IMPEDIO

An abstract game for 2 players by Kashio Fujii

Components

- 30 White pieces and 30 Black pieces
- A regular hexagonal board of triangular grid, with 5 spaces per side

Definitions

Stack One or more pieces piled on a single space (intersection) of the board.

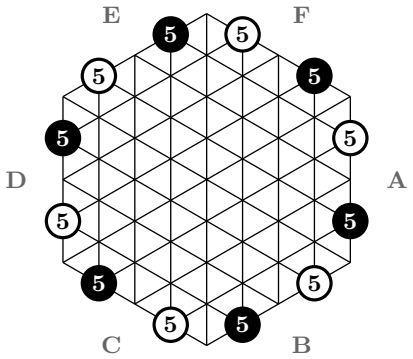
Line A straight row of spaces across the board.

Side The six sides of the board are called A to F, as in the diagrams.

The numbers in the diagrams are the number of pieces in each stack.

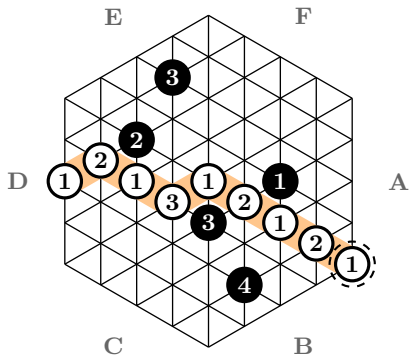
Setup

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

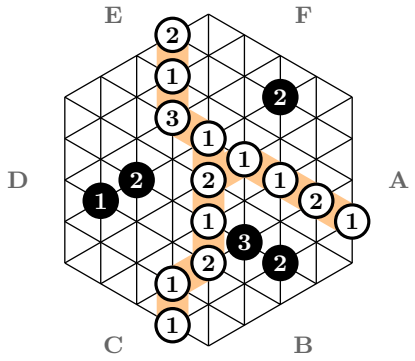


End of the Game

- You win as soon as you achieve either of the following:
  - connect two opposite sides of the board (A and D, B and E, or C and F) with stacks of your color;
  - connect three sides that do not touch each other (A, C and E, or B, D and F) with stacks of your color.
- Stacks of your color on neighboring spaces count as connected.
- A corner space belongs to both of the sides that meet there.
- You lose if you have no stack that can move on your turn.



Connecting two opposite sides (D and A). The corner space circled with a dashed line belongs to both A and B, so this stack reaches side A.

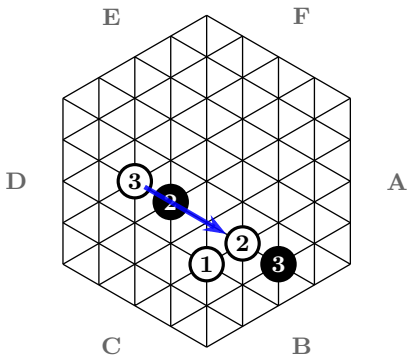


Connecting three sides that do not touch each other (A, C and E).

On Your Turn

On your turn, choose one stack of your color, split it in two, and move one part, following these rules:

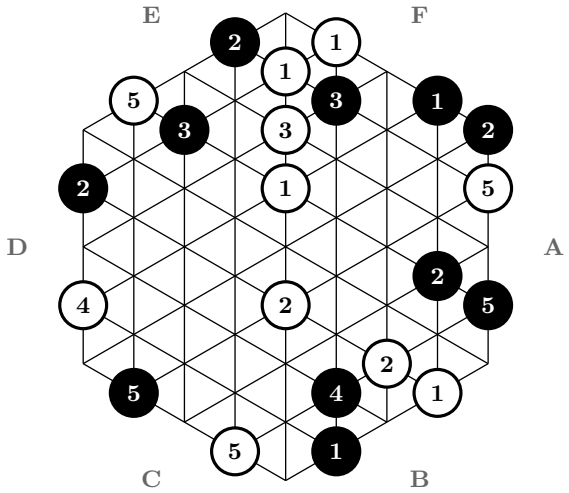
- A stack moves along a line. It may jump over any number of stacks, both yours and your opponent's.
- The distance it moves must be exactly **the number of pieces left behind** on the original space. For example, if you split 2 pieces off a stack of 5, three pieces stay behind, so the 2 pieces move exactly 3 spaces.
- A move covers at least 1 space, so at least one piece always stays behind. A stack of a single piece therefore cannot move.
- A stack cannot move off the board or onto a space occupied by an opponent's stack. It may move onto a space with your own stack, and joins it.



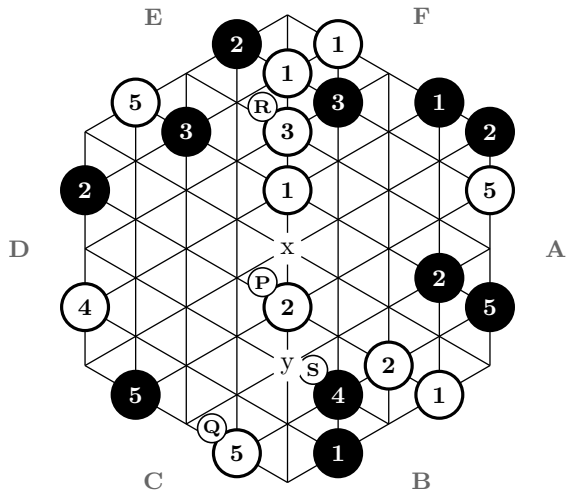
Two pieces split off a stack of 5. Three pieces stay behind, so the two that leave move exactly 3 spaces, jumping over the Black stack on the way.

