A Beginner's Introduction to GO

(Revision 2.0)

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I. What is Go?

Go is a board game for two players. It is a game of pure skill, like chess, checkers, or even tic-tac-toe. There is no element of chance in Go – no dice or cards. It is one of the world's oldest games. It was invented in China at least 2500 years ago, and it may be closer to 4000 years old. It is played by about 25 million people all over the world, but is most popular in the Oriental countries of China, Japan, and Korea. The rules are very simple, and the game can be enjoyed by beginners. But it is probably the most difficult game in the world to master. The best players in the world devote their entire lives to studying it, and there are still many things that even they do not understand. There is a very good handicap system in Go which allows players of different skill levels to play each other and enjoy the game. It can also be played on boards of different sizes, so that beginners can play smaller and simpler games than experienced players.

II. The Basic Rules of Go

The basic rules of the game are given below. You will probably not understand all of these rules when you read them for the first time. But don't worry – in the next section, I will explain each one in detail and give lots of examples.

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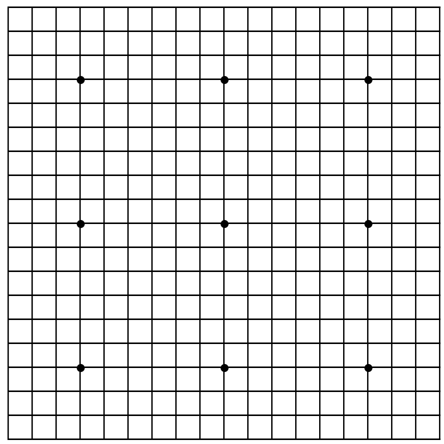
1. **Equipment:** Go is played on a board which is a square grid of vertical and horizontal lines. It is played by two players. Each player has a set of circular stones. One player (*Black*) has black stones, and the other (*White*) has white ones.
2. **Moves:** Black plays first, and the players take turns. On each turn, a player may place a stone on any empty intersection of 2 lines (a *point*) on the board (except as noted in rules 4 and 5), or *pass*.
3. **Capturing:** Two points are *adjacent* if they are next to each other in a vertical or horizontal *but not diagonal* direction. Two stones of the same colour on adjacent points are *connected* and belong to the same *string* of stones. An empty point adjacent to a string of stones is a *liberty* of that string. When a stone is played that reduces one or more strings of the opponent's stones to 0 liberties (in other words, when it *surrounds* opposing stones), those strings are *captured* and removed from the board.
4. **Suicide:** A stone may not be played if it will have 0 liberties and will not capture any of the opponent's stones. (In other words, you may not capture your own stones.)
5. **Repetition:** A stone may not be played if it will make the board look exactly the same as it did earlier in the game. (Repetition is not allowed.)
6. **Scoring:** If the last move of each player was a pass, the game ends and scoring begins. First, the players must agree on which stones on the board are *dead*. (Disagreements are very rare, but a rule to settle arguments will be given later.) The dead stones are considered to be captured, and are removed from the board. Each player gets one point for every opponent's stone that was captured, and one point for every empty point of *territory.* A group of connected empty points is territory if it is surrounded by stones of only that player's colour. The player with the higher score wins.

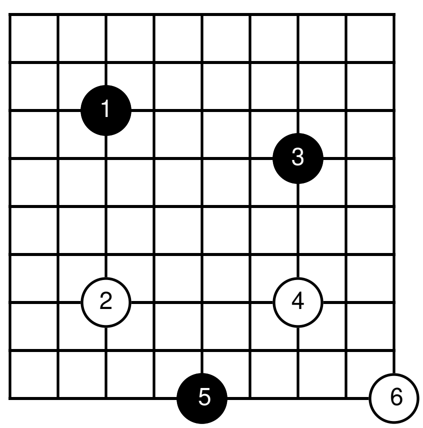
III. A Detailed Explanation of the Rules

1. **Equipment:** There are 3 standard sizes for Go boards, although any size could be used. A standard full-size board has 19 lines in each direction, or 19x19=361 points. The board looks like this:



The nine small black dots are used when a handicap (discussed later) is given, and they also act as landmarks and give the board a better appearance. But they play no part in the rules of the game at all. For shorter games, a 13x13 board is commonly used. Beginners usually play on a 9x9 board, which makes the game even shorter. Note that the size of the board refers to the number of *lines* in each direction, not the number of *squares*.

2. **Moves:** Here is a diagram which shows the first few moves of a game being played on a 9x9 board:



This is how games and moves are usually shown. The stones are numbered to show the order in which they were played. Black first played stone number 1, then White played stone number 2, and so on. Note that the stones are played on the intersections of the lines, not in the squares formed by the lines. Also note that stones may be played on the edge of the board, or even in the corners. Although either player may pass at any time, it is *never* a good idea until the game is over. Passing is only used to end the game, which I will talk about later.

3. **Capturing:** In Figure 1 below, the two stones marked “A” are on *adjacent* points and they are *connected* together. So are the two stones marked “B”. But the two stones marked “C” are *not* on adjacent points and they are *not* connected. Much longer strings of connected stones are often formed. For example, all of the stones marked “D” are connected together, and so are all of the stones marked “E”. But these two strings of stones are not connected to each other, even though they are close together.

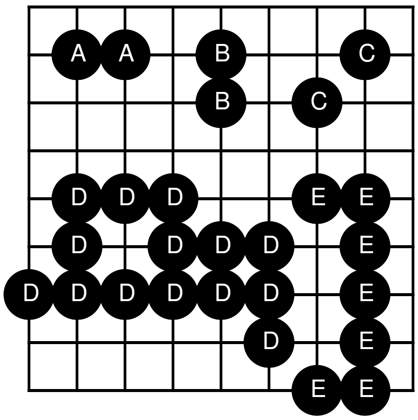


Figure 1: Connected Stones

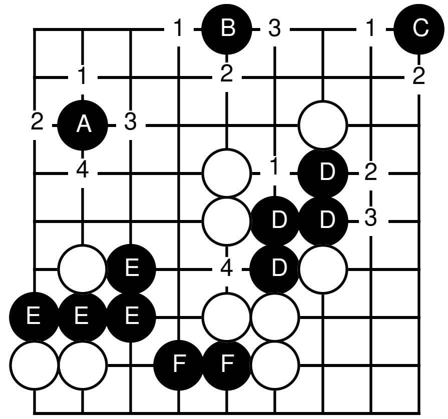


Figure 2: Liberties

Each vacant point adjacent to a string of connected stones is a *liberty* of those stones. A single stone in the centre of the board (like A in Figure 2) has 4 liberties, as shown. A stone on the edge of the board (B) has 3 liberties, and a stone in the corner (C) has only 2. The stones marked “D” are already partly surrounded by enemy stones, and they have only 4 liberties left. How many liberties do the stones marked E and F have? (The answer is given at the bottom of this page.)

By surrounding a string of your opponent’s stones so that they have 0 liberties, you *capture* them and remove them from the board. If Black plays 1 in Figure 3 below, then the white stone has no liberties left, and it is captured and removed from the board. Black will keep this stone in a safe place (usually in the lid of the container that holds the black stones) since it will be worth 1 point at the end of the game. Any size string of stones may be captured if it can be reduced to 0 liberties. If Black plays 2 in Figure 3, three white stones are captured which will be worth 3 points at the end of the game.

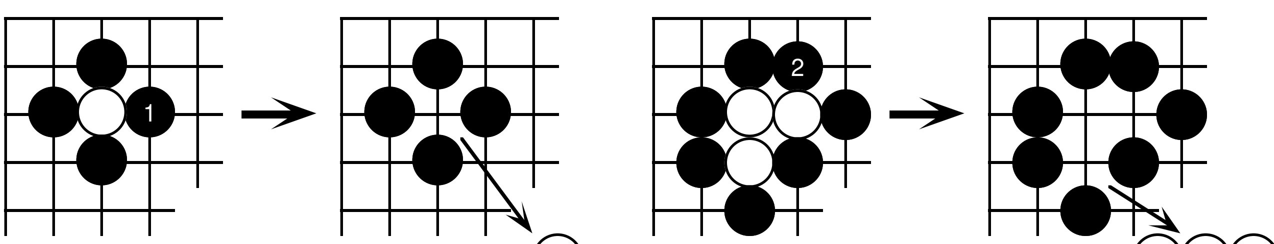


Figure 3: Capturing

(Answer: The E stones have 5 liberties, and the F stones have 4 liberties. The two sets of stones are not connected to each other.)

It takes fewer stones to capture an enemy stone on the edge of the board or in a corner. In Figure 4, Black 1 captures a white stone on the edge of the board, and Black 2 captures one in the corner.

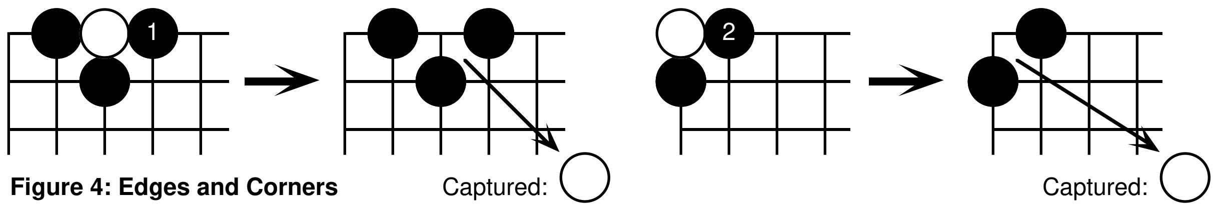


Figure 4: Edges and Corners

Figure 5 shows a series of moves in which three white stones are captured. When Black plays stone number 1, the white stone has only 1 liberty left, and so Black is threatening to capture it with the next move. When you play a move which leaves your opponent with only 1 liberty, it is polite to say “atari” which is a warning that you are about to make a capture. (This is like “check” in chess.) White may try to save his stone by playing 2, but Black will just play 3 and say “atari” again. Trying to run away with 4 does White no good. The white stones are still *in atari* and Black plays 5 to capture them. White should not have tried to save the original stone, since that only gave Black three captives instead of one.

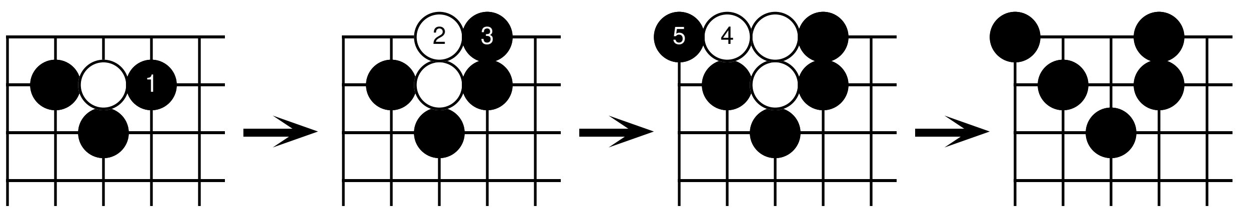


Figure 5: Atari

Another very common way to capture a stone is shown below in Figure 6. When Black plays 1, the white stone is in atari. White may think that this stone can escape, but it can’t. If White tries to get away, Black keeps blocking the way, and putting the white stones into atari again and again. When the white stones reach the edge of the board, they have nowhere else to go, and Black 13 captures all seven of them. White should not try to save the first stone at all. This pattern is called a “ladder”.

