

# CMPUT 396 – Go

The first reference to Go was in 4<sup>th</sup> century BCE. It was considered to be one of the four essential arts of the ancient aristocratic Chinese scholars.

Since Go is played mostly in China, Korea, and Japan they all have different rules. Computer Scientists usually use the Tromp-Taylor rules (the logical rules of Go, closest to Chinese rules).

General rules:

- 19x19 orthogonal grid
- Place stones on intersection points
- Reach: path of vertical or horizontally adjacent cells
- If your stone doesn't reach empty (doesn't reach an empty cell), it is surrounded, captured, and removed from the board
- A turn is either a pass or a move that doesn't repeat an earlier grid colouring
- Move: (TT rules allow suicide, Chinese, Korean and Japanese do not), colouring an empty point with your colour, clearing the opponent colour, then clearing your own colour
- The game ends after both players pass (or one player resigns)
  - o After 2 consecutive passes, players agree on which groups are dead/captured. If there is no agreement, play continues and then the game is scored.
- If a point reaches both black and white at the end, it doesn't count for either
- If a point can only reach one point, it is that colour's point

The ranking system allows unbalanced players to play a balanced game. The weaker player is given free stones (larger kyu – smaller kyu = how many free stones the weaker player gets to start with). Remember that the player with the smaller Kyu is the stronger player.

[www.cosumi.net/en/](http://www.cosumi.net/en/)

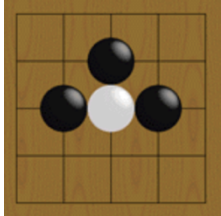
## Interactive Way to Go – Go Glossary

Three basic rules:

1. Two players, black and white, take turns placing one stone on the board at a time.
2. A stone must be placed on the intersection of the vertical and horizontal lines.
3. Once a stone is placed, you can't move it. However, under some conditions it may be removed.

## The Goal of Go

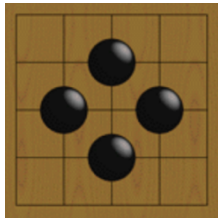
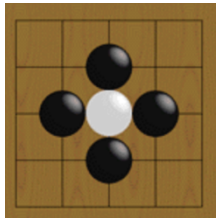
The objective of Go is to make your territory larger than that of your opponent. One way to make territory is to “capture” opponent’s stones. Stones that are surrounded are removed from the board and are handed to the opponent as prisoners. Each prisoner will be worth one point.



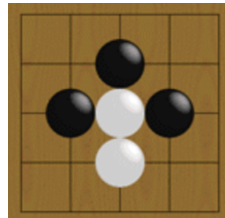
With one more move, the white stone will be completely surrounded and will be removed.

Stones that can be removed with one more move are said to be in **Atari**.

If it's black's turn next:



If it's white's turn next:

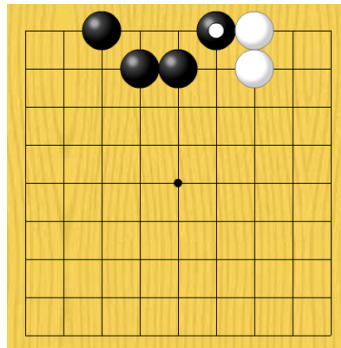
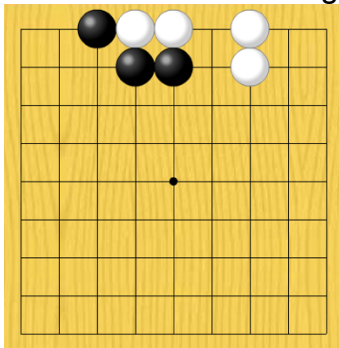


“Escape” by connecting another stone.

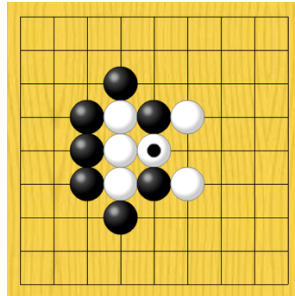
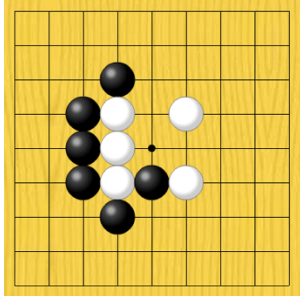
Usually a 19x19 board is used. A smaller board (like a 9x9 board) is recommended for beginners.

