DIFFERO

An abstract game for 2 players by Kashio Fujii

Components

- 13 White pieces and 13 Black pieces
- A regular hexagonal board of triangular grid, with 5 spaces per side

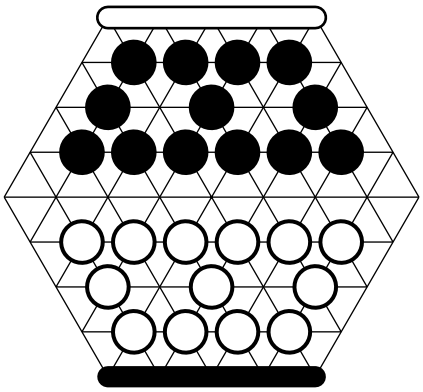
Definitions

Goal White's goal and Black's goal lie on opposite edges of the board. Each goal is on the side opposite that player's starting pieces. In the diagrams, the top edge (white double line) is White's goal and the bottom edge (thick black line) is Black's goal.

Line A straight row of spaces (intersections) across the board. Three lines pass through every space: one horizontal (parallel to the goals) and two diagonal.

Setup

1. Place the pieces as shown below.
2. Choose your color. White moves first.



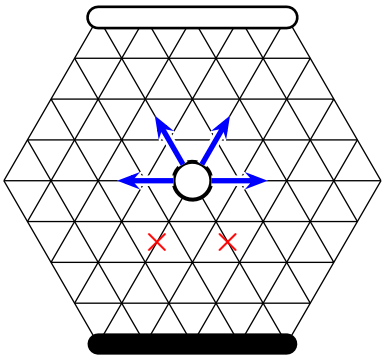
End of the Game

- You win as soon as one of your pieces reaches your goal.
- You lose if you have no piece that can move on your turn.

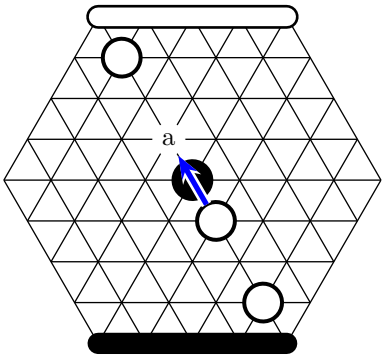
On Your Turn

On your turn, move exactly one piece of your color, following these rules:

- A piece moves along a line. It may jump over any number of pieces, both yours and your opponent's.
- The number of spaces it moves must be exactly
  (your pieces) − (opponent's pieces)
  on the line it moves along. Your pieces include the piece being moved. If this value is 0 or less, the piece cannot move along that line.
- A piece cannot move off the board or onto an occupied space.
- Along the horizontal line a piece may move either way, but along the two diagonal lines it may only move toward its own goal.



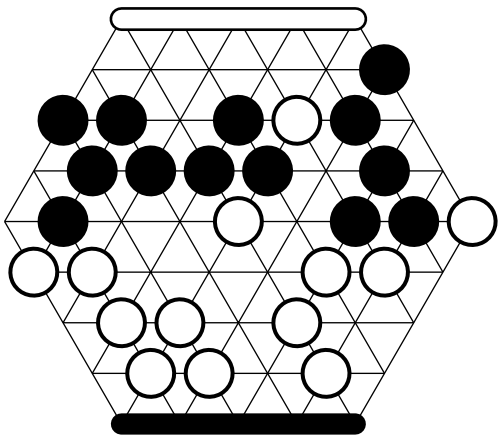
Directions a White piece may move: either way horizontally, and diagonally only toward White's goal (up). Black pieces move diagonally only toward Black's goal (down).