Example of Play

In the position below it is White's turn. In fact, White has already won: White can win in three moves. Which stack should White move?



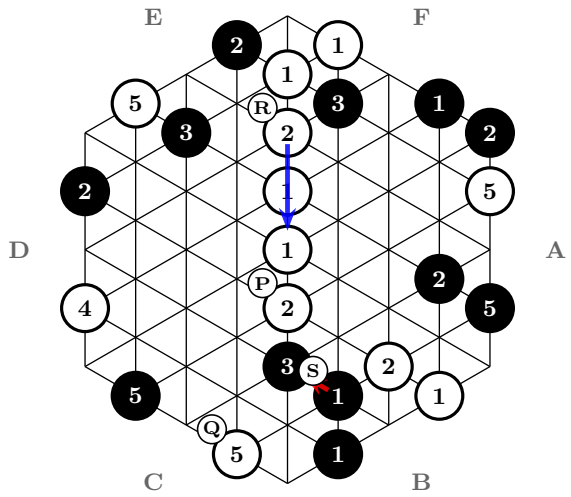
From side F, White has a row of stacks, including R, reaching toward the center. On side C stands Q, a stack of five. Joining these two would connect the opposite sides C and F, and White would win.



White's P, Q and R, Black's S, and the empty spaces x and y.

Filling x first fails

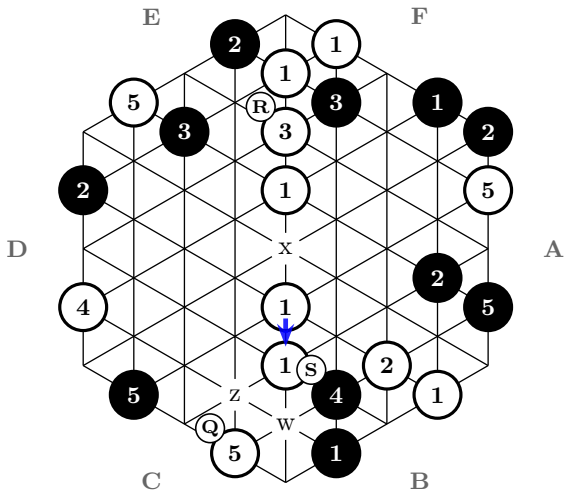
The first idea is to split one piece off R and put it on x, joining the row from side F to P (R is a stack of three: leave two, and one piece moves exactly 2 spaces). But Black splits three pieces off S and puts them on y (S is a stack of four: leave one, and three pieces move exactly 1 space). The way between P and Q is blocked, and White can no longer reach side C.



The failed attempt. Blue is White's move, red is Black's reply.

Solution

The answer is to split one piece off P and put it on y. P is a stack of two: leave one, and the other moves exactly 1 space.



The solution. The White stack on y and Q share two empty neighbors, z and w.

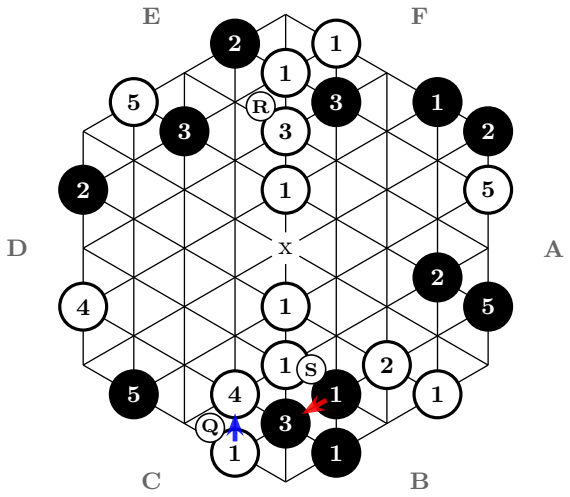
After this move, White's connection looks like this:

- The stack on y and Q share two empty neighbors, z and w. If Black blocks one, White takes the other and joins them.
- The only other gap is x, and Black has no stack that can reach x.

White needs two more moves, one on x and one on z or w, to connect C and F, and one Black move cannot stop both.

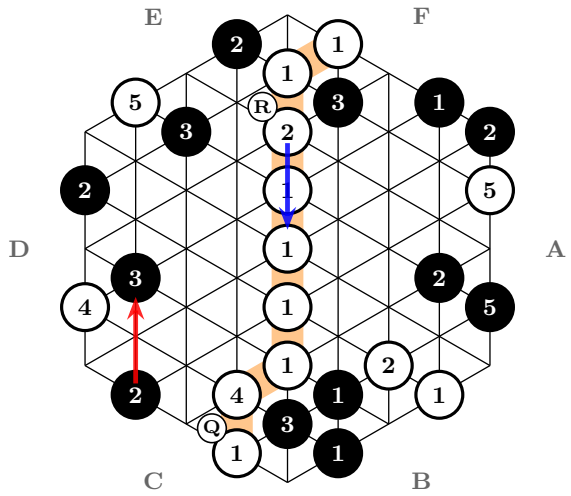
If Black moves into w

Black, for example, splits three pieces off S and puts them on w, trying to cut y from Q. White at once splits four pieces off Q and puts them on z, joining y and Q (Q is a stack of five: leave one, and four pieces move exactly 1 space).



Red is Black's move, blue is White's. Only the gap at x remains.

Now x is the only gap. Black still has no stack that can reach x, so whatever Black plays, x stays open. On the next turn White splits one piece off R, puts it on x, connects side F to side C, and wins.



The final position. After Black plays elsewhere (red), White moves from R to x (blue), and the band joins C and F.

If Black does not move into z or w at all, White fills x first. Then entering either z or w wins, and Black cannot block both in one move.