In the amateur Go world, 30 kyu is usually the lowest rank. The smaller the kyu, the stronger the player. Above 1 kyu is 1 dan. As the dan number increases, the player is stronger.

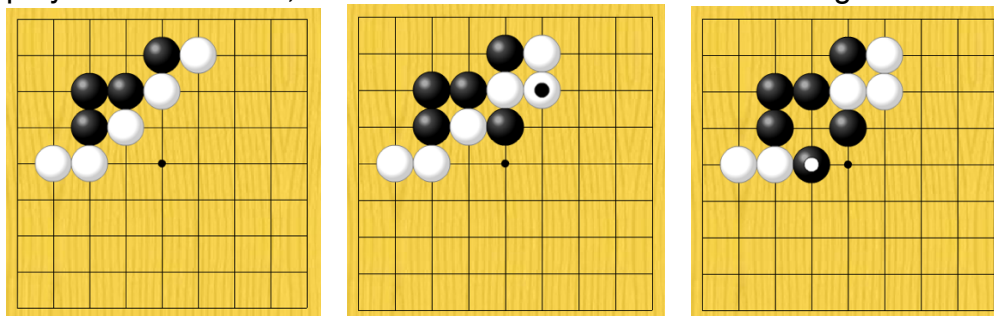
Stones stuck at the edges are almost surrounded and easier to get rid of.



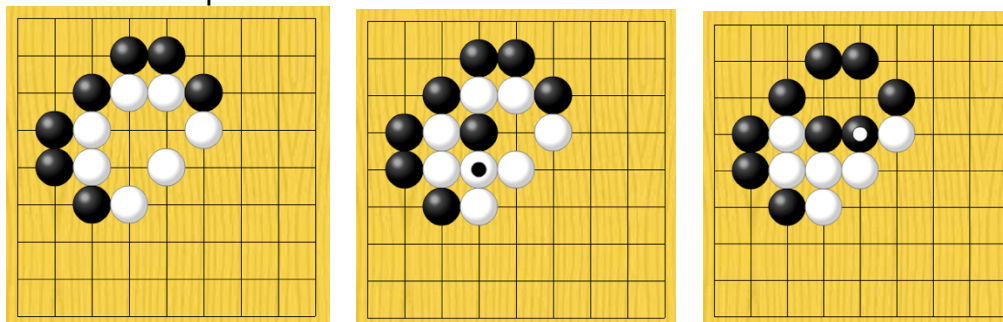
Try to keep your opponent from making groups.



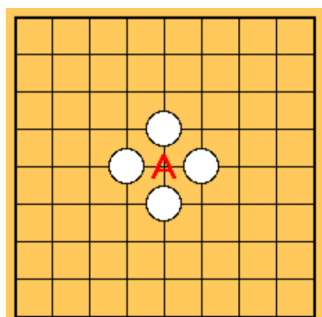
A **double Atari** happens when one player can make two simultaneous Ataris on the other player. In this case, white can't save both so black can get at least one white stone.



Another example of a double Atari:

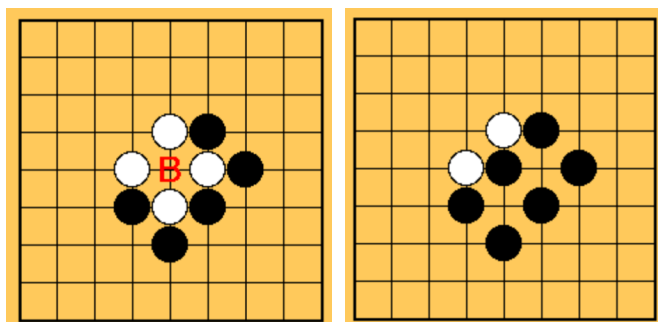


## Illegal Moves



Black can't make a move at A because if they played there, the stone would be surrounded and this would be considered suicide. *This is actually allowed by Tromp-Taylor rules even though it is not allowed by other rules systems. Even so, it rarely occurs.*

