

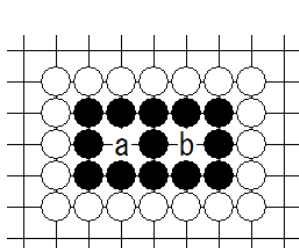
Chapter 4 Life and Death

3000 Life and Death

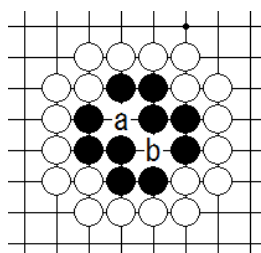
Towards the end of a game, black stones and white stones will form a certain number of groups. And each group will end up as a group which is dead or a group which is living. The group uncertain during the course of a game will eventually die or live.

Then you will ask “In what situation, can you say that the group is living? In the following sections you will see typical life and death patterns.

3010 Living Patterns

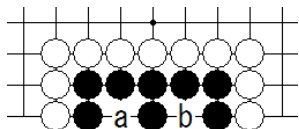


living

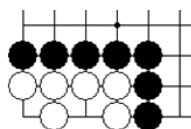


This is also living

In these charts, a group of black stones is completely surrounded by white stones. But here, the white is not allowed to make a move at either “a” or “b”, because that would be a suicide move not allowed by the rule. This means that, for the white, it is impossible to kill the group of black stones. In other words, the black group is living.



living

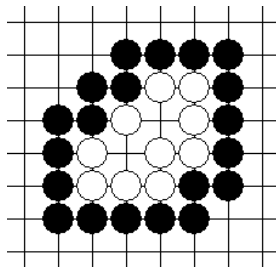


living

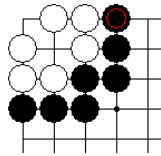
Here you will see more patterns of life or survival. In the left hand chart, the black group is living at an edge since white cannot make a move at “a” or “b”. The right hand chart shows you a pattern of a group of only six white stones which is living at a corner.

Looking at the above charts, you will recognize that all the points shown as “a” or “b” are points surrounded by stones of one color and the player of the other color is not allowed to place a stone at that point except in the case of capture(killing the opponent’s whole group of stones).

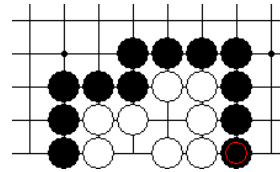
These points shown as “a” or “b” are called “eyes “. The eye is an important concept to appreciate life and death which we will explain more in detail later. Looking at the above examples, you will recognize that a group of stones are living if they have two separate eyes. Here are a few more examples you will be able to check.



living



living

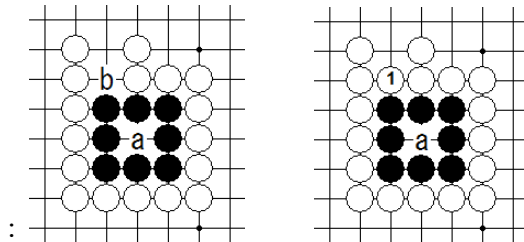


living

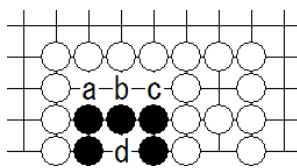
In the above charts, the groups of white stones are living with two eyes as you can see.

3020 Dead Patterns

If a group of stones has formed one eye and cannot form another eye, what will happen?



The chart on the left shows a pattern in which the group of black stones has succeeded in forming one eye (“a”) but failed to form the second eye. At this point, white is not allowed to make a move at “a”, since that move is a suicide move not allowed by the rule. However white can make a move at “b” at any time without a problem. The result after the move “b” will be the pattern shown in the right hand chart. After the move at “b”, white is permitted to make a move at “a” to kill all black stones. You should remember that the rule says that you are allowed to make a suicide move if it is killing the opponent’s stone or group of stones at the same time. Thus it is clear that the white player can kill black stones at any time. In this case, the black group has no way to survive and we say the black group is dead.



At this point, we shall add an important note on Japanese rules and Chinese rules concerning dead stones.

Look at the chart shown above. In this situation, the group of black stones has no possibility to bring it into a survival pattern with two separate eyes. However, the black group still maintains four breathing points from “a” to “d” and still breathing there, yes. They are not completely dead in the sense that they are suffocated. In other words, white needs four more moves from “a” to “d” to make black stones suffocated completely.