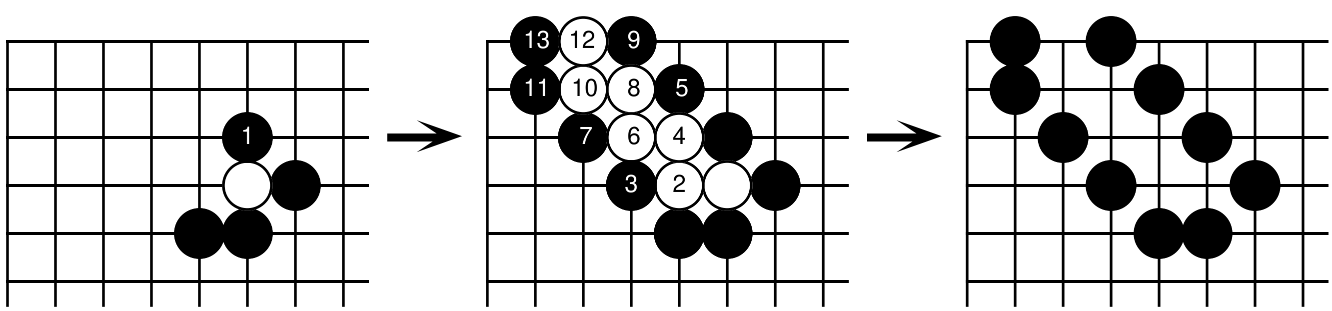


Figure 6: A "ladder"

4. **Suicide:** You may not play a stone which would have no liberties. In other words, you may not play a stone which would capture itself. But you *can* play such a move if it captures one or more enemy stones, because once the enemy stones are removed from the board, your stone will have liberties again. This rule is shown if Figure 7 below. White is not allowed to play a stone on the point marked A, since that stone would have no liberties. White is not allowed to play B or C either, since those moves would create strings of 3 white stones with no liberties. None of these moves capture any black stones, and so White cannot play them. But White *is* allowed to play stone number 1, even though it creates a string of two white stones with no liberties, because it captures two black stones. Once those black stones are removed, stone number 1 has two liberties, and so it did not capture itself.

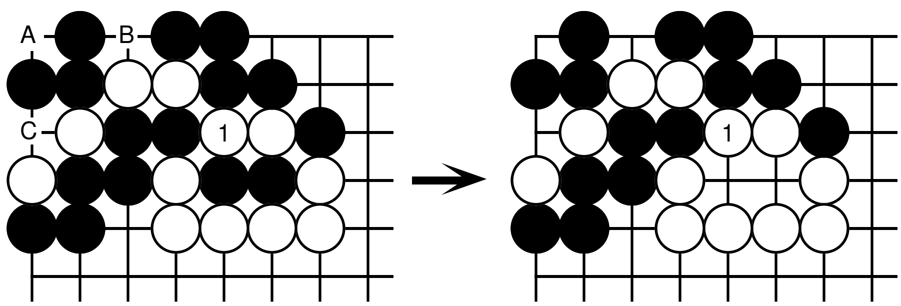
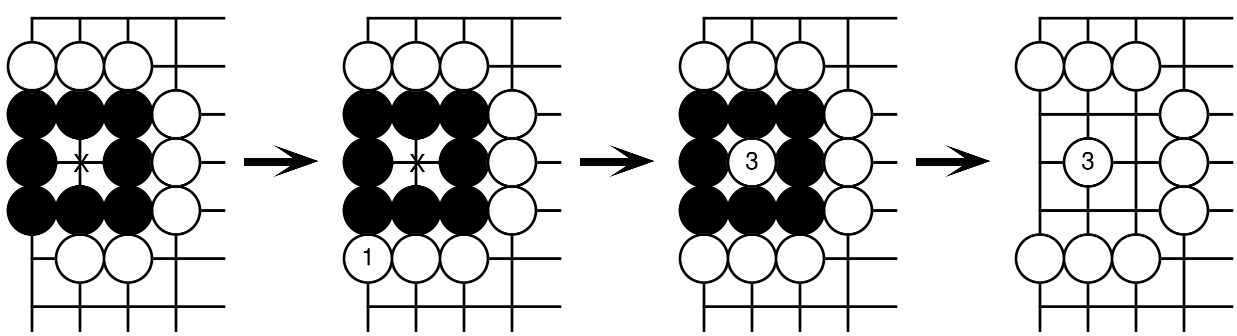


Figure 7: The suicide rule

In Figure 8 below, White may not play on the point marked with an X since that stone would have no liberties, and it would not capture the black stones (they still have one other liberty left). But White *can* play stone number 1, which puts the black stones into atari. The black stones are now surrounded, but they are not captured yet, because they still have one liberty (the point marked X). Now Black can't play a stone at X, because that would give the black stones 0 liberties. So Black must play stone number 2 somewhere else on the board. Now White is allowed to play stone number 3 in the middle of the black stones, since that reduces them to 0 liberties, and captures them. Once the black stones are taken away, stone number 3 has plenty of liberties. A single empty point like X, which is completely surrounded by a string of stones, is called an *eye* of that string. Because of the suicide rule, you can't play inside an eye like this unless it is the last liberty of that string of stones, and playing there will capture them.



(White can't play at X) (Now Black can't play at X) (Now White can play 3) (and capture 8 stones)

Figure 8: An Eye

5. Repetition: You may not play a stone if it will make the board look exactly the same as it did earlier in the game. This prevents the same moves from being played over and over again so that the game never ends. In real games, there is only one common pattern for which this rule is needed. It is called a “ko” (which rhymes with “go”) and it looks like this:

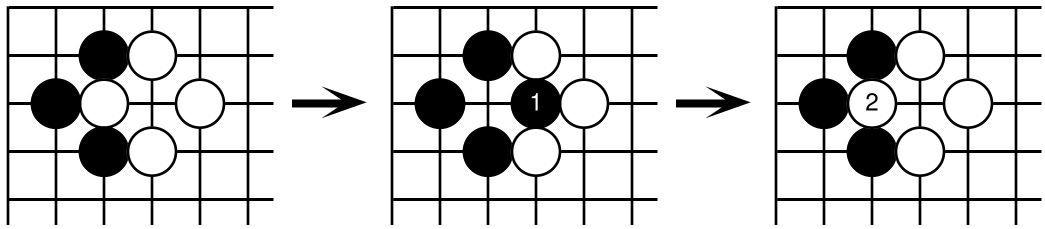


Figure 9: Ko

Black can play 1, which captures a white stone. But if White played 2, capturing the stone that Black just played, it would bring us right back where we started. Black and White could go on capturing each others’ stones forever. So White is *not allowed* to play stone number 2 right away. Instead, White must first play a move somewhere else on the board. If Black plays somewhere else, too, then White can come back and play stone number 2 because this will not make the board look the same as it did before (the two stones that were played somewhere else will make it look different).

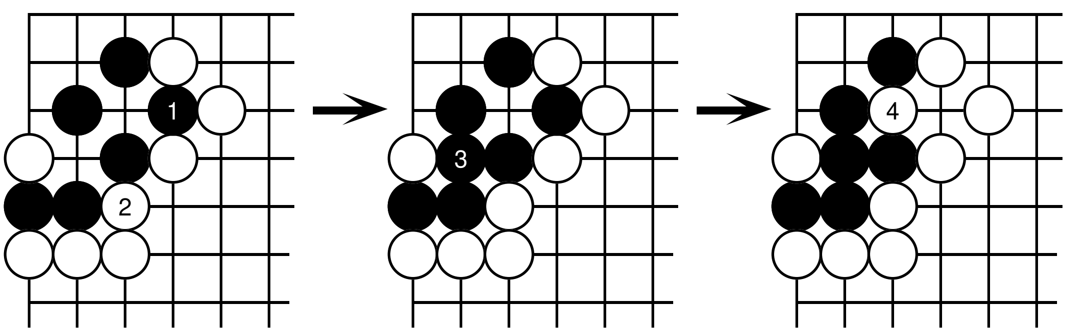


Figure 10: A ko threat

In Figure 10, Black has just captured a white stone by playing 1. White cannot recapture 1 right away, and must look for a move to play somewhere else. White would like to find a move that threatens some black stones, so that Black will have to play somewhere else, too. So White plays 2 and says “atari”. This move is called a *ko threat*. Now Black could fill in the ko, but then two black stones would be captured, so Black plays 3 to save them. White then takes the ko with 4. Now it is Black who will have to find a ko threat. This fight can go on for quite a long time, and it is called a *ko fight*. But sooner or later, one of the players will end the ko, usually by filling it in and saving the stone that is in atari.

Ko fights can happen on the edge of the board or in the corner, too. The pattern is the same:

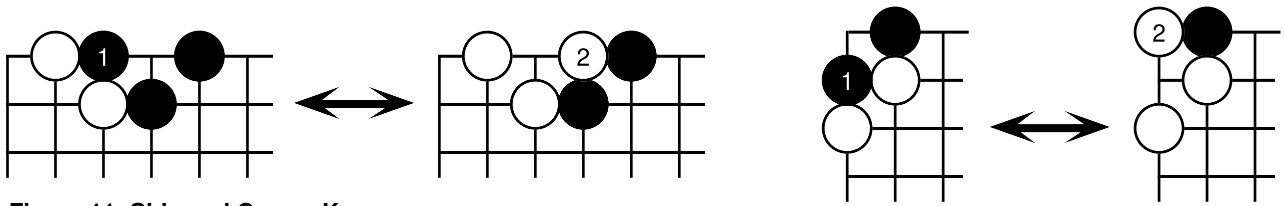


Figure 11: Side and Corner Ko

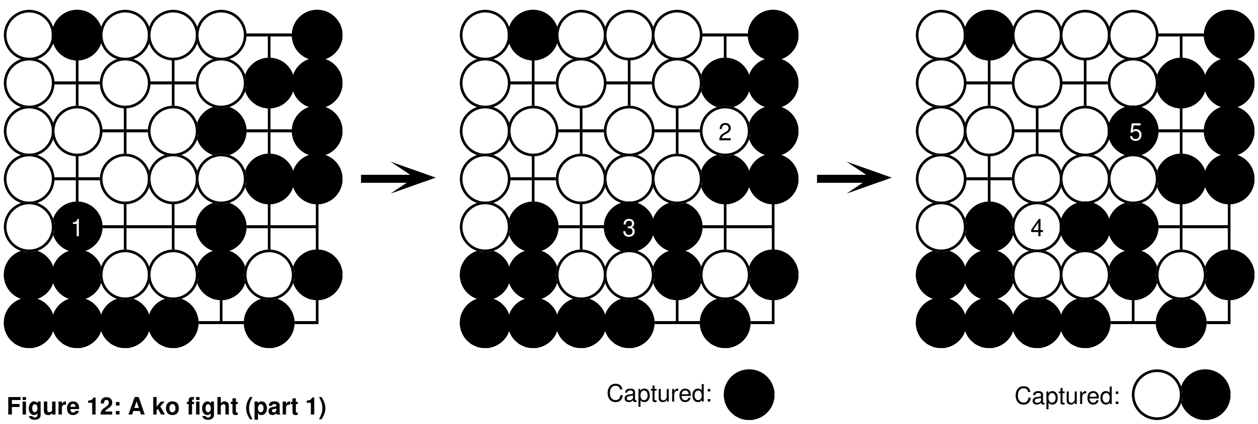


Figure 12: A ko fight (part 1)

Here is a complete ko fight that happens at the end of a game on a very small 7x7 board. In Figure 12, Black has just played 1, and now White can play 2, capture a black stone, and start a ko fight. Black plays 3 as a ko threat, putting 2 white stones into atari. White saves them by playing 4 which connects them to some other white stones. Now Black can take back the ko with 5.