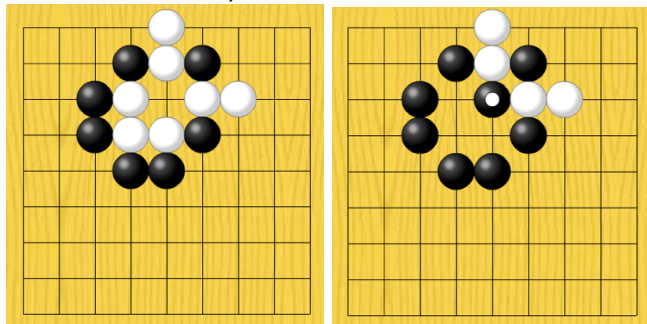
White, however, can play at A.



In this case, black *can* play at B.

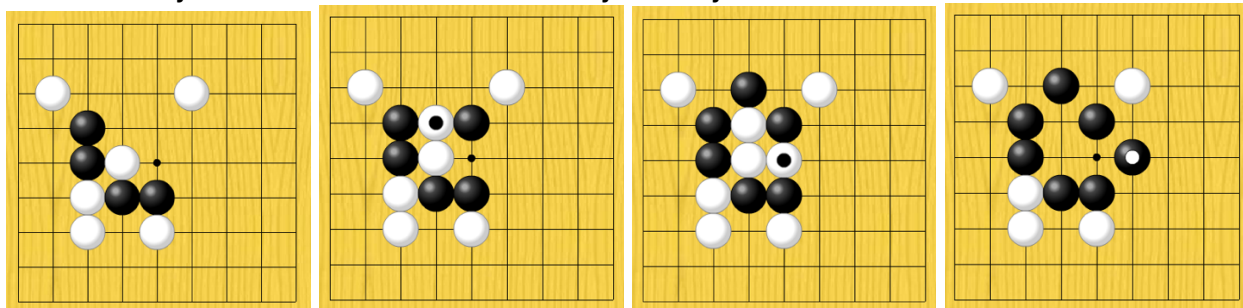
With a black stone on B, the two white stones nearby will be surrounded and removed.

At first glance, it seems like this would be an illegal move for black, but since white stones are cleared first, it is indeed allowed.



In the game of Go, kill or be killed.

Sometimes you shouldn't attack the enemy directly.

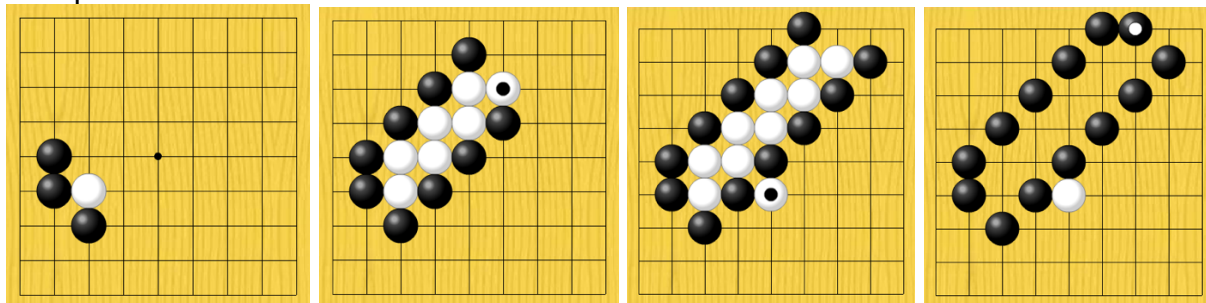


We should capture the opponent's stones because by removing opponent's stones that are separating your stones, your divided stones can be all connected.