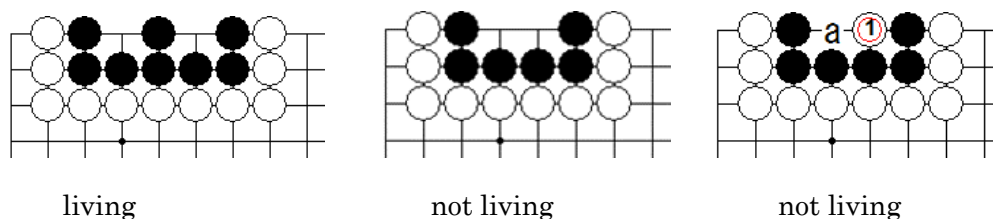
At the end of a game, the time will come when black or white player has no moves to

make on the entire board. At that point, in Chinese rules, the white's moves at "a", "b", "c", and "d" will not change the score since your territories and your stones are counted exactly the same as your points. Thus in Chinese rules, the white will be happy to play "a" to "d" if that helps to make the situation clearer to both players. These additional moves are harmless in Chinese rules. However, in Japanese rules the story is different. In the Japanese rules, it is stated that dead stones (stones which is impossible to be brought to a survival pattern) may be removed from the board without actual moves to capture such stones by suffocation. This means that the white can remove black stones without playing "a" to "d". This is the special article of the Japanese rules which is rather difficult for the beginners to understand, if it is not clearly defined at a certain stage. This is the clause in which it is expressed that "The prisoners are regarded dead at the end of the game." By this clause, the white can remove black stones without playing "a", "b", "c" and "d". If white actually continues moves at "a", "b", "c" and "d", each such move will reduce the size of the white's territory by one point, as you will be able to calculate easily.

Interestingly, this difference of the two rules normally does not make much difference in scoring except one point when the game ends with the blacks last move. But it is evident that Chinese rules are easier to understand for beginners, while, under Japanese rules, beginners must learn the concept of life and death, eyes, false eyes (yet to be discussed), moratorium (yet to be discussed), etc. Otherwise he is unable to determine if additional moves are needed or not to kill the opponent's group of stones.

3030 Group of stones with an eye larger than one point eye.

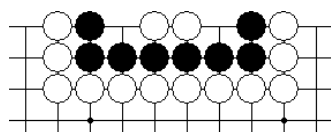
To understand life and death, it is important to learn precisely what "an eye" means.



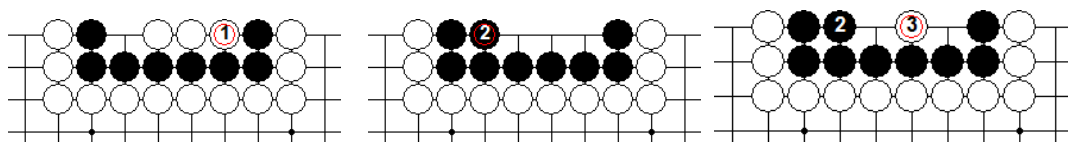
The left hand chart shows a typical survival pattern and the middle chart is very similar to it in that black maintains two points territory inside the group of stones. However there is a big difference! How?

In the middle chart, white is permitted to make a move at one of the two vacant points because that stone can breath from the neighboring vacant point. The right hand chart shows the result after the white's move (1). The stone (1) is able to breath at "a" and is not suffocated as yet. However, at the next turn of the white's, he can play at "a" to kill all black stones. Right after white's (1), black can play at "a" to capture (1), yes, but then white is able to play at (1) again to capture all black stones! This means that the middle and right hand charts show that black groups can not be brought to a survival pattern. The conclusion is that they are dead.

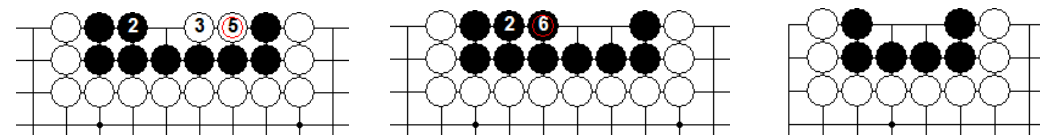
Lastly, we will see a little more complicated pattern. We assume that it is not too difficult to confirm it as follows.



