UNMERGO

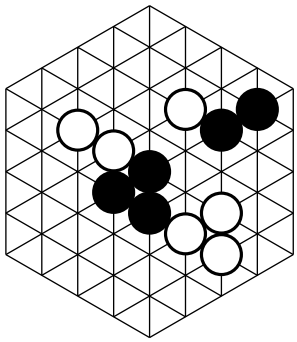
An abstract game for 2 players by Kashio Fujii

Components

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

Definitions

Group A set of stones of one color that are connected through neighboring spaces. A stone with no neighbor of its own color is also a group.



White has three groups and Black has two.

Setup

- The board starts empty.
- Choose your color. White moves first.

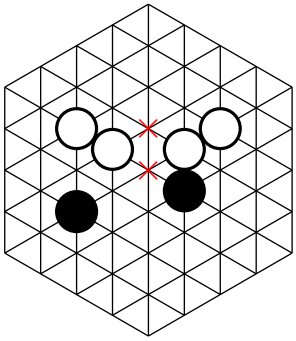
End of the Game

- The game ends when neither player can place a stone.
- The player with **more groups** of their color on the board wins.
- If both have the same number of groups, list each player's groups from largest to smallest and compare them in order. At the first difference, the player with the **smaller group** wins. If all sizes are equal, the game is a draw.

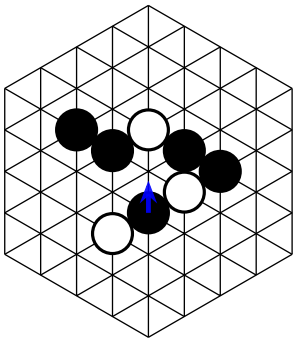
On Your Turn

On your turn, do the following:

1. **Place a stone (required)**
   Place one stone of your color on any empty space, except that **you may not place it where it would join two or more of your groups into one**. If you have no such space, you pass, and your turn ends at once.
2. **Move an opponent's stone (optional)**
   After placing, you may choose **one of your opponent's stones and move it to a neighboring empty space**. This move has no restriction like placing does: you may join your opponent's groups. You may also end your turn without moving. If you passed, you cannot move.



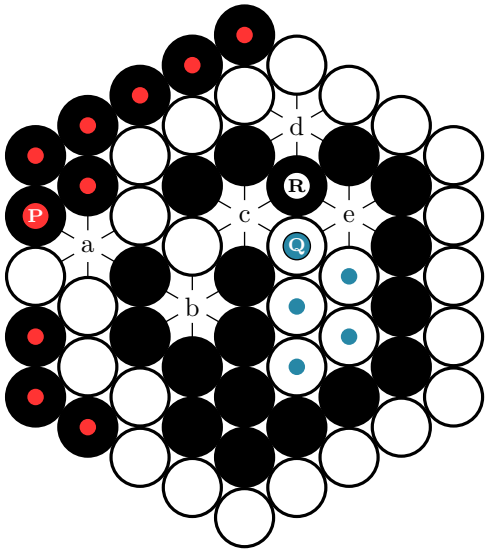
Placing a White stone. A stone on a space marked × would join White's two groups, so it is not allowed. Every other empty space is allowed.



Moving an opponent's stone. White moves a Black stone one step and joins three Black groups into one.

Example of Play

In the position below it is White's turn, and five spaces are empty: a to e. White has two groups (23 and 5 stones) and Black three (18, 7 and 3), so if the game ended now, Black would win. In fact, White has already won. How should White play?



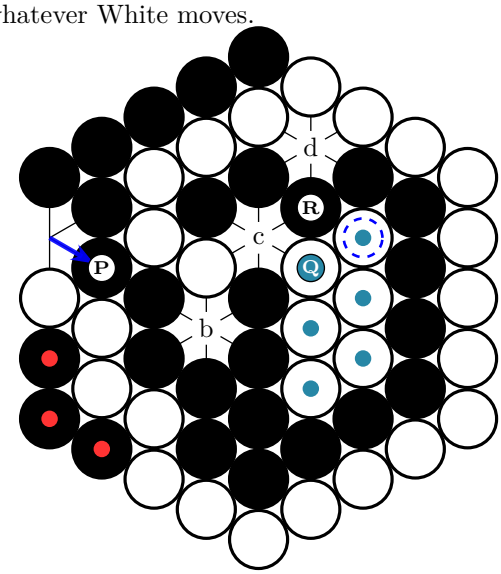
Stones outside each color's largest group carry a red (Black) or light blue (White) dot.

Turn 1 (White)

The answer is to place on e and move Black's stone P to a.

On a, P joins Black's groups of 18 and 7, so Black now has two groups, of 25 and 3. The stone on e joins White's smaller group, so White has 23 and 6. Both players have two groups now, and if the sizes were compared, White's 23 against Black's 25 would favor White.