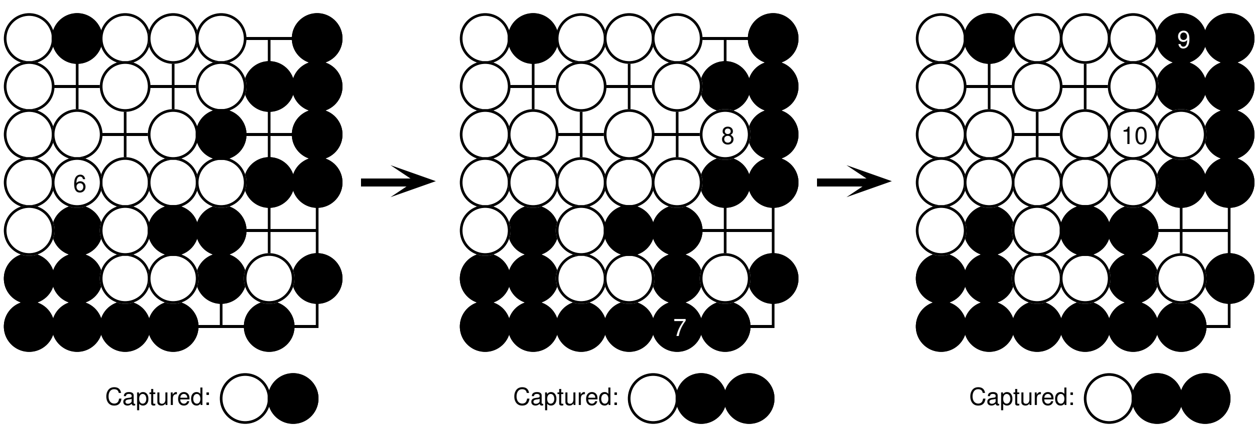


Figure 13: A ko fight (part 2)

Now White plays 6, which is a good ko threat since it puts seven black stones into atari. Black saves them by playing 7, and White takes back the ko with 8. Now Black has run out of threats. Black plays 9, but White can just ignore it and fill in the ko with 10, ending the ko fight. (The game is now over, too.)

6. Scoring: At the end of the game, each player gets one point for every empty point that is surrounded by his or her stones. For example, in Figure 14 White has 6 points of territory (marked with W's) and Black has 5 points of territory (marked with B's). There are also 3 *neutral* points (marked with N's) that do not count as points for either player. Neutral points are called *dame* (dah-may) in Japanese, and this word is often used in English, too. Dame points should be filled in by the players before counting score, as shown in Figure 15, to make sure that they are not counted as territory by accident.

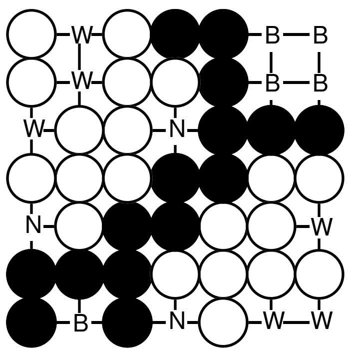


Figure 14: Territory

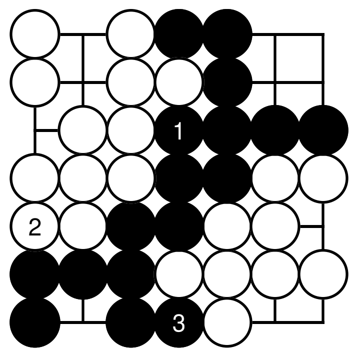


Figure 15: Filling Dame

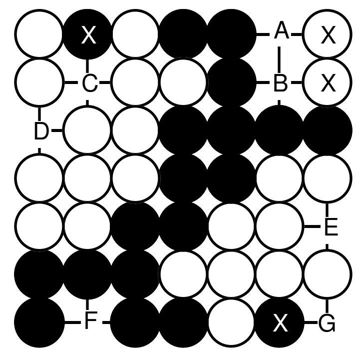


Figure 16: Dead Stones

Most of the time, there will also be a few *dead stones* on the board at the end of the game, as shown in Figure 16.

> Your stones are dead if you cannot stop your opponent from capturing them, even if you make the next move.

The two white stones marked with X's in Figure 16 are dead. Black can play A to put them into atari, and then B to capture them, and there is nothing that White can do. The marked black stones are dead, too, since White can play C and G to capture them. But the rest of the stones on the board are *alive*.

> Your stones are alive if there is no way for your opponent to capture them, even if your opponent makes the next move.

The big string of black stones has an eye at F, and so White would have to play both A and B to put them into atari before playing F. But White can't do that because of the suicide rule. Black can't play any of the points C, D, E, or G (by the suicide rule) and so none of the white stones can be captured either. At the end of a game, every stone on the board will be either dead or alive. The dead stones are removed and added to the stones that were captured during the game. In Figure 16, the two dead black stones will be removed, and so will the two dead white ones. This will make the board look like Figure 15. White has 2 black captives and 6 points of territory for a total of 8 points. Black has 2 white captives and 5 points of territory for a total of 7 points. White wins this game by 1 point.

Note that only *empty* points count as territory. The black territory in Figure 17 is worth 4 points. But if Black plays stone number 1 inside this territory, it will only be worth 3 points. So you should not play inside your own territory, because you will lose a point.

(4 points for Black) (3 points for Black)

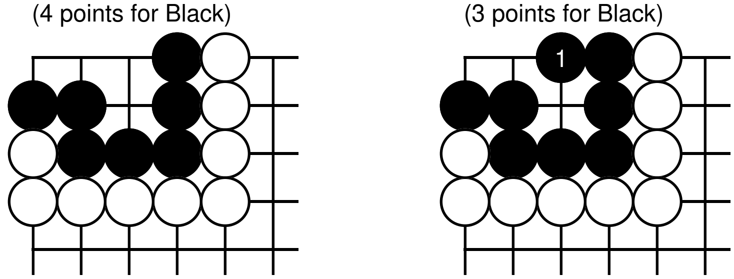
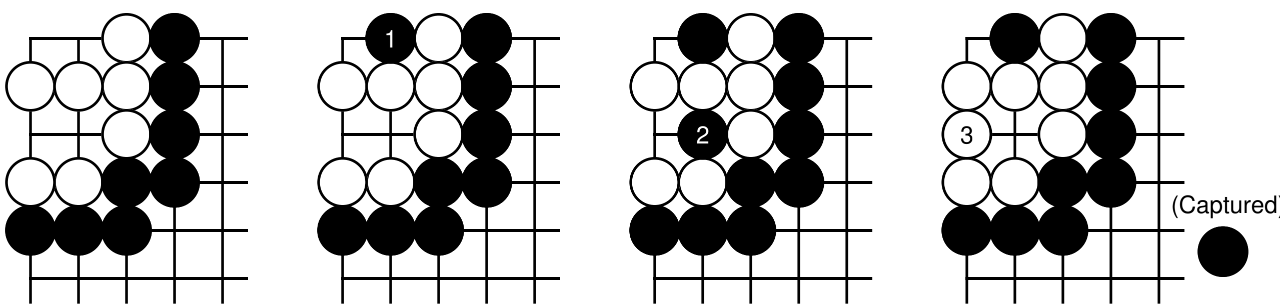


Figure 17:Playing inside your own territory

What if you play a stone inside your opponent's territory? In Figure 18, White's territory is worth 4 points. If Black plays stone number 1 inside this territory, White will simply ignore it. At the end of the game, the black stone will be removed, since it is dead. White will get the same 4 points of territory, plus one black captive, for a total of 5 points. Black has given White an extra point. So you will also lose a point if you play inside your opponent's territory.



(White has 4 points) (White has 5 points) (Black says "atari") (White still has 5 points)

Figure 18:Playing inside your opponent's territory

But sometimes you can play a stone which will make a threat, and your opponent will have to play a stone inside the same territory. In Figure 18, Black plays 2 inside White's territory and says "atari". White must play 3 to capture the invader and save the two white stones. Black gave White an extra captive worth 1 point, but White lost a point by playing inside this territory. So the score does not change. White still has 5 points (one dead stone still on the board, one captive, and 3 points of territory). The things to remember are:

- If you play a stone inside your own territory, you lose a point.
- If you play a stone inside your opponent's territory, you lose a point.
- If both players play inside the same territory, the score doesn't change.

During a game, both players try to surround territory, keep their opponent from surrounding territory, capture stones, and save their own stones from being captured. This is how points are earned. But when the entire board is divided into white and black territory, and all of the stones are either alive or dead, there will be nothing left to do which will give the players any more points. The dame (neutral) points can be filled in, but after that is done, any more moves will *lose* points because they will be played inside territory. When this happens, the players will both pass, and the game will be over.

Let's look at the game from the last section that ended with the ko fight. The final position is shown in Figure 19, and White has just filled in the ko with 10. It is Black's turn to play.

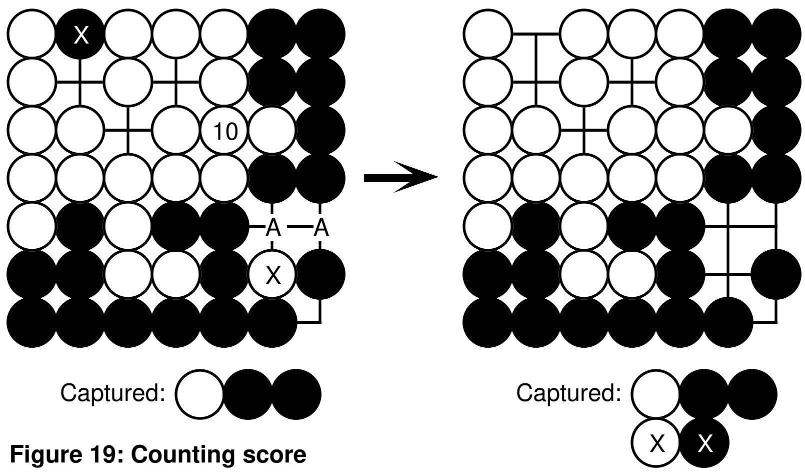


Figure 19: Counting score

Black does not want to play inside the black territory, there are no legal moves at all in the white territory, and there are no dame points to play, so Black must pass. White could play a stone on one of the points marked A, and say "atari", but Black would just capture the invading white stone by playing on the other point marked A. The score would not change because both players would have played inside the same territory. There is nothing else to do, and so White passes too. This means that the game is over, and the score can be counted. Although the rules state that both players must pass to end the game, it is usually not done that way. The players simply agree that the game is over. At the end of the game, the players are likely to say something like:

> "Well, that's all. The game is over."
>
> "Yes it is. Let's count the score."