The black has a pretty wide territory and there are two white stones inside it. But in this case, the black group is not living. The following charts will show you how it should go by further moves.

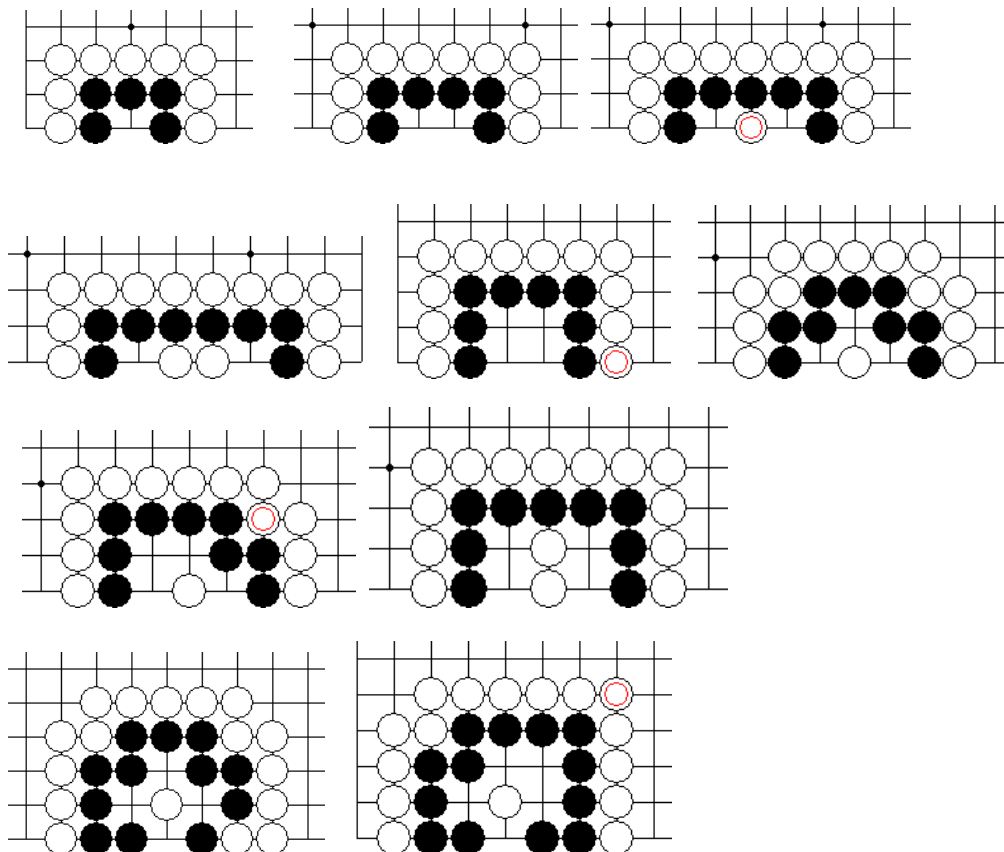


The black has no valid move to play, but white can play (1) and the black must capture three stones by (2). Then white can play (3) and then black has no valid move to play.



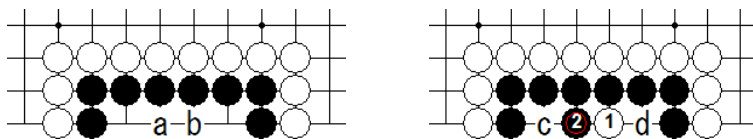
Black will play somewhere else and white can play (5). The black can capture two stones by (6), yes, but the result is exactly the same pattern as the death pattern already discussed like this pattern shown in the right hand chart.

Here we will show you various patterns at which there is one eye only. They are all considered death patterns.

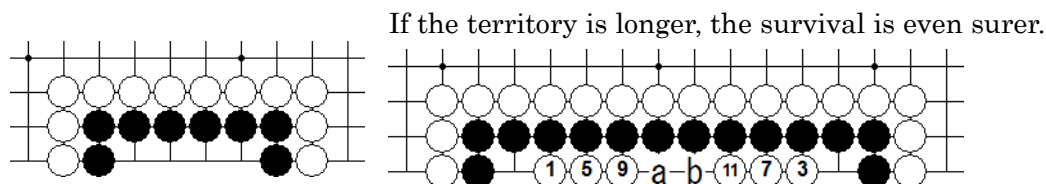


3040 Large Territory

When a player succeeds in forming a group of stones with a fair size of territory in it, it is likely that survival is well assured. Let us confirm it with a long territory.



