### **COMP30024 Artificial Intelligence**

# Watch Your Back! Rules of the Game

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Watch Your Back! is a fast-paced combat board game. You control a team of ruthless rogues engaged in a fight to the death against your enemies. Within the confines of a checkerboard there is no rulebook and no referee, and the easiest way to a cut down an enemy is to stab them in the back. Control your lawless warriors to jump and slash their way around the board surrounding and silencing your enemies until none remain. And, of course, watch your back!

#### **Board**

Watch Your Back! plays on an 8x8 **board** made of 64 **squares**. Squares are labelled by their *column* and *row* numbers, starting with square (0,0) in the top-left corner of the board. Column indices increase to the right, and row indices increase down the board.

	0	1	2	3	4	5	6	7
0	0,0	1,0	2,0	3,0	4,0	5,0	6,0	7,0
1	0,1	1,1	2,1	3,1	4,1	5,1	6,1	7,1
2	0,2	1,2	2,2	3,2	4,2	5,2	6,2	7,2
3	0,3	1,3	2,3	3,3	4,3	5,3	6,3	7,3
4	0,4	1,4	2,4	3,4	4,4	5,4	6,4	7,4
5	0,5	1,5	2,5	3,5	4,5	5,5	6,5	7,5
6	0,6	1,6	2,6	3,6	4,6	5,6	6,6	7,6
7	0,7	1,7	2,7	3,7	4,7	5,7	6,7	7,7

Figure 1: Squares of the board, labelled to demonstrate the coordinate system.

In addition, the special squares (0,0), (7,0), (0,7) and (7,7) are called **corner** squares.

#### Gameplay

Two players (**Black** and **White**) play the game. Each player controls 12 **pieces** (each piece represents one 'fighter' on a player's 'team'). Initially, there are no pieces on the board. In the first part of the game, the players take turns placing their pieces onto the board during a **placing phase**. Then the players take turns moving their pieces around the board during a **moving phase**. In both phases, players can **eliminate** opponent pieces by **surrounding** them with two of their own pieces (the surrounded 'fighter' will be 'stabbed in the back'). The aim of the game is to eliminate all of the opponent's pieces.

The details of the placing phase, the moving phase, piece elimination and winning the game are all explained throughout the rest of these rules. *Read on!* 

## Placing phase

The game starts with a **placing phase**. In the placing phase, players take turns putting their pieces on the board. White has the first turn in the placing phase.

On each turn, one player places one piece in any unoccupied square within their **starting zone**. White's starting zone includes all squares in the top 6 rows of the board except for the top corners (0,0) and (7,0) (figure 2a). Black's starting zone includes all squares in the bottom 6 rows except for the bottom corners (0,7) and (7,7) (figure 2b).

0,0	1,0	2,0	3,0	4,0	5,0	6,0	7,0
0,1	1,1	2,1	3,1	4,1	5,1	6,1	7,1
0,2	1,2	2,2	3,2	4,2	5,2	6,2	7,2
0,3	1,3	2,3	3,3	4,3	5,3	6,3	7,3
0,4	1,4	2,4	3,4	4,4	5,4	6,4	7,4
0,5	1,5	2,5	3,5	4,5	5,5	6,5	7,5
0,6	1,6	2,6	3,6	4,6	5,6	6,6	7,6
0,7	1,7	2,7	3,7	4,7	5,7	6,7	7,7

0,0	1,0	2,0	3,0	4,0	5,0	6,0	7,0
0,1	1,1	2,1	3,1	4,1	5,1	6,1	7,1
0,2	1,2	2,2	3,2	4,2	5,2	6,2	7,2
0,3	1,3	2,3	3,3	4,3	5,3	6,3	7,3
0,4	1,4	2,4	3,4	4,4	5,4	6,4	7,4
0,5	1,5	2,5	3,5	4,5	5,5	6,5	7,5
0,6	1,6	2,6	3,6	4,6	5,6	6,6	7,6
0,7	1,7	2,7	3,7	4,7	5,7	6,7	7,7

Figure 2a: White's starting zone

Figure 2b: Black's starting zone

Each starting zone includes all of the squares shaded in grey.

When a player places a piece, zero or more pieces may be **eliminated**. A piece is eliminated if it is **surrounded** on two sides (horizontally or vertically) by enemy pieces or corners.

For example: Figure 3a shows a Black piece surrounded vertically by two White pieces. The Black piece is eliminated. Figure 3b shows a White piece surrounded horizontally by two Black pieces. The White piece is eliminated. Figure 3c shows a Black piece surrounded vertically by a White piece and a corner. The Black piece is eliminated.

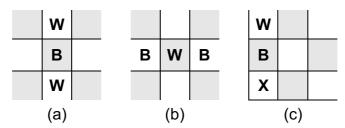
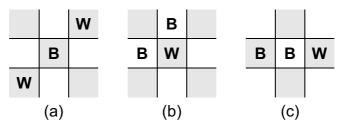


Figure 3: Three configurations that will lead to the elimination of a piece. Black pieces are marked with  ${\bf B}$ , White pieces with  ${\bf W}$ , and corner squares with  ${\bf X}$ .

A piece is not eliminated if it is surrounded diagonally or on two sides that are not vertically or horizontally opposite. A piece is not eliminated if it is surrounded by non-enemy pieces.

For example, figure 4a shows a Black piece surrounded diagonally by two White pieces. The Black piece is **not** eliminated. Figure 4b shows a White piece surrounded by two Black pieces; one above and one on the left. This White piece is **not** eliminated. Figure 4c shows a Black piece surrounded horizontally by one White piece (on its right) and one Black piece (on its left). The surrounded Black piece is **not** eliminated.