*This is a very important aspect of Go. Remember to play so that all your stones connect each other whenever you can.*

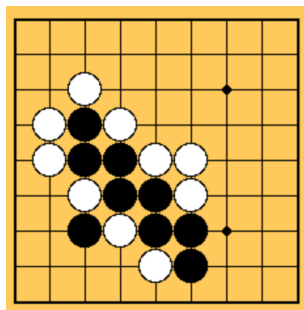
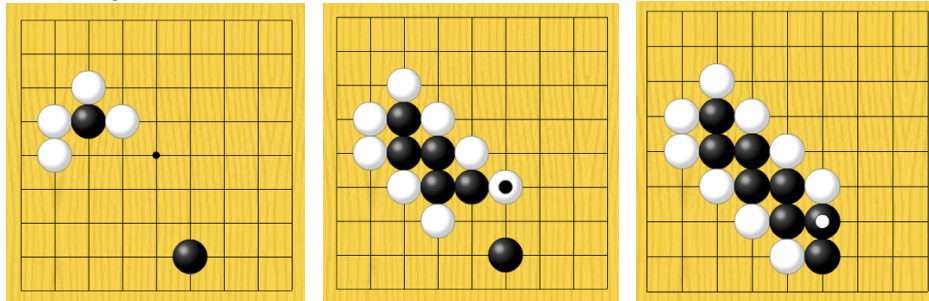
## The Ladder (Shicho)

As black, from the starting position you can make successive Ataris as white tries to escape.



This shape is called the **ladder** because you try to chase or escape by making the shape of a ladder, or a sequence of steps. As above, white was just making more trouble for themselves as they tried to escape.

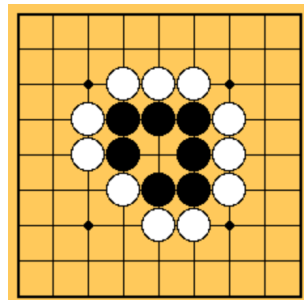
If you have a stone in the shoulder (a friendly stone), you can escape because you can extend yourself faster than the attacker.



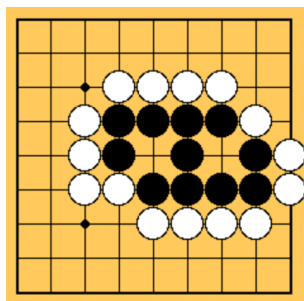
At this point, white has many weak points on both sides of sturdy black. Black can easily make double Ataris to begin its attack on white.

*Go Proverb: Don't play Go if you don't know the ladder.*

## Stones which can't be captured



Even groups of many stones can be dead once they are surrounded. For example, here the black stones are completely surrounded with nowhere to escape. They are just waiting to be killed by white's move in the center.

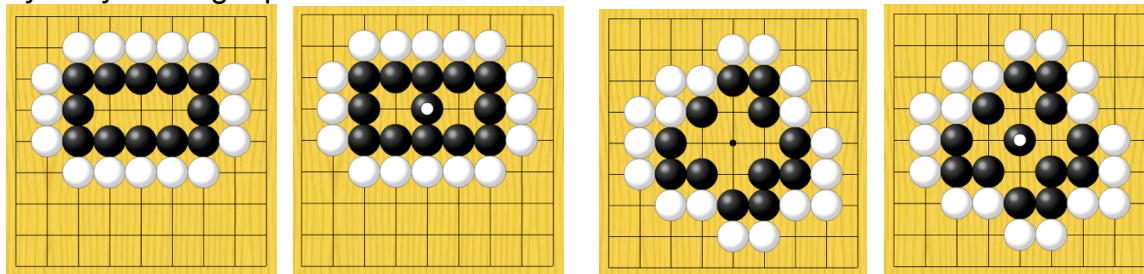


However, it is possible to be completely surrounded by your opponent but not be captured. In the example to the left, white can't capture black because although there are two places to kill the black group, they are both surrounded by black where white can't play. These spaces are called **eyes**. Once you make two eyes, your stones can never be captured. Such a group of stones is said to be **alive**.

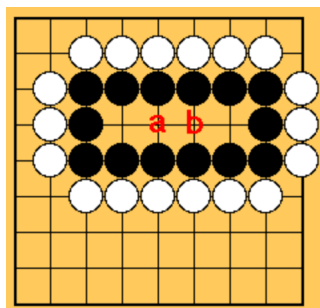
*Go Proverb: Your vital spot is also the opponent's one.*



Sometimes if you have a space too large that only forms one eye, you should make two eyes by making a partition.



Always try to make your territory large enough and not to get surrounded.