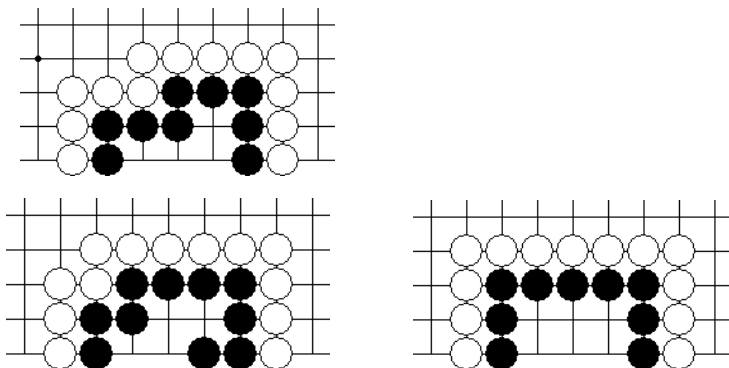
The chart on the left shows a group of stones with four straight vacant points inside the group. This territory is long enough to ensure survival. Black has only to remember that he should play “a” or “b”. For example, if white tries to remove at “b”, then black can play “a” and the result after these two moves would be like the pattern shown in the chart on the right. As you can see, white cannot play at “c” or “d” since these two moves are suicide moves for the white and not allowed by the rule. Thus this is a typical survival pattern.



Look at the chart above where the black's territory is 10 points long! In this case, white is free to play such moves as (1) to (11) but black need not respond to such moves. If black remembers he must play either “a” or “b” to have two separated territories, this long group of black stones are sure to be alive. Also it is important for you to be able to count that the black has 16 points in the result of white's (1) to (11) in Japanese rules. It was keeping 10 points before (1) to (11) which means moves from (1) to (11) were all moves of negative values for the white player.

As this example shows, if the territory is large enough, the group forming the territory is quite sure to survive.

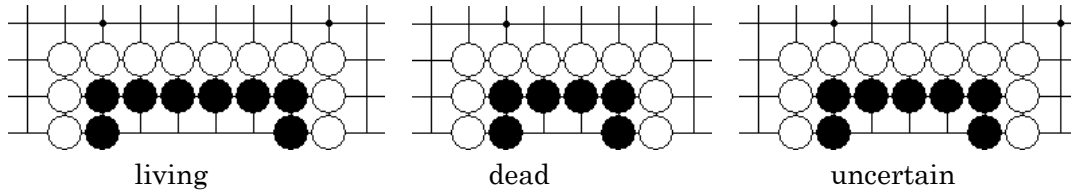
Here are a few examples of survival pattern



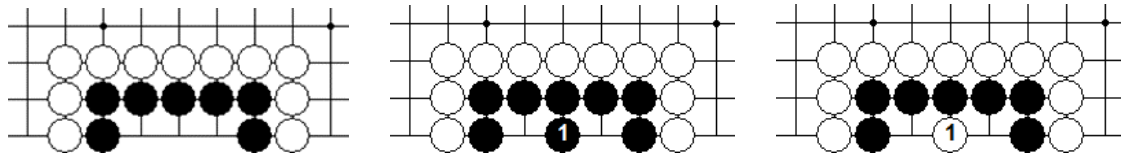
3050 Uncertain Patterns

As we have discussed, if a group of stones have a territory large enough, the group is living, and if the territory is too small, the group is dead. Between these apparent

