notice and respond immediately with a reasonable move (probably not the best possible).

If you keep losing at Novice level, when you start a new game there is an option to set up the initial position. Use this to award yourself the four corners and any other squares you think are key points. Then try again!

4. SOME HINTS ON OUTWITTING YOUR ADVERSARY

- 4.1** The corner squares are usually considered the most valuable positions of all. They cannot be captured and they control long lines in three directions – vertical, horizontal and diagonal. However, you may find that gaining the corners is not particularly easy and is not always beneficial.
- 4.2** Squares next to the edge of the board are not very popular since a piece there can provide a handy 'stepping stone' to the edge or even a corner.
- 4.3** The central diagonals are good positions if you are sure of the opposite corners – otherwise they are vulnerable to a fast attack!
- 4.4** In the early stages of the game, stay in the centre of the field of play as long as possible.

- 4.5 If your opponent does gain possession of a corner it is possible by skilful play to fence in the corner and reduce its advantage. Look for ways of doing this.
- 4.6 Towards the end of the game, try to reduce the choices open to your opponent and always remember that the winner is the one with the most pieces when the game ends!

5. STRATEGY

Moi ZX Reversi provides a rich choice for the Reversi player. Besides the usual options of you playing against the computer, or you against a friend with the computer umpiring, it is possible to try out different ideas of your own for winning at Reversi.

Consider that every game begins with the four central squares D4, E4, D5, E5 occupied. Black makes the first move. At the start of the game, Black can move to C5, D6, E3 or F4 thus trapping one White piece and capturing it – that White piece now becomes a Black piece. Let us suppose that Black chooses D6.

Black now has three pieces in place and White has only one. Keeping your army small is a strategy that can usefully limit your opponent's options. However, it also limits your own choice and, more important, you run the risk of losing all your pieces! Which is better, position or material?

You will see when you play the sample game that the tide of fortune ebbs and flows during the game, ending with a good win for White (which incidentally was the computer in this game). Often a key move forces the opponent to make an

undesirable move because 'mobility' was restricted.

You can test out a new strategy on the computer by choosing the option to start a new game, and then selecting a two-person game where you play both Black and White. At any stage you can replay the game and let the computer take over on either side. In this way you can use the intelligence of *Moi ZX Reversi* to suggest a move in any situation.

Again, if you want to solve a puzzle or follow someone else's endgame, you can choose to set up the initial position before starting a new game and then explore the possibilities of each move, using the replay facility to explore each different path.

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