The two stones marked with X's are dead in Figure 19, and they will be removed as captives. It is very rare for the players to disagree about whether stones are dead or not at the end of the game, but beginners may sometimes disagree. A simple way to settle any arguments will be given on the next page. In this game, White has 4 points of territory and 3 black captives for a total of 7 points. Black has 4 points of territory and 2 white captives for a total of 6 points. White wins by one point. In this game, the ko fight decided who would win.

7. Disputes: At the end of the game, the players may not agree on which stones are dead and which are alive. A simple method for settling such arguments is needed which will be fair to both players and which will not change the score. Suppose that White did not agree that the marked white stone in Figure 20 was dead. Black could prove that it was dead by actually capturing it, but then Black would lose one point, which would not be fair.

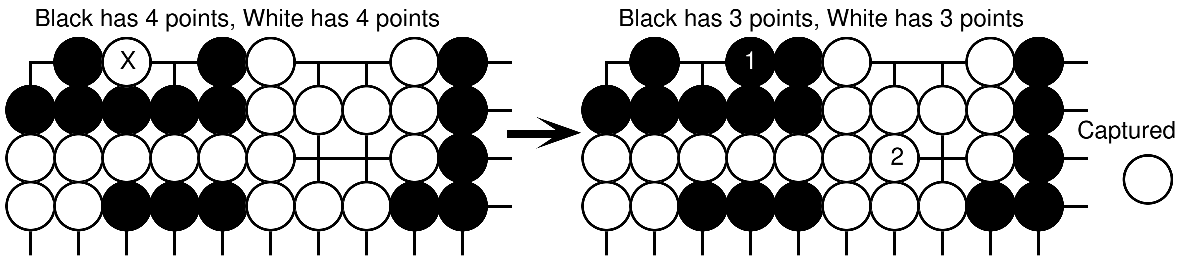


Figure 20: Settling a dispute

Here is a rule which will settle any arguments without affecting the score:

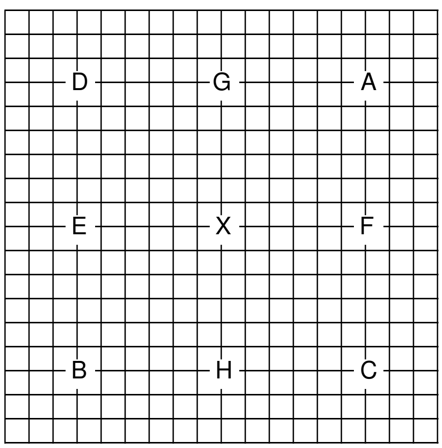
> **Rule 7 (Disputes):** If the players do not agree on which stones are dead at the end of the game, then they should resume playing with the following two additional rules:
> A) Both players must make the same number of extra moves.
> B) To pass, a player must hand a stone to the opponent as a captive.
> If any dead stones were removed from the board, they should be put back before resuming play. The player whose turn it was when the game ended should play first.

If it is the end of the game, and all of the dame have been filled in, then playing a move will always lose one point. Rule A makes sure that both players will lose the same number of points, and so the score will not change. Rule B makes sure that one point will still be lost even if a player passes.

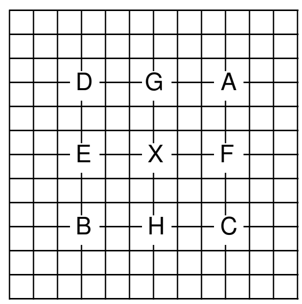
In Figure 20, Black will settle the argument by capturing the white stone. But now White must make a move, too. So White plays a stone inside his own territory (or passes and hands Black an extra captive). Both players have lost one point, which is fair.

IV. Handicaps and Ranks

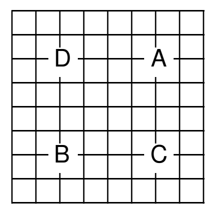
If one of the players is *stronger* than the other, a *handicap* can be given. The weaker player takes the black stones, and is allowed to make between 2 and 9 moves before the first white stone is played. (Black always plays 1 stone before the first white one anyway, and so the smallest handicap is a 2 stone handicap.) In China, Black may play these moves anywhere on the board, but in Japan they must be played on the *handicap points* or *star points* which are the nine points on the board marked with small black dots. In most other countries, the Japanese system is used. The places where the handicap stones must be played in this system are shown below.



19 x 19



13 x 13



9 x 9

Stones	Positions
2	A,B
3	A,B,C
4	A,B,C,D
5	A,B,C,D,X
6	A,B,C,D,E,F
7	A,B,C,D,E,F,X
8	A,B,C,D,E,F,G,H
9	A,B,C,D,E,F,G,H,X

Handicaps give Black a bigger advantage on small boards than they do on large ones. Every stone on a 13x13 board has about the same effect as two stones on a 19x19 board, and every stone on a 9x9 board has about the same effect as two stones on a 13x13 board. So if two players are evenly matched on a 13x13 board with a 4 stone handicap, then they should use an 8 stone handicap on a 19x19 board, and only a 2 stone handicap on a 9x9 board. On a 9x9 board, even a 4 stone handicap gives Black a huge advantage, and usually no more than 4 stones are given.

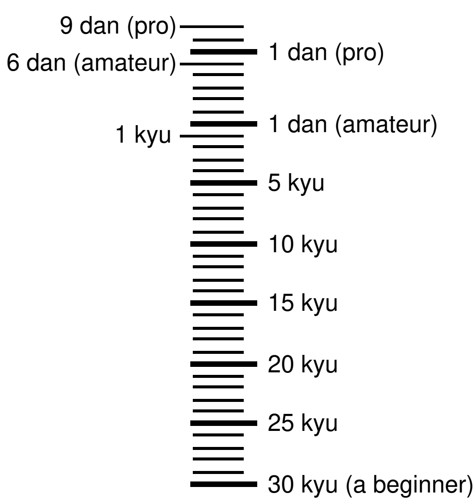
When no handicap is used, making the first move still gives Black an advantage of about 5 points. To make the game exactly even, White can be given a bonus or *komi* (ko-mee) of 5 points. White may be given 5 black captives before the game begins, or the 5 points can simply be added to White's score at the end of the game. In tournaments, the komi is often 5 1/2 points so that there is never a tie. When one player is just a little bit better, but not enough for a 2 stone handicap, then the stronger player will take the white stones but without any komi. This is like giving a "1 stone handicap".

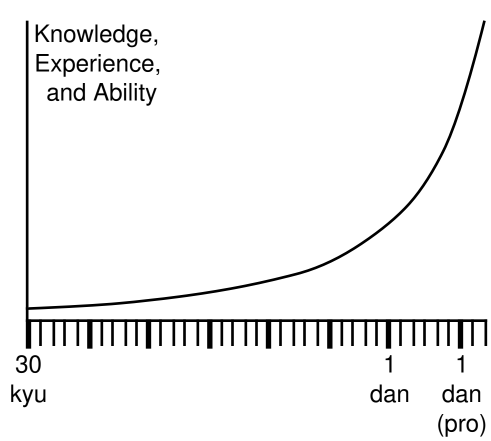
If two players play several games with each other, there is a simple way to find a good handicap. Begin playing with no handicap at all, or just guess what the handicap should be. After that, if the same player has won the last two games, change the handicap by one stone. If enough games are played, each player should win about half of them. If there is a larger group of players, however, then any two of them will probably not play each other often enough, and a better way is needed.

There is a system for ranking go players which originated in Japan and is now used in most countries of the world. A beginner who has learned the rules in the last section, but has not played any games yet, would have a rank of 30-*kyu* (pronounced “cue”) which is the lowest rank. As you improve, your rank rises to 29-kyu, 28-kyu, and so on. If you read the rest of this Introduction to Go, and play a dozen games or so, then you will likely be about 20-kyu. It is a little harder to reach 10-kyu: you will have to play a lot of games, and perhaps read a book or two about basic Go strategy. When you reach 5-kyu, you are getting quite good at the game, and when you reach 1-kyu, you are almost a master go player. The next rank after 1-kyu is 1-*dan* (or shodan in Japanese) which is a first-degree *master* player. (In sports like karate, a shodan wears a black belt.) Above 1-dan, there are 2-dan, 3-dan, and so on. The highest rank for an amateur is 6-dan. The number of ranks between two players gives the number of handicap stones to use on a full-size 19x19 board. So if a 5-kyu player plays a 9-kyu player, they should use a handicap of 4 stones. A 2-dan player would give a 4-kyu player 5 stones. A 3-kyu player would use the white stones with no komi against a 4-kyu player, and two players with the same rank would play with a 5 point komi.

Players obtain dan rankings by playing in official tournaments run by Go Associations in countries all over the world. Players may obtain kyu rankings from such tournaments, too, but more often they will just guess their rank by playing better players and seeing how many handicap stones are needed to give an even game. If you need a 7-stone handicap before you can beat a 1-dan player about half the time, then you are probably a 7-kyu. If you are able to give a 5-stone handicap to a weaker player, then that player is probably about a 12-kyu, and so on. Some people take ranks very seriously, but their main purpose is to give a fair handicap so that the game will be interesting and enjoyable for both players.

There are also *professional* go players. They have ranks from 1-dan to 9-dan, but a 1-dan professional player is about 1 rank higher than an amateur 6-dan (in other words, about the same as an amateur 7-dan would be). The professional ranks are also closer together than the amateur ones. A difference of 4 professional ranks is about the same as a difference of 1 amateur rank. Below is a scale showing all of the ranks in Go. As you rise up the scale, it gets more and more difficult to reach the next rank. It is very easy to improve from 30-kyu to 29-kyu but much harder to improve from 1-dan to 2-dan. It usually takes many years of playing full-time for a professional player to reach pro 9-dan.





V. Life and Death

The first thing that every Go player must learn, after the rules, is how to tell when stones are alive and when they are dead. Life-and-death struggles between enemy stones happen all the time, and they are one of the most interesting parts of the game.