cases there are patterns which are considered uncertain



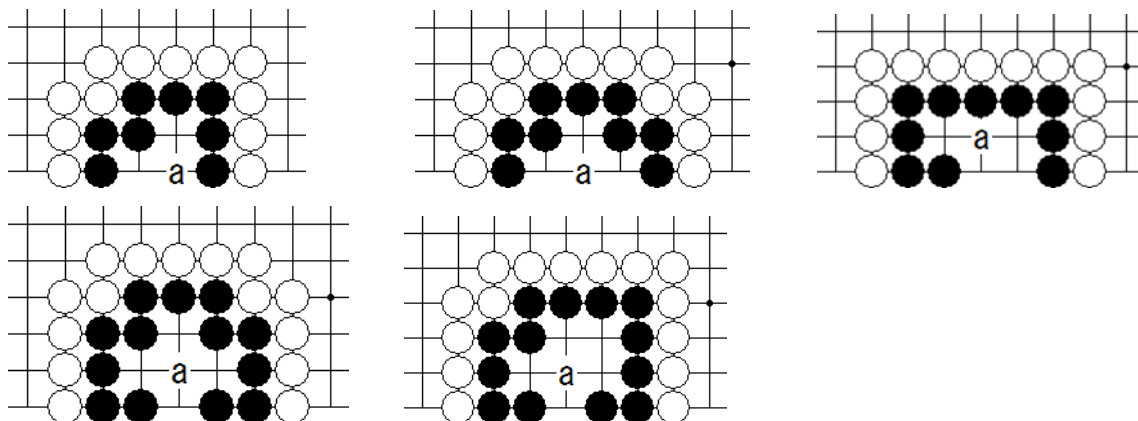
As we have discussed, the left hand chart shows a group of black stones living with 4 point territory. The middle chart shows a group of black stones dead with 2 point territory. The right hand chart shows a group of black stones which is uncertain. Why uncertain?



From the pattern shown in the left hand chart, if the black can play (1) as shown in the middle chart, the group of black stones will survive. But if the white can play (1) as shown in the right hand chart, the group of black stones will be dead. Thus the situation shown in the left hand chart is considered uncertain.

Here at this point, it may be interesting to compare the scores of black and white in the two right hand charts. In the middle chart, black maintained 2 points territory. White has no territory inside. In the right hand chart, the black stones are dead. In the Japanese rules, white player need not make two additional moves to capture the black stones completely. Thus, the white's score will be 16 points (9 points territory plus 7 captured stones.) Black has no point. The relative difference of the scores of the two charts on the right will be 18 points (2 + 16).

Here we will show you more uncertain patterns.



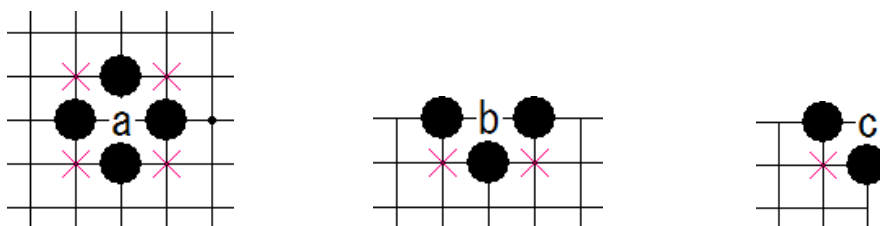
These are examples of uncertain patterns. If the black can play at "a", the group of black stones will survive. If the white can play at "a", then the group of black stones will be dead.

3060 Eye Sprouts

We have learned that a group of stones will survive if it has formed two separate eyes

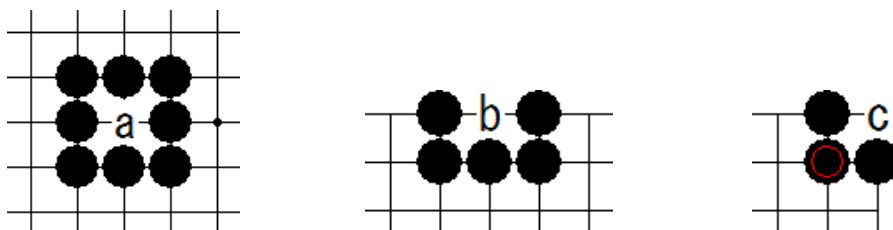
and that a group of stones will die if it has formed one eye only but failed to form the second eye. Then you may ask “What is an eye and what is not?” In the following sections we will clearly define an “eye”.

Look at the charts below:



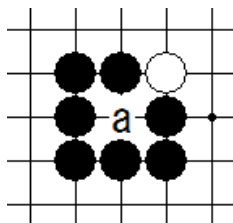
Points “a”, “b” and “c” are surrounded by black stones. We will call them “eye sprouts”. Eye sprouts are the basis of eyes or true eyes. The points “a”, “b” and “c” has diagonal points from them indicated by X marks in these charts. Points marked X are not essential to form an eye sprout points but it is important to pay attention to diagonal points marked X.