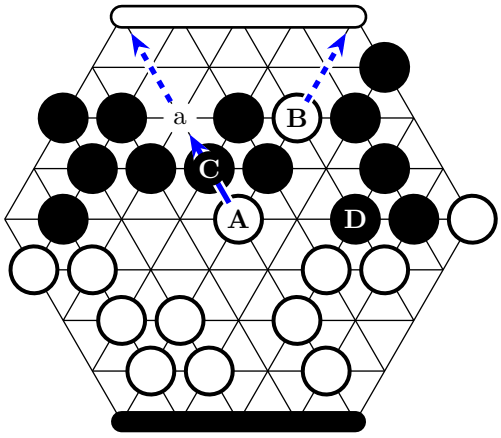
The line of the arrowed piece holds three White pieces (including the one moving) and one Black piece. $3 - 1 = 2$, so the piece moves exactly two spaces, jumping the Black piece, and stops on a.

Example of Play

In the position below it is White's turn. In fact, White has already won. Which piece should White move?



Solution



The solid arrow is the solution. The dashed arrows are the two moves with which White can reach the goal next turn.

The answer is to move A to a.

The arrowed line through A holds three White pieces (including A) and one Black piece, C. $3 - 1 = 2$, so A jumps over C, moves exactly two spaces and stops on a.

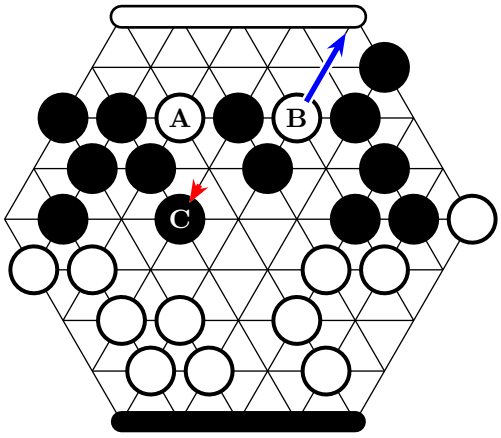
With this one move, White creates two ways to reach the goal at once.

- **From a to the goal**: the line still holds three White pieces and one Black, so A, now on a, moves exactly two spaces and reaches the goal.
- **From B to the goal**: the line running up and to the right from B held four White pieces (including A) and one Black, so B's step was 3. The goal is only two spaces away, so B would have left the board and could not move along this line. Now that A has left the line, White has three pieces there, the step is exactly 2, and B can reach the goal.

By taking one of its own pieces off a line, White made the step fit exactly.

Black has no piece that can reach the goal in one move, so Black must stop both threats at once, and no move does that. Only two moves stop even one of them: moving C one space down and to the left, or moving D two spaces to the left.

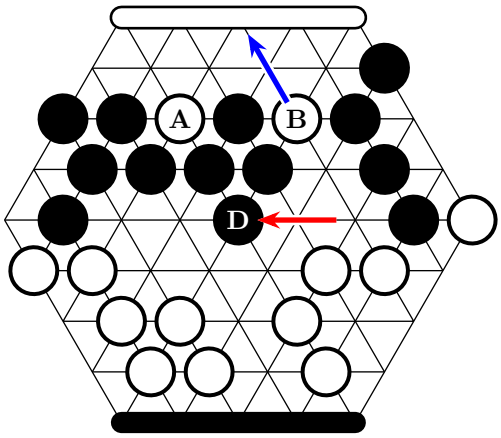
If Black moves C



Red is Black's move; blue is White's winning move.

With C gone, A's line holds no Black piece, so A's step becomes $3 - 0 = 3$ and overshoots the goal. But B has not been stopped: White moves B to the goal and wins.

If Black moves D



Red is Black's move; blue is White's winning move.

D moves two spaces left along the horizontal line (three Black, one White) into the space A has just left. That space lies on both A's line and the line running up and to the right from B. Each of these lines gains a Black piece, so the steps of A and B both drop to $3 - 2 = 1$, and neither can reach the goal.

But D has left the line it shared with B (the line of the blue arrow), which now holds two White pieces and no Black. B moves exactly two spaces along it, reaches the goal, and White wins.