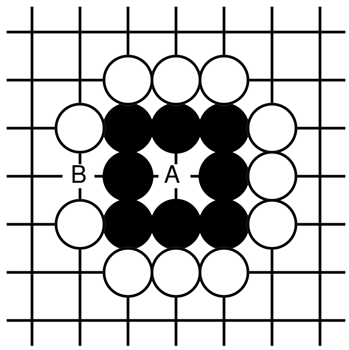


Figure 21: One Eye is Dead

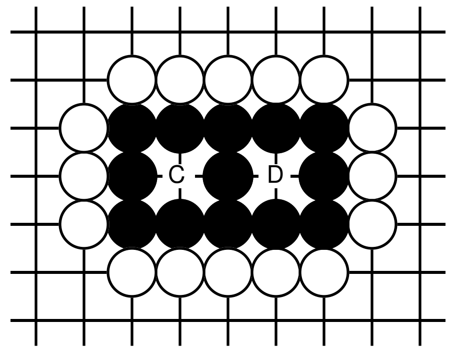


Figure 22: Two Eyes are Alive

In Figure 21 above, the black stones have an *eye* at A. (An eye is a single liberty surrounded by a string of stones.) As we saw before, White cannot play a stone into this eye because of the suicide rule, unless White first plays a stone at B to put the black stones into atari. Then White would be allowed to play inside the eye and capture the black stones. Since Black can't stop White from playing B and then A, these black stones are dead. But what if there are two eyes? In Figure 22, the black stones have *two eyes*. White can't play at C because that would not capture the black stones (they would still have another liberty at D). But White can't play at D either, for the same reason. So these stones are alive, and there is no way for White to ever capture them. This gives us the most important principle in the game of Go:

A group of stones is *alive* if it can make *two eyes*.

In actual games, things usually get a bit more complicated. Often, a player's stones will not all be connected together as they were in Figure 22. Instead, there will be several strings of stones gathered close together to form a *group* of stones. Sometimes these groups can form two eyes, and be alive. But something that looks like an eye may turn out to be a *false eye* if the stones are not connected, and the stones may be dead instead of alive.

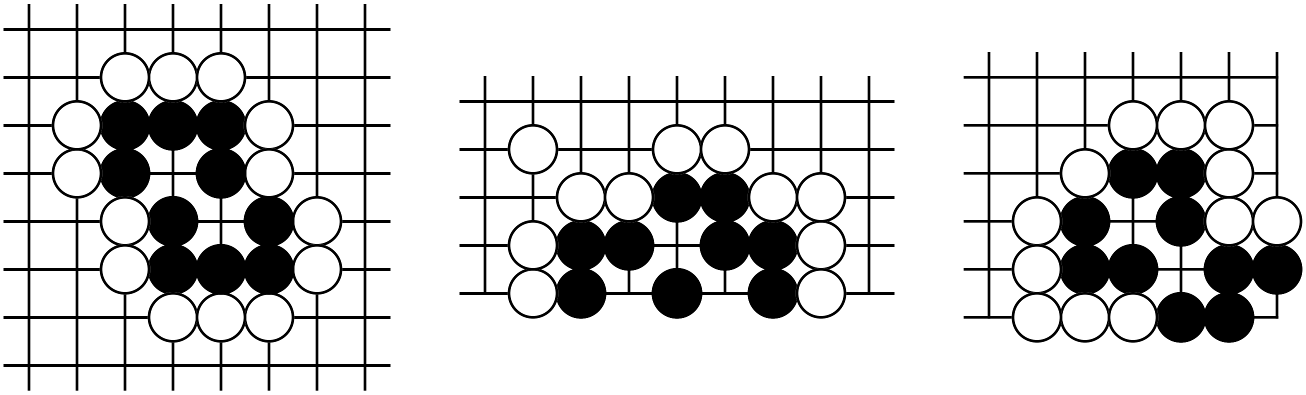


Figure 23: Alive Groups

In Figure 23, all of the groups of black stones are alive. Although each group is made up of two or three separate strings of stones which are not actually connected, each of these strings has two or three liberties, and White cannot capture any of them. The important thing is that *each* string of stones must help to form at least two of the eyes, and thus be protected from capture. But if any string of stones is next to only *one* eye, then those stones are not safe from being captured, and that eye is called a *false eye*.

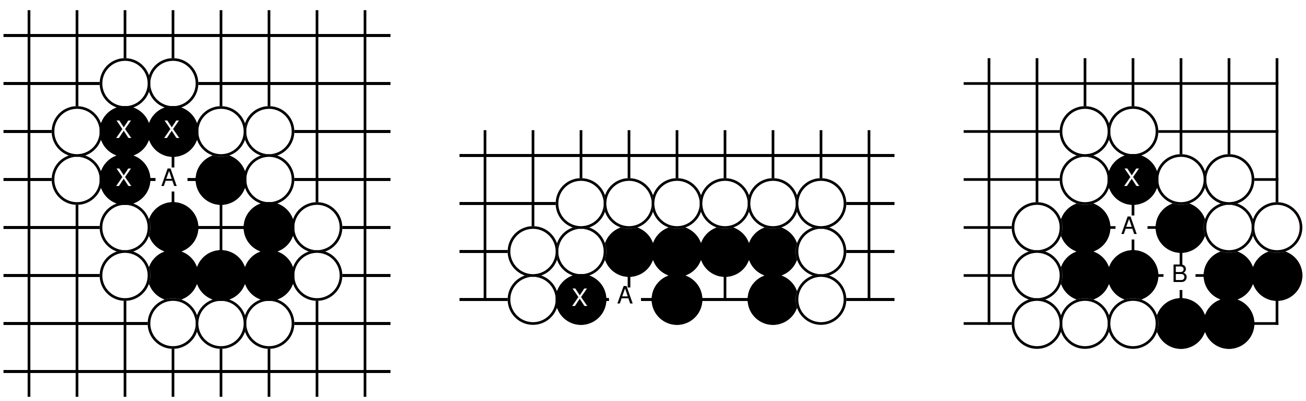


Figure 24: False Eyes

In Figure 24, the black groups look like they have two eyes, but they don't. The stones marked with X's are protected by only one eye (marked with an A), and in fact they are already in atari. White can play A to capture the marked stones, and so A is not a real eye, but only a *false eye*, and all of these groups of black stones are dead. You may think that there are ko fights in the last two groups, but these are not real ko fights, either, because Black has no way to win them. If Black plays at A to save the stone marked X (the usual way to win a ko fight), that will just put *more* of the black stones into atari (and give White an extra captive, too). In the last example, B also turns out to be a false eye, because some of the stones around it are not next to any other eye (A is not an eye, remember). This sort of chain reaction is common. If an eye turns out to be a false eye, then it no longer protects the stones next to it, and this may make *other* eyes that are next to *those* stones false, and so on. Every stone in a group must be protected by two real eyes.

Now we will look at what happens when there is a *big eye* that has more than one liberty in it.

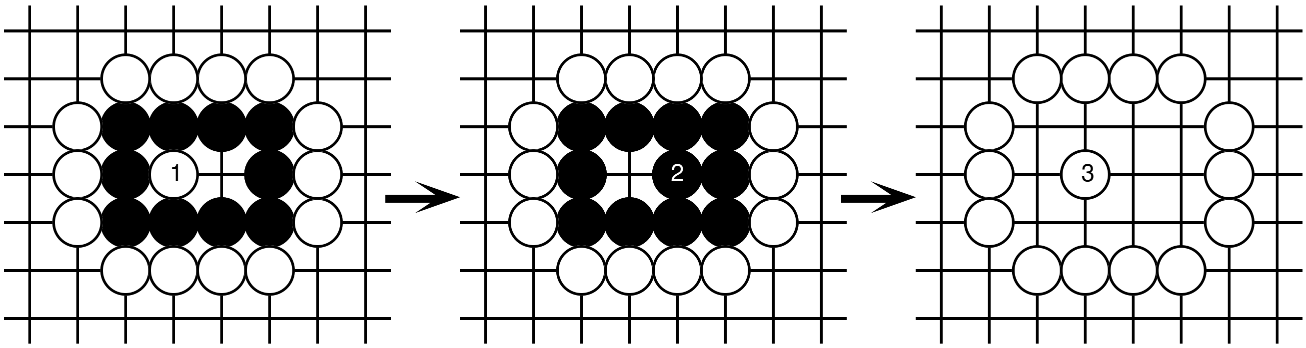


Figure 25: Two points in a row

In Figure 25, Black has surrounded two points of territory. But this is not the same as having two eyes, and the black stones are dead. White can play 1 and say atari. You may think that Black can get out of trouble by capturing the white stone with 2, but that doesn't help. The black stones are still in atari and White plays 3 to capture them. The only thing you need to remember is: the black stones do not have two eyes, and so they are dead. Two points in a row can make only one eye.

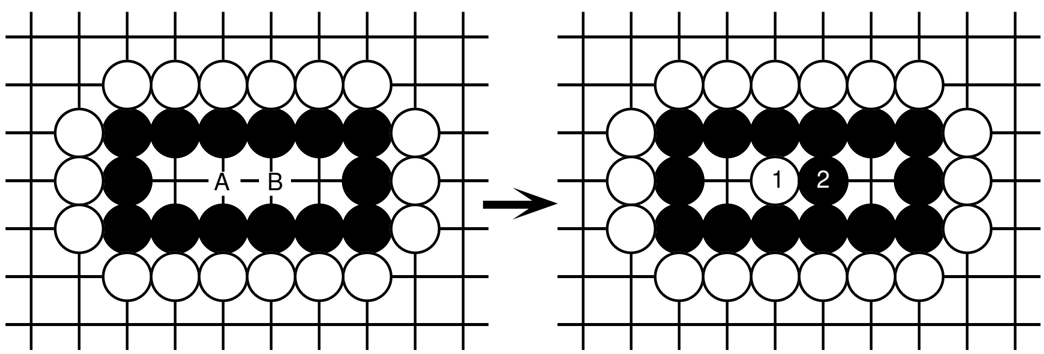


Figure 26: Four points in a row

In Figure 26, the black stones have surrounded four points in a row, and this time they are alive. They do not have two eyes yet, but they can easily make them if White tries to attack. If Black plays a stone on one of the points marked A and B, that will make two eyes. Since White can't play two stones at once, Black is safe. If White plays 1, Black plays 2 (or vice-versa), and White is stuck. To be alive, you must be *able* to make two eyes, but you may not need to right away. If you can surround a large enough piece of territory, then your stones will usually be able to make two eyes when they are attacked, and they will be alive.

So a group of stones that surrounds two points has only one eye, and is dead, but a group that surrounds four points in a row can always make two eyes, and is alive. What about three points in a row?