3070 Eyes



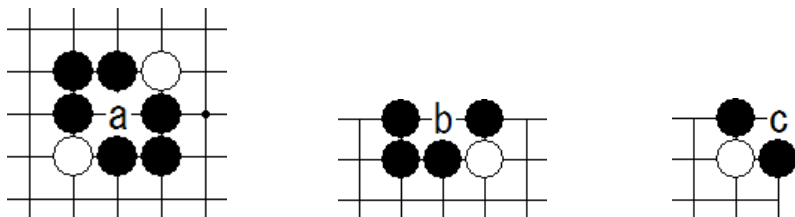
As you can see, in these examples there are black stones at all the diagonal positions. In this situation, you will recognize that all black stones around the vacant point are tightly connected. When this is the case, the eye spout is regarded an eye or a true eye.

There is one more important pattern to be added as a true eye.



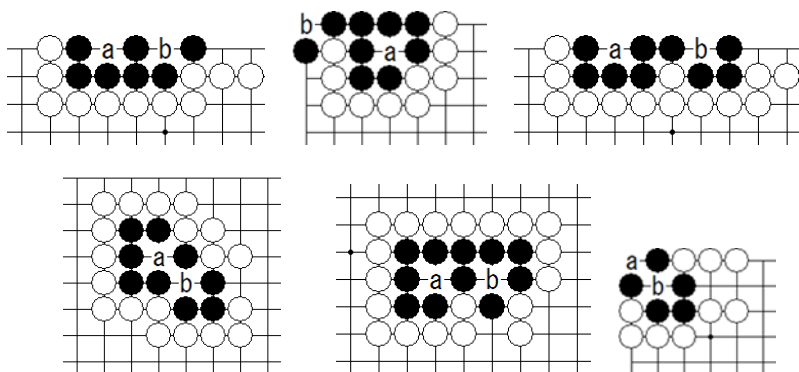
In case of this example, there is one white stone at the diagonal position from “a”. However, all black stones are tightly connected. This is another example of an eye or a true eye.

3080 False Eyes



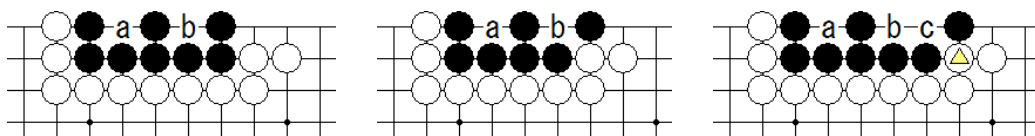
When a white stone or stones stay at the diagonal positions from the vacant point of the eye sprout and the black cannot connect stones around the point, then that eye sprout is regarded as a false eye. The above three charts show such false eyes which can not be developed into a true eye if white stone or stones are remaining there without being captured by the black.

True eyes and false eyes are very distinct but people often fall into a misunderstanding as they are pretty confusing at a look. We have already seen a few typical survival patterns but here you will see many patterns which are dead since the group has one true eye marked “a” but the second one marked “b” is a false eye and not a true eye.



3090 Uncertainty between an Eye and a False Eye

Here you will see three patterns to be compared carefully.



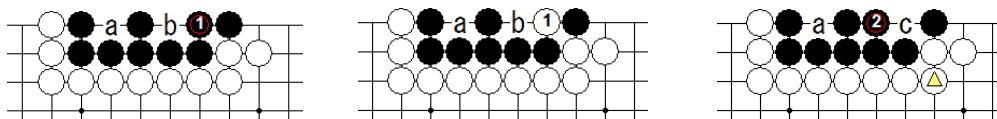
“b” is an eye

“b” is a false eye

“b” is uncertain

In the left hand chart, the points “a” and “b” are true eyes for the black. In the middle chart, the point “a” is an eye but the point “b” is a false eye. Then, in the right hand chart, “a” is an eye, but, is “b” an eye or a false eye? It is uncertain. Why? If white player makes a move at “b”, black can capture it at any time and “b” is sure to be an eye. However, if white player makes a move at “c”, black can capture it and the white’s move may look meaningless and you may think “b” is already an eye. But that interpretation is not right, because at the very moment white stone comes at “c”, you will note that it is certain that “b” is not an eye sprout any more. The point “b” cannot be an eye. On top, it is impossible for the point “c” to become an eye because there is a white stone \triangle already in existence at the diagonal position from “c” which does

not allow “c” to be a true eye. To make this understanding clearer in view, look at the following charts.