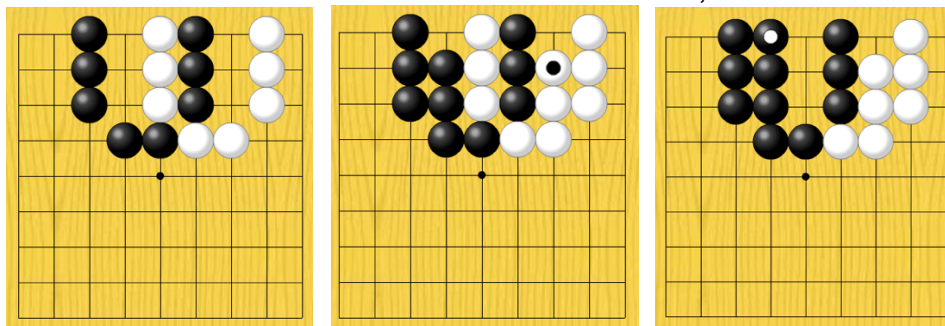


In this case you don't need to make a partition. If white makes a move at **a**, respond with a move at **b**. If white plays **b**, reply at **a**. In this way, you can always make two eyes even if white tries to attack. However, if you ignore white's attack, white will play both **a** and **b**, at which point you will only have one eye and will eventually be dead.

## Semeai (Mutual Attack)

When black and white surround each other and neither inner stone group has two eyes, both sides try to fill out the vacant spaces, or **liberties**, to kill the opponent's stones inside. This is called semeai, or mutual attack.

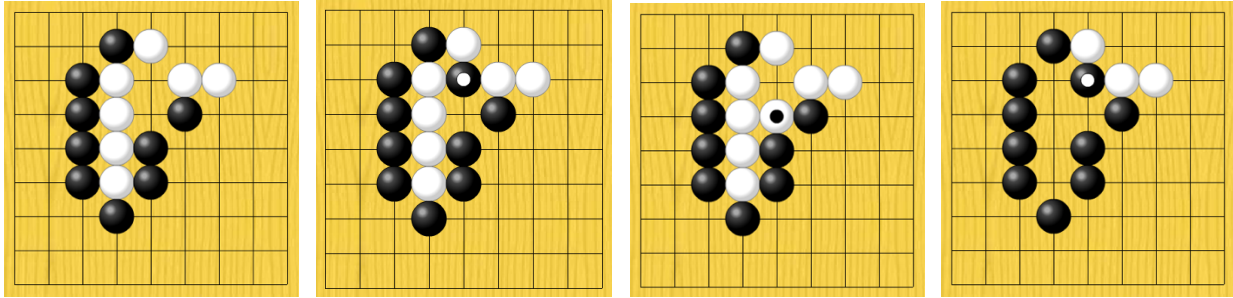
In this problem, both sides have 3 liberties. However, black can kill white one move faster because it was black's turn. If it were white's turn, white wins the semeai.



## Uttegashi (Snapback)

A snapback is the position created by playing a single stone with the intent of being captured because the reply to the capture is a larger capture.

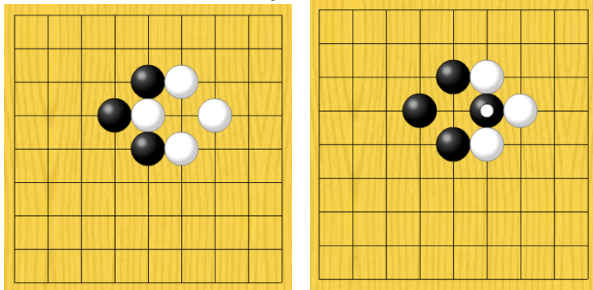
Sometimes you need to sacrifice a stone in order to capture more stones.



## Ko (eternity)

**Ko** means eternity in Japanese. It describes the concept in Go where a move produces an earlier board colouring, and is illegal.