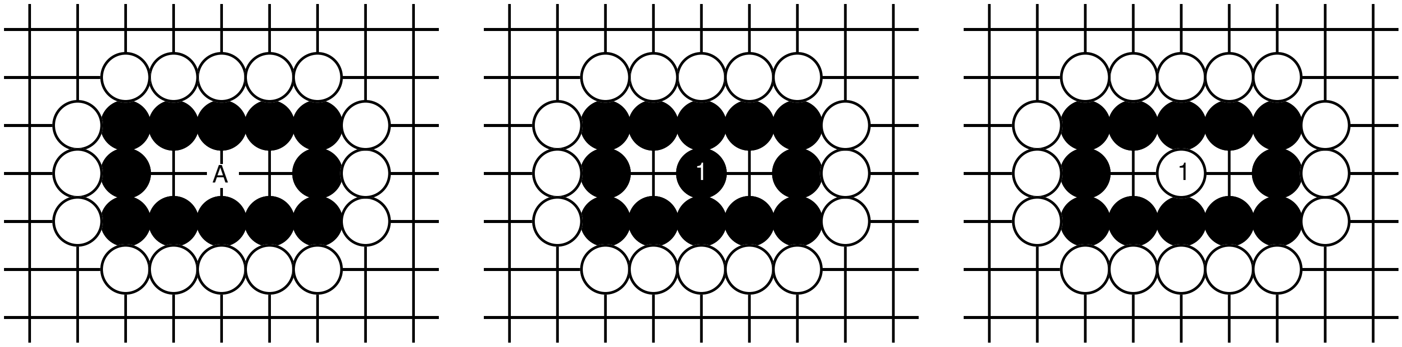


Figure 27: Three points in a row

In Figure 27, Black has surrounded three points in a row. The middle point (A) is the *vital point*. If Black plays A, then there are two eyes and the black stones are alive. But if White plays A then the black stones can't make two eyes and they are dead. The white stone may look like it is in trouble, but that doesn't matter. The only important thing is that the black stones can't make two eyes, and so White will be able to capture them.

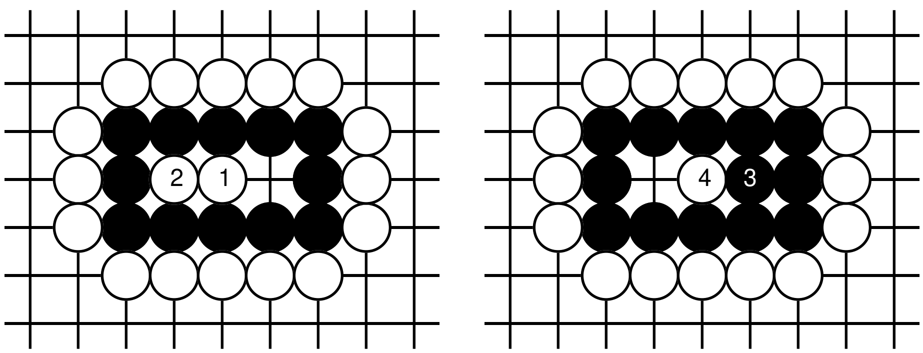


Figure 28: Making the capture

If White wants to capture the black stones, then 2 will put them into atari. Black may capture the two white stones with 3, but this doesn't help. White plays 4 and says "atari" again. Capturing 4 would be a waste of time, since that would not even get the black stones out of atari. Black will be captured by White's next move.

Here are the definitions of "alive" and "dead" that were given earlier:

> **Your stones are dead if you cannot stop your opponent from capturing them, even if you make the next move. Your stones are alive if there is no way for your opponent to capture them, even if your opponent makes the next move.**

The black stones in Figure 27 are not dead, because Black can save them. They are not alive, because White can capture them. These are *unsettled* stones because the question of whether or not they will live or die is not *settled* yet. It depends on who makes the next move. At the start of a game, most of the stones on the board will be unsettled. But by the end of the game, every stone on the board will be either alive or dead.

It is not always easy to tell whether a group of stones is alive, dead, or unsettled. Sometimes even a beginner can see the answer, and sometimes it is so difficult that even a professional can be fooled. There is one famous problem that some of the best players in the world could not solve. If you are not sure whether or not a group of stones is alive or dead, then go ahead and try to save them or kill them. This is how you will learn to play Go. But if you can see that a group is already alive or dead, then you should not waste a move trying to kill a group that is alive, or save one that is dead. Instead, you should play somewhere else on the board where you can gain some points.

Here are three simple life-and-death problems. In Figure 29, one of the black groups is alive, one is dead, and one is unsettled. Can you tell which is which? The answers will be given at the bottom of the page, but please try to figure it out for yourself first. Go is a game for people who like to solve this kind of puzzle. Remember that the only important thing is whether or not two eyes can be made.

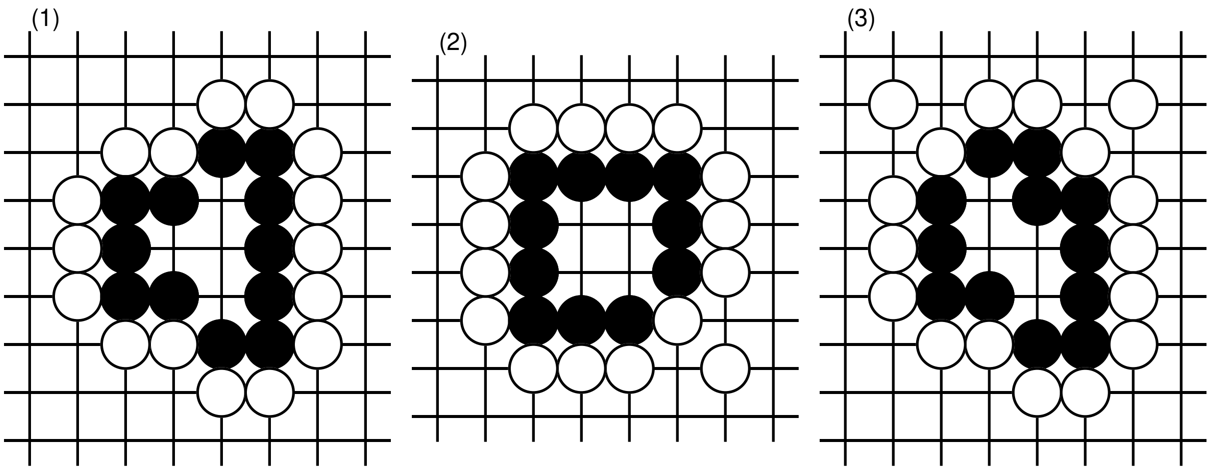


Figure 29: Three life-and-death problems

The stones which are surrounding some territory are often not connected together into a single string of stones. It is important to make sure that none of these stones can be cut off and captured. The black group in Figure 30 will be in trouble if White plays A and says “atari”, since that will cut off and capture 3 black stones, and the rest will not be able to make two eyes. So Black should play A to connect the stones together. Then they will be alive because they will have plenty of room to make two eyes.

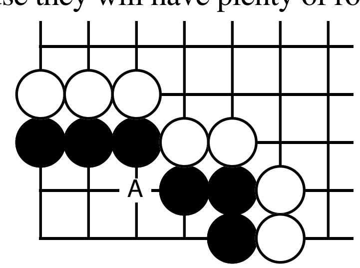


Figure 30: Must Black Connect?

Answer to the problems: Group number 1 is unsettled. The middle point is the vital one. Group number 2 is dead. Even if Black plays next, White can stop two eyes from being made. Group number 3 is alive. Black has two different ways to make two eyes.

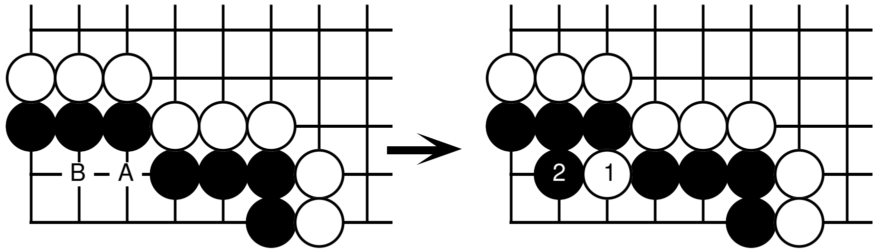


Figure 31: Must Black Connect?

In Figure 31, Black is in no danger. The black stones are alive, and they have surrounded 8 points of territory. If White plays 1 at A to try to cut the black stones apart, then Black will play 2 at B and this time it will be the white stone that will be in atari. The white stone cannot escape, and the black stones can easily make two eyes. Also notice that Black still has 8 points (one dead white stone and seven points of territory). So this is a good move for White to save as a ko threat. It doesn't cost White any points to play it, and Black has to play a move here, too, or his whole group will die.

There is no magic way to tell when you have to connect your stones together, and when you do not. You should watch out for moves that your opponent can use to separate your stones and capture them, and you should look for ways to cut off and capture your opponent's stones, too!

There are ways for stones to be alive without making two eyes, but they do not happen too often. Sometimes, two groups of stones will get into a race to see which one can capture the other first. If the race is close enough, it is possible that neither one will be able to capture the other.

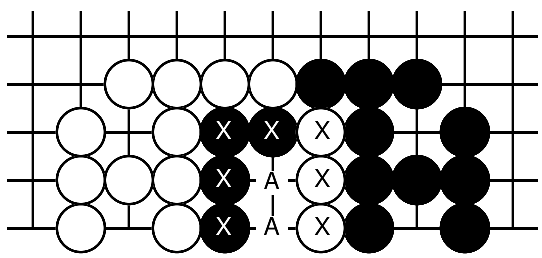


Figure 32:A seki

In Figure 32, the four marked black stones are cut off and surrounded, but so are the three marked white ones. Each of these two strings of stones has two liberties left–the points marked A. But neither player can play there without putting *both* strings of stones into atari at the same time. This is called a *seki* (seh-kee) or "mutual life". Neither player can ever capture the other's stones, and so all of these stones are alive. The two points in between (A) are dame (neutral) points which will not count as territory for either player at the end of the game. Seki positions can be very complicated, but it doesn't happen too often. Most of the time, at the end of the game, the stones that belong to groups with two eyes are alive, and the rest are dead. It is very important to plan ahead and make sure that all of your stones will have room to make two eyes before the end of the game.

VI. A Sample Game

In this section, a complete 9x9 game will be presented. During the game, some of the important principles of play in Go will be given.

In Figure 1, Black plays the first move in the corner of the board. In Go, it is easiest to make territory and eyes in the corners, where the edges of the board are there to help. The sides of the board are the next best place to play. It is hardest to make territory and eyes in the centre of the board. So the players usually play the first few moves in the corners, usually on the 3rd or 4th lines from the edge. Black has chosen to play on a "3-3 point" (3 lines from the edge in both directions). It is also common to play on the 3-4, 4-4, 3-5, and 4-5 points on a full-size board, but the 3-3 points are probably the best on a 9x9 board. White plays 2 on a 3-3 point, too. Each player has now claimed one corner of the board and hopes to make territory there. Black plays 3 on a 4-4 point to try to take a bigger piece of territory, but White decides that Black is being too greedy, and *invades* this corner with 4. Black will try to surround this white stone, and White will try to escape or make two eyes to live in the corner.