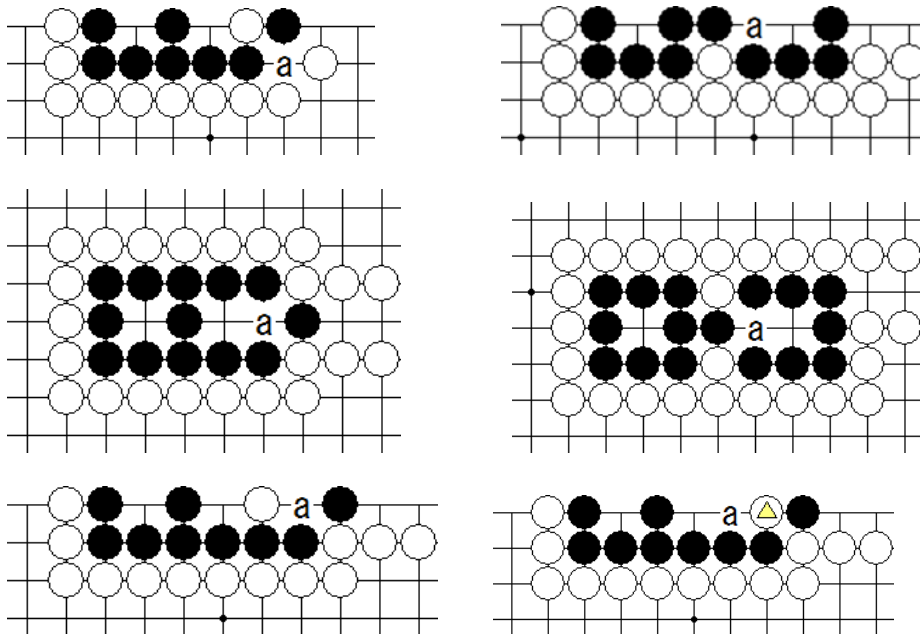


As shown in the left hand chart, if black plays (1), the point “b” is a true eye as the result.

However, if white plays (1) shown in the middle chart, the “b” is not an eye sprout any more. The neighboring point of (1) is not an eye, either. The black can capture (1) by a move (2) at “b” as shown in the right hand chart, but the point of “c” will be a false eye as the result, since its diagonal position is occupied by a white stone.

Thus we have confirmed that the point of “c” is extremely important for the black and for the white. The move of the white at “c” is not so simple to give the black one stone point, but will kill the whole group of black stones!

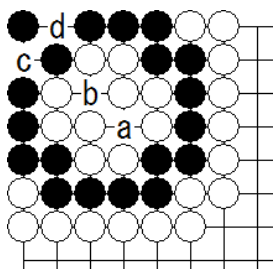
We are showing you more patterns of a sprout of an eye which may become a true eye or a false eye depending on which player will make a move there. The point marked “a” is that vital point in each of the following charts.



The last two charts are a little complicated. For the left hand chart, if white plays at “a”, black can capture two white stones but white can play at “a” again to bring it to a false eye pattern. Similarly, for the right hand chart, if white plays at “a”, black can capture two white stones but white can play at the point of \triangle and the result will be a false eye. This technique of sacrificing two stones to force a false eye is important to remember. If the stones captured are three rather than two, that position will be sure to form an eye.

3100 Survival without eyes

Before finishing this section, we wish to show you a mysterious pattern. It is magical but this is a pattern of group of stones with two false eyes which cannot be regarded dead. This situation is very unusual and rare to happen in actual games, but it is interpreted as a survival pattern.



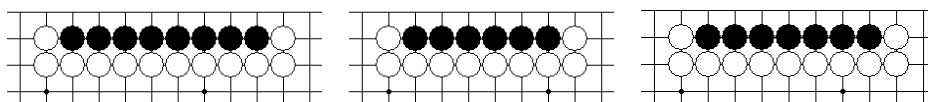
In this case, a group of white stones is surrounded by black stones. But that white group maintains two true eyes “a” and “b” and sure to be living. The group of black stones are surrounded by another group of white stones. The black group has no true eyes but it has two false eyes “c” and “d”. In our former analysis, such a group of black stones was analyzed to be dead. But in this case, white cannot capture this group of black stones. Why? Because white cannot make a move at either “c” or “d” since such a move is not permitted as that move cannot suffocate black stones.