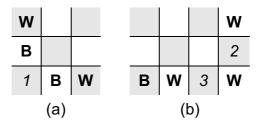


**Figure 4:** Three configurations that will **not** lead to the elimination of a piece. Black pieces are marked with **B**, White pieces with **W**.

Placing a single piece may eliminate multiple enemy pieces if it causes them all to become surrounded as per the above description. For example, if White places a piece in the square marked 1 in figure 5a, both the Black pieces will be eliminated.

Placing a piece may lead to the piece itself being eliminated if it is placed on a square that is already surrounded. For example, if Black places a piece in the square marked 2 in figure 5b, this piece will be surrounded by White pieces and will be eliminated immediately.

However, a piece always gets to surround and eliminate nearby pieces before it is eliminated itself. For example, if Black places a piece in the square marked 3 in figure 5b, this piece is **not** eliminated because it will surround and eliminate the White piece on its left first.



**Figure 5:** Two notable configurations that demonstrate special cases in the elimination rules. Black pieces are marked with **B**, White pieces with **W**.

Once each player has placed 12 pieces on the board (regardless of how many of their pieces remain on the board), the placing phase ends and the game continues to the **moving phase**.

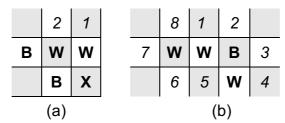
# Moving phase

In the **moving phase**, players take turns moving their pieces around the board. Like in the placing phase, White has the first turn in the moving phase.

On each turn, one player moves one of their own pieces into a nearby **unoccupied** square. An unoccupied square is any non-corner square without a Black or White piece. In the moving phase, either player can move their pieces to squares outside of their **starting zone**.

A player can move their piece to a square above, below, or to the right or left of its current square (as long as these squares are unoccupied). They cannot move a piece diagonally.

For example, in figure 6a, the White player can move their right piece up into the square marked 1. They cannot move it down because the square below its current square is a corner square. They cannot move it left because the square to its left is occupied by another White piece. They cannot move it right because there is no square to its right. The White player can move the left White piece up into the square marked 2. They cannot move it left, right or down because the corresponding squares are all occupied by White or Black pieces.



**Figure 6:** Two board configurations showing available squares for White pieces to move to. Black pieces are marked with **B**, White pieces with **W**, and corner squares with **X**.

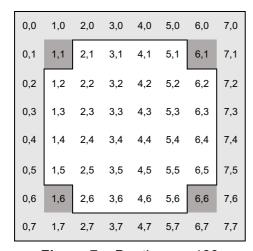
A player may instead make their piece **jump** over a horizontally or vertically adjacent piece into the square opposite that piece (as long as the opposite square is unoccupied).

For example, in figure 6b, the White player can move their middle piece into either of the squares marked 1 and 5, as per the above description. However, they may alternatively make this piece jump over the Black piece to its right into the square marked 3. Or, they can jump over the leftmost White piece into the square marked 7. Similarly, the rightmost White piece can move left or right (into the 5 and 4 squares), or jump over the Black piece into the square marked 2 on the other side of the Black piece. The White player can move the leftmost White piece down, left or up (into 6, 7 or 8). However, this piece cannot jump over the White piece to its right because the opposite square is occupied (by the Black piece).

It is possible that none of a player's pieces will have any available squares to move to on the player's turn. If this is the case, the player must forfeit their move and play continues with the other player's next turn. In all other cases, a player must make exactly one move (one regular move or one jump) on each of their turns in the movement phase.

Each time a player moves a piece, zero or more pieces may be **eliminated** according to the same rules as for elimination in the **placing phase**.

After 128 moves take place in the movement phase including any forfeited moves (after 64 moves for each player) the board **shrinks**: The outermost squares are removed from the board and the squares (1,1), (6,1), (1,6) and (6,6) become corner squares. Any pieces located on any of these squares are eliminated (affected squares are shaded in figure 7a).





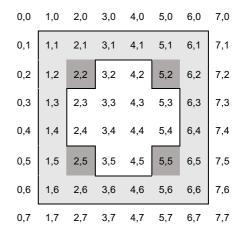


Figure 7b: Death zone 192

Any pieces on shaded squares are eliminated. The lightly shaded squares are removed from the board. The darker shaded squares become corner squares.

After a further 64 moves take place (so after a total of 192 moves, or 96 moves each), the board shrinks again: The outermost remaining squares are removed from the board and the squares (2,2), (2,5), (5,2) and (5,5) become corner squares. Again, any pieces located on any of these squares are eliminated (affected squares are shaded in figure 7b).

The transformation of squares into corner squares during this shrinking process may result in zero or more pieces being eliminated. The rules for these new corner squares eliminating pieces are the same as the rules for placing enemy pieces during the placing phase. That is, a piece next to a new corner square is eliminated if there is an enemy piece on its opposite side (the side opposite the new corner piece). New corner squares eliminate nearby pieces in order starting with the top-left new corner square and proceeding counter-clockwise around the board. That is, the new corner squares eliminate nearby squares in the order: top-left, bottom-left, bottom-right, top-right.

## End of the game

The game ends if either player has fewer than 2 pieces remaining. In this case, the player with 2 or more pieces remaining **wins the game**. If both players have fewer than 2 pieces remaining as a result of the same turn (for example, due to multiple pieces being eliminated during the shrinking of the board), then the game ends in a **tie**.

#### **Questions and clarifications**

If you have any questions about the rules of Watch Your Back! please direct them to the LMS Discussion Board. Furthermore, please note that this document is subject to corrections and clarifications which will be published through the LMS.