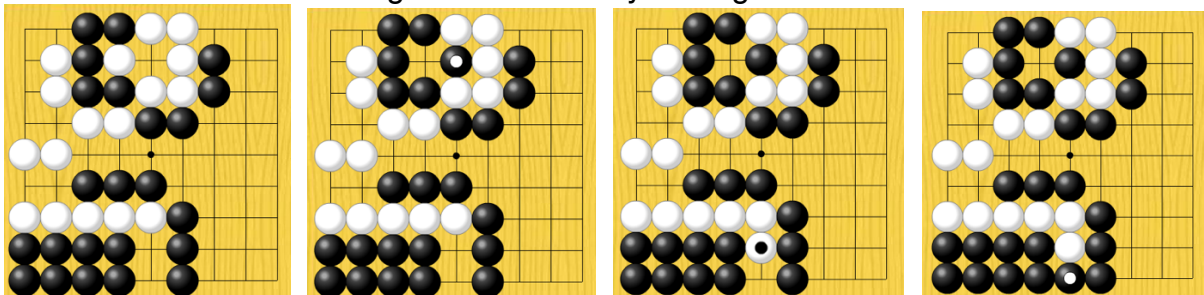
In this case, white cannot play at E6 to recapture the black stone because it would result in the same board position as two moves earlier. The move is illegal by Ko.

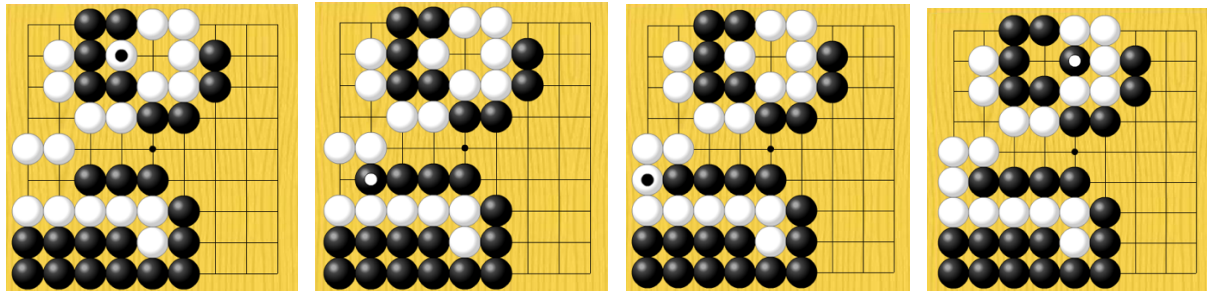


White can capture the black stone, but white must play somewhere else first to produce a different board position. In short, *you can take the Ko stone back once you play somewhere else*.

Sometimes this can result in a Ko fight where players go back and forth taking the other player's stone between moves of playing elsewhere. A player may attempt to play moves their opponent can't ignore to win the Ko fight, but potentially at the expense of territory elsewhere.

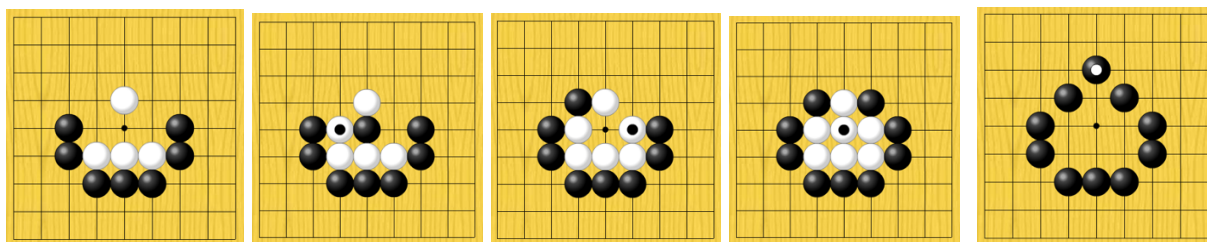
Ko is difficult because Ko fight involves many strategic moves on the entire board.



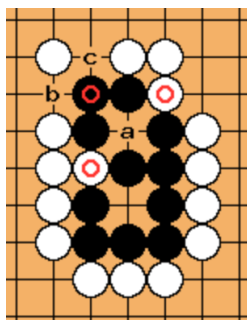


## Crane in the nest

This is a classic tesuji (or clever play) used to capture fleeing stones.



## False Eye



A false eye is something which possibly looks like an eye but really isn't one.

In this example, the false eye is marked at **a**. The marked black stones have an incomplete connection with the rest of the group. If White fills up the exterior liberties at **b** and **c**, the three black stones are in Atari. If Black connects them all at **a** then the eye disappears.

Usually a false means death, because you only really have one eye in the group.