Many professionals explain that this is an exceptional case of a group of stones living with two false eyes only, but it is also possible to support an interpretation that the points “c” and “d” are both true eyes under this special situation.

We think either of these two interpretation may be valid as long as we can agree that the group of black stones are living with two points territory.

3110 Basic patterns between life and death

As we have discussed, the understanding of life or death of a group of stones is so important in Go games that we will show you some basic patterns of a group of stones which is living, dead or uncertain.



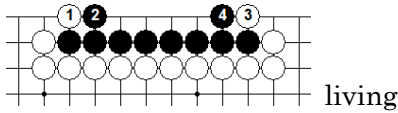
living

dead

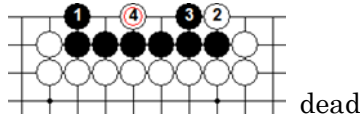
uncertain

In these charts, there is a row of a certain number of black stones on the second line from the edge of the board. In these cases, the length of the row is important to check.

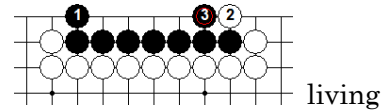
The left hand chart shows a pattern with 8 black stones in a row. In this case, the group of black stones is living as it is. You will be able to confirm from the following chart that white starting a move by (1) followed by moves up to (4) will result in a four point territory we have already discussed as a living group.



The middle chart above shows a pattern with 6 black stones in a row. In this case the group of black stones is dead as it is. You will be able to confirm from the following chart that black starting a move by (1) followed by moves up to (4) will result in a death pattern we have already discussed.

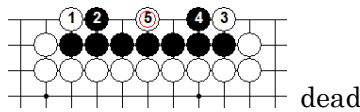


The right hand chart shows a pattern with 7 black stones in a row. In this case, the situation is uncertain and the result will depend on which player starts a move there first. If the black starts moves, the result will be the black's survival as you will see in

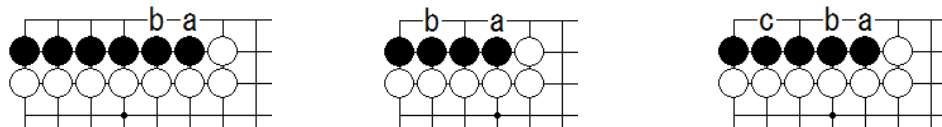


the following chart.

If the white starts moves, the result will be the black's death as you will see in the following chart.



In case the black stones as a row is starting from a corner of the board, black can save 3 stones compared to the above patterns. Here are three such patterns.

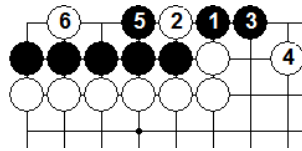
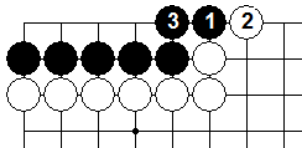


The left hand chart shows 6 black stones in a row from the left edge. In this case the group of black stones is living. If white plays at "a", black can respond at "b" and the result will be a survival pattern. The middle chart shows 4 black stones in a row from the corner. In this case, the group of black stone is dead. If black plays at "a", white can play at "b" and the result is the death pattern. The right hand chart shows 5 black stones in a row from the corner. This is a pattern of uncertainty. If black can play at "a", black can survive. If white can play at "a", and black responds at "b", the white's move at "c" will bring the black group into a death pattern.

Let us confirm it more in detail.



If it is the black's turn to play with this pattern, the black's (1) is the best move. By that move, the black's straight four points survival pattern is formed.



The black's attempt to widen the territory by (1) in the left hand chart is no good. If the white responds by (2), it is fine as shown in this chart. But (2) in the chart is not the white's best move. If the white can play (2) as shown in the right hand chart, the black is unable to secure two eyes. The black can invade the white's territory by (3) but the white can choose a move (4) to limit the invasion. The black can play (5) to capture white's (2), but, as the white plays (6) it becomes evident that the black has fallen into a typical death pattern with one eye only.