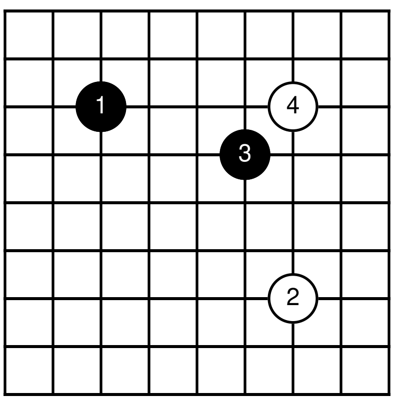


Figure 1: moves 1-4

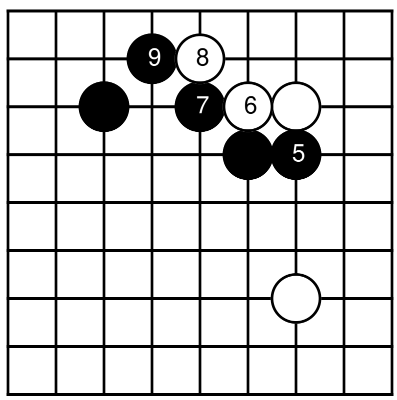


Figure 2: moves 5-9

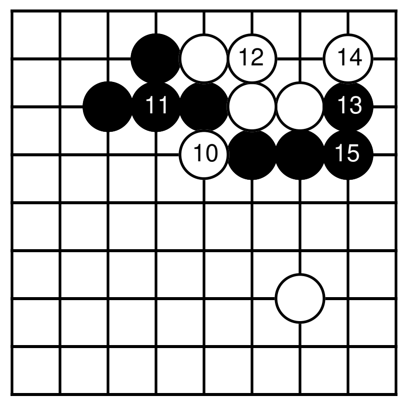


Figure 3: moves 10-15

Black plays 5 to try to trap the White stone in the corner, and also to make sure that the two white stones cannot be connected together. This is one of the most important principles in Go: try to keep your own stones connected together, and your opponent's stones separated. White plays 6 to make his stone stronger and to try to surround enough territory to make two eyes. Black blocks the white stones with 7. White tries to keep going with 8 but Black blocks the way again with 9. Now both players have to watch out because their stones are not solidly connected together.

White plays 10 and says "atari". Black plays 11 to save the black stone, but White has *cut* the Black stones into two pieces. White 10 is called a *cutting stone*. But White's stones are not connected, either. If Black could play 12, he would put 8 into atari, and capture it. So White plays 12 to connect his stones together. Black plays 13 to surround the white stones even more, and White blocks the way with 14. Now it is Black who must connect with 15. (If White could play 15, it would capture 13 and make it easy for the white stones to live. Now White is sealed into the corner, and must try to find a way to make two eyes. The white group is not dead yet, but it is not alive either.

White plays 16 to make an eye, and hopes that there will be room for a second eye on one side of 16 or the other. Actually, this group is still not quite alive, as we will see a little later in the game. But Black cannot find a good way to attack, and decides to play 17 to put the white cutting stone into atari. This is a very good idea. Can the white stone get away? No, beacuse it is caught in a *ladder*. If White tries to get away, Black will be able to play atari again and again until the white stones are trapped against the side of the board and captured. White sees this and wisely decides not to try to save this stone. Instead, White plays 18 to try to grab some territory in the last corner. Since White invaded the top right corner and made a group which is (almost) alive, Black decides to try the same trick with 19. This is not a good idea. This stone is on a 2-2 point, and is far too close to the corner to make two eyes. White plays 20 to surround this stone, Black tries to get away with 21, and White blocks the way with 22. The two Black stones are now trapped, and their only hope lies in some kind of counter-attack on the white stones that are surrounding them. So Black plays 23 to cut the white stones into two pieces in the hopes of capturing one or the other. This is a good type of strategy which often works.

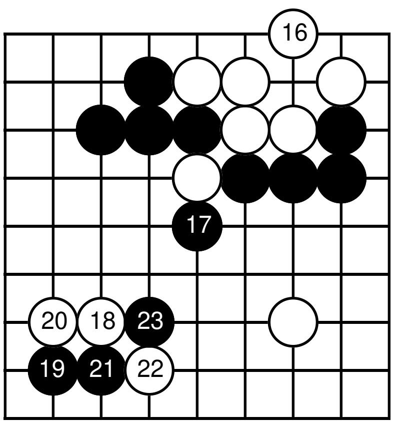


Figure 4: moves 16-23

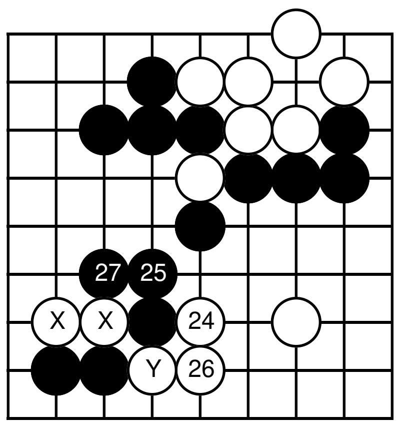


Figure 5: moves 24-27

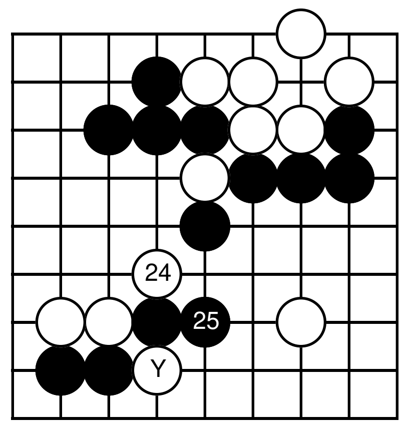


Figure 6: Another idea for 24

White sees that black 23 has only two liberties, and so White happily plays 24 and says “atari”. But this turns out to be a big mistake. When Black plays 25 and gets away, it is the white stones that are in trouble. If Black could play 26, then the white stone marked with a Y would be captured easily, and this would save the two black stones in the corner, keep the white stones separated, and cause all kinds of touble for White. So White plays 26 to connect his stone before Black can capture it. But then Black plays 27 and the two white stones marked with X’s are in trouble. There was no way for White to defend both sides at once. So 24 was a bad move. Should White have played 24 as shown in Figure 6, and put the black stone into atari from the other side? No, because when Black escapes with 25, the white stone marked Y is very weak. White can save it by playing a stone to the right of Y, but after that things will get complicated. There is a simpler and better way for White to handle this corner. Try to find a better move before looking at the next page.

White should simply have *extended* with 24 as shown in Figure 7, which makes the white stones stronger without helping the black stones get stronger, too. This is another important Go principle: the best way to attack your opponent's stones is to make your own stones stronger. Beginners like to say "atari" and do it every chance they get. But it is often a bad idea. In this game, it just made the black stone stronger without helping the white stones at all, which is exactly the opposite of what White needed. White 24 in Figure 7 strengthens the white stones at the bottom *and* it attacks the lone black stone, too. Now if White could play atari at 25, the Black stone could not get away (try it and see), and so Black must defend it by playing 25 just the same as in the actual game. But now White has only one side to worry about, and 26 is a good move which will prevent Black from capturing the white stones on that side. The marked black stones in the corner are as good as dead.

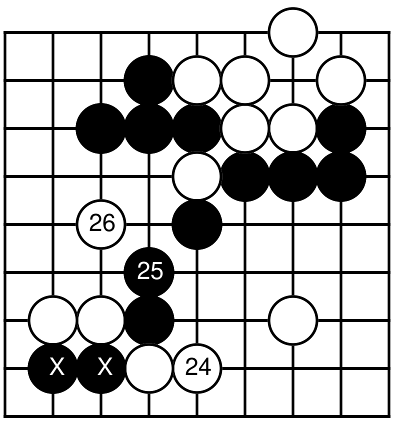


Figure 7: A better idea for 24

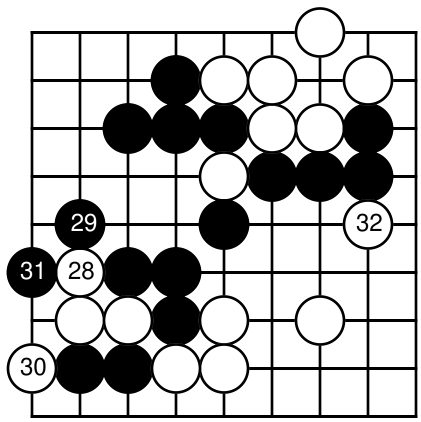


Figure 8: moves 28-32

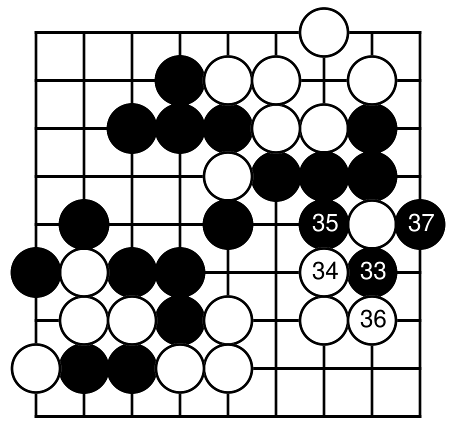


Figure 9: moves 33-37

Now that we have looked at White's big mistake, let's get back to the actual game. In Figure 8, White tries to get away with 28, but this just adds another dead stone to the group. Black block the way with 29. White tries to capture the black stones in the corner with 30, but it is too late. Black plays 31 and says "atari", and the white stones cannot get away. Rather than waste any more stones, White decides to play somewhere else. White 32 tries to get as much territory as possible in the corner. But it is another mistake. Another important rule to remember is: don't play too close to a strong group of enemy stones.

Black plays 33 which traps the white stone against a solid wall of black stones. White counter-attacks with 34, but 35 puts the white stone into atari, and it cannot escape. White plays 36 which keeps Black from coming any further into White's corner, and it also puts 33 into atari. Black plays 37 to capture the white stone and save the black one. The board has now been divided up into territories. White has a small group in the top right, and a bigger one in the bottom right. Black has most of the left side of the board, and perhaps a point or two on the right side as well. It is important to remember that you will get most of your points by surrounding territory. Beginners spend most of their time trying to capture enemy stones, or save their own, but this is not the main object of the game. In a full-size game between experienced players, each is likely to have more than 50 points of territory, but only a handful of capives (unless there has been a long ko fight). In this game, Black is likely to win because of all the territory on the left side.

The players must now look for ways to increase their own territory and reduce their opponent's. White plays 38 which threatens to take a bite out of Black's territory. If White could play 39, it would be a *double atari* and Black could not save everything. So Black plays 39 first to prevent White from playing there. White plays 40 to stop Black from playing there and creeping into the corner. Black then plays 41 to try to make a little more territory and take some away from White. Now the white stones are in danger of dying, and White plays 42 to make two eyes. If Black could get a stone at 42, then there would be no way for the white group to make two eyes, and they would be dead. But now Black sees another way to try to kill the white stones, and plays 43 to make one of White's eyes a false eye. This starts a ko fight in the corner. If Black can win this ko fight, all of the white stones in this corner will die because they will not have two eyes.