Placing on e is White's only winning placement (moving the other Black stone next to a onto a instead of P works as well). After a placement anywhere else, Black wins whatever White moves.



After turn 1. The dashed circle is the stone placed; the arrow is the stone moved. White: 23 and 6. Black: 25 and 3.

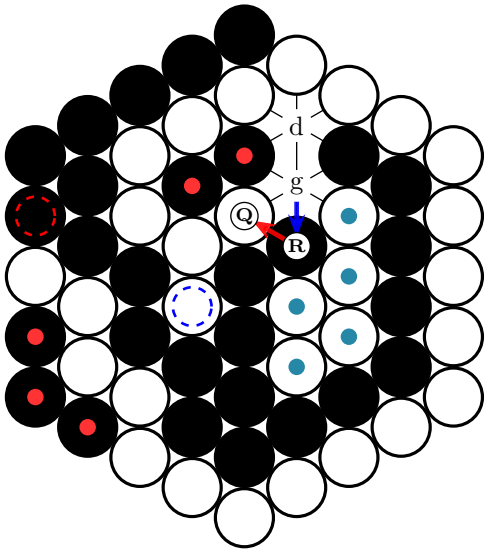
Turns 2 (Black) and 3 (White)

Black, for example, places where P stood and moves White's Q to c. Q leaves White's smaller group for the larger one: White now has 24 and 5, Black 26 and 3. (White also wins against every other reply.)

Three spaces are empty: b, d, and the space Q has left (call it f). White's only winning turn now is to place on b and move Black's R to f.

Moving R splits Black's large group in two, so Black has three groups: 24, 3 and 2. Giving the opponent an extra group looks like a mistake. But the two spaces left, d and the space R has left (call it g), each touch two Black groups, so Black cannot place anywhere.

If White only places on b and leaves R where it is, Black can place on d or f and wins.

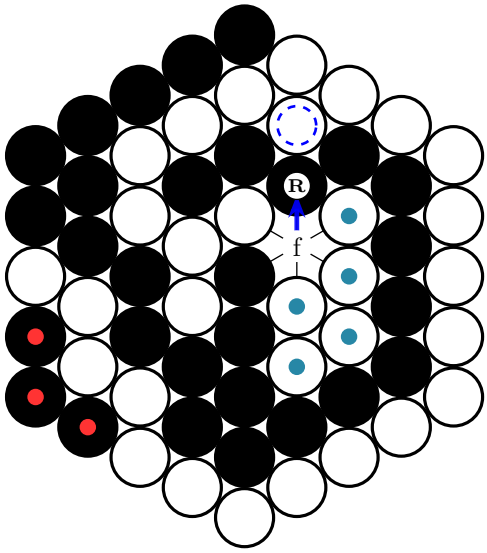


After turn 3. Red is Black's turn 2, blue is White's turn 3. White: 25 and 5. Black: 24, 3 and 2. R is on f.

Turns 4 (Black) and 5 (White)

Black has no space to place on, so Black passes (and, having passed, cannot move a White stone either).

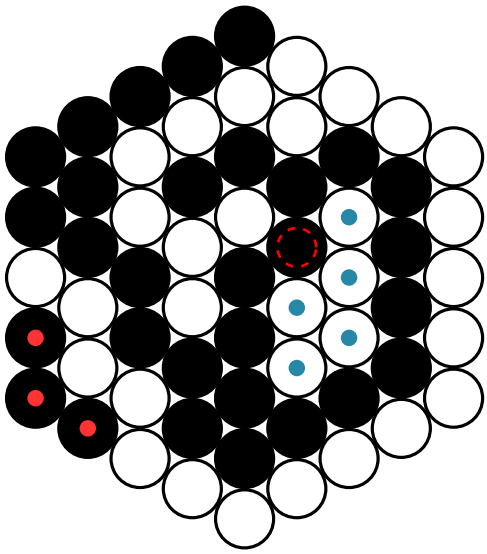
White places on d (White: 26 and 5) and moves R back to g (moving the other Black stone next to g onto g works as well). Black's groups join again: two groups, of 26 and 3. Had White not moved R back, neither player could place, the game would end, and Black would win with three groups to two.



After turn 5. White: 26 and 5. Black: 26 and 3. Only f is empty.

Turn 6 (Black) and the end

Black places on f, the last empty space, and now has 27 and 3. Neither player can place any more, so the game ends. Both have two groups, so the sizes are compared from the largest: 26 against 27, and White, with the smaller group, wins.



The final position. White: 26 and 5. Black: 27 and 3. White wins.

By splitting Black's group for a moment, White made Black pass and placed twice in a row. Then White left the last empty space for Black, so that Black's largest group ended up larger than White's.