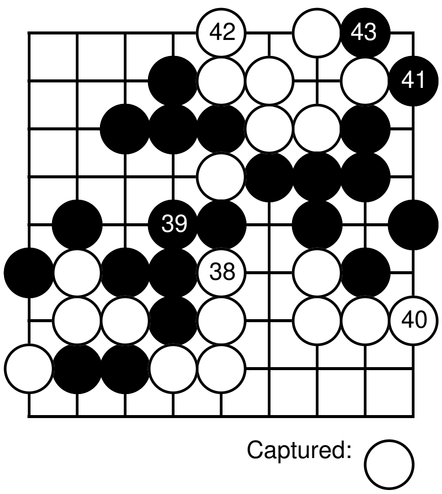


Figure 10: moves 38-43

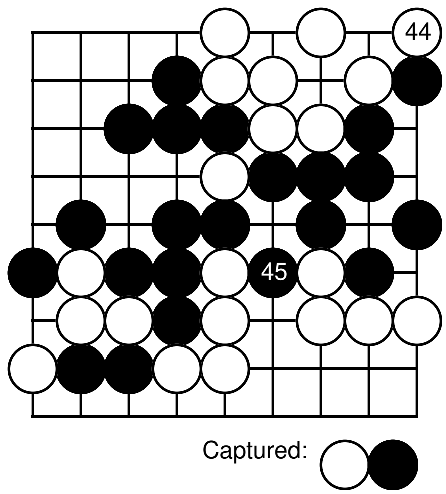


Figure 11: moves 44-45

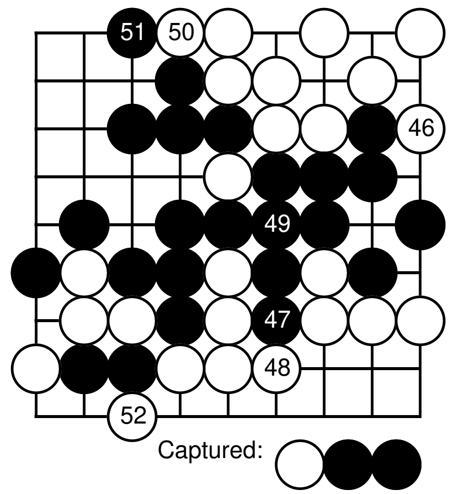


Figure 12: moves 44-45

White can capture 43 immediately with 44, since that does not cause a repetition of a previous position (there has never been a stone in the corner before). Now Black would like to capture 44 right away, but this is a ko fight, and Black must look for a ko threat to play. Unfortunately, Black hasn't got any good threats. He plays 45 which threatens to reduce White's territory a bit, but the life-and-death struggle in the top corner is far more important, and White ends the ko fight right away, not by filling it in, but by capturing another black stone with 46. Black creeps a little further with 47, but 48 puts the two black stones into atari, and 49 saves them. Now White tries to sneak into Black's territory with 50, and 51 plugs the leak. White plays 52 to try to get as much territory as possible on the bottom edge, and also says "atari". But the black stones can be rescued. What move can Black play to save them?

Black captures three white stones with 53 and saves the two black ones. Those three white stones have been dead for a long time, but until now Black has never had a reason to capture. White plays 54, and Black makes a ko with 55, putting two white stones into atari at the same time. White saves them by playing 56. Now Black could play in the corner to end the ko, but this is not the right idea. With 57, Black gains one sure point on the right side, and *still* has a chance to win the ko later.

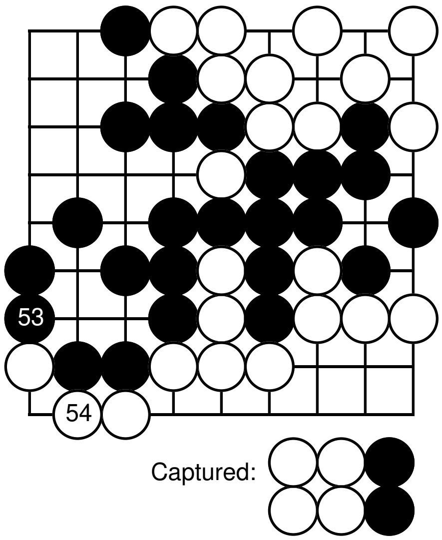


Figure 13: moves 53-54

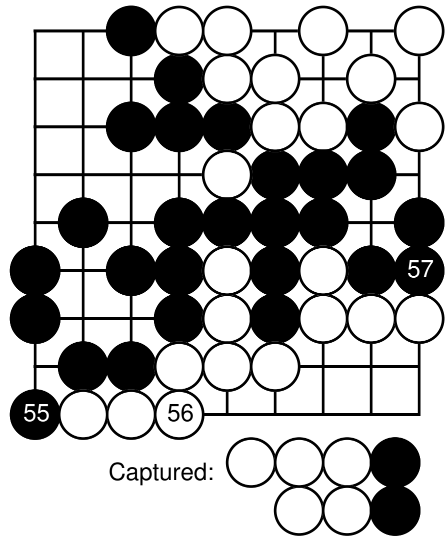


Figure 14: moves 55-57

White takes back the ko with 58 but Black plays 59 and says “atari”. If White ends the first ko fight, Black will start a second one. White wisely plays 60 to make sure that the white stones in the top right corner stay alive.Since the ko threat was answered, Black takes back the ko with 61. White finds a nice threat with 62, which puts a black stone into atari and threatens to take a big bite out of Black’s territory, and 63 defends against this threat.

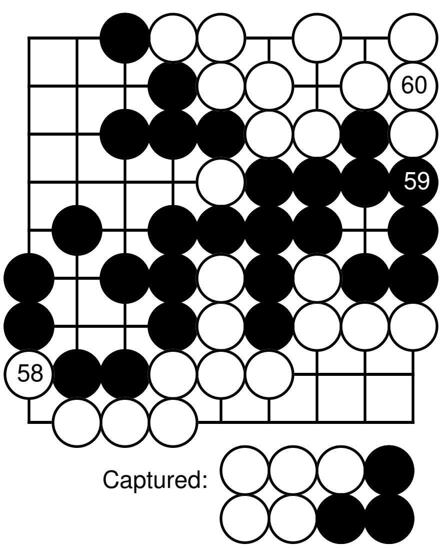


Figure 15: moves 58-60

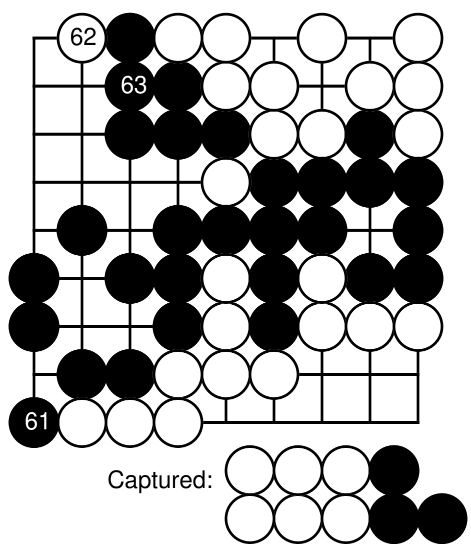


Figure 16: moves 61-63

White recaptures the ko with 64, but Black has a nice threat, too, with 65. If White ignores it, then a black stone at 66 would capture four white stones, and the rest would die, too, because there would be no place to make two eyes. So White answers the threat with 66 and Black takes the ko with 67. Now White has run out of threats. White passes and lets Black fill in the ko with 69, ending the game.

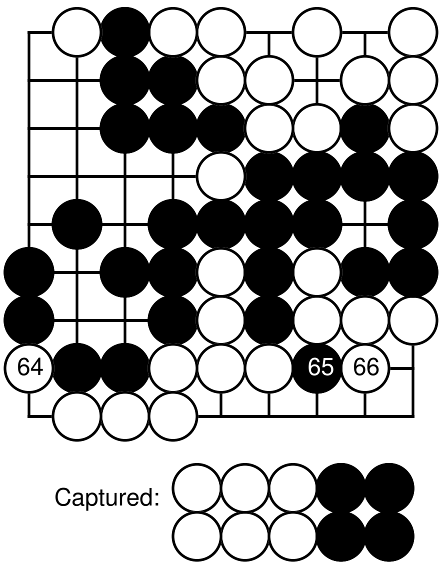


Figure 17: moves 64-66

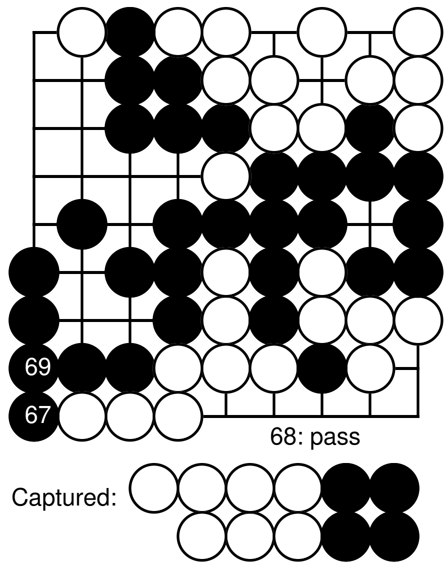


Figure 18: moves 67-69

There are two dead white stones on the board, and one dead black one, which are removed as captives. White has 10 points of territory (3 at the top and 7 at the bottom), and 5 captured black stones, for 15 points. Black has 17 points of territory and 9 captured white stones, for 26 points. Black wins the game by 11 points. There is a traditional way to count the score which makes it easier. First, the captured black stones are used to fill up the black territory, and the white stones are placed in the white territory, as shown in Figure 19. Then the remaining territory is rearranged into rectangular shapes to make it easier to count, as shown in Figure 20. Black has 2x6=12 and White has only 1, so Black wins by 11, as before.

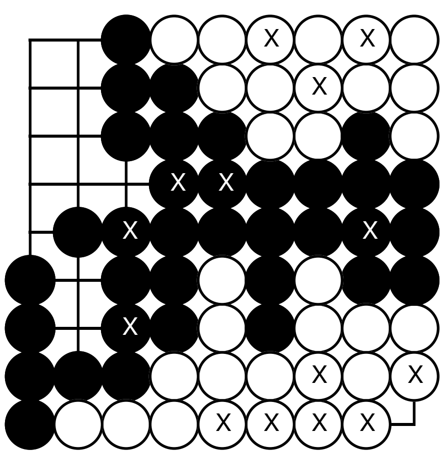


Figure 19: Filling in territory

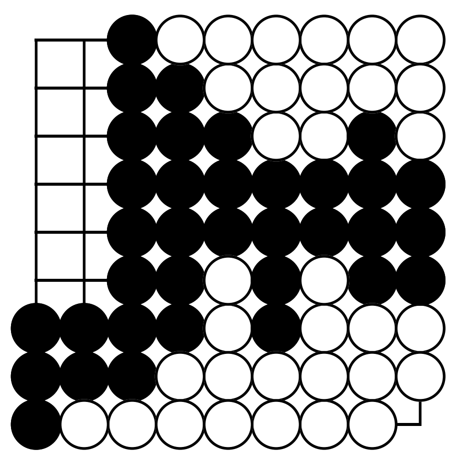


Figure 20: Making counting easy