1 Introduction

1.1 General

Positional judgement is the correct and accurate assessment of a position's territory, influence and choices. Other topics include thickness, aji, development directions, types of fights, efficiency and other strategic concepts of evaluation. This *Volume 1* mentions groups and regions before discussing all aspects of assessing territory. The planned subsequent volumes will discuss the other topics.

Go is a game of strategy and tactics, and there are many related topics, from opening via strategies of attack and defense to methods of tactical move selection. Playing go also requires the following fundamental skills: psychology, reading ahead and positional judgement. The latter is used to answer the following questions:

- Who is ahead and by how much?
- What are the players' potentials in the current position?
- Which result of different moves or sequences is the best?

Positional judgement provides the necessary information for making the related decisions by assessing the current position or a position at the end of an imagined sequence. The questions occur all the time, and therefore regular application of positional judgement lays the ground for greatly improved playing strength. A beginner may take unnecessary risks when he is clearly ahead - the informed player uses his knowledge established by positional judgement to safely run home with his victory. Instead of choosing an arbitrary next move, choose the move resulting in the best outcome!

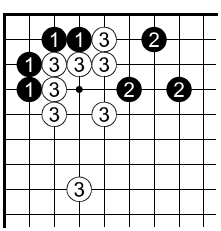
Territorial positional judgement determines which are the territory intersections and whether an intersection should be estimated as two, one or half a point. Positions with fights, moyos or middle game kos require extra considerations, such as a quiescence sequence preceding a positional judgement.

The basic idea of assessing a player's region imagines a sequence in which the opponent reduces from the outside in sente. When the boundary is completed, the remaining territory intersections on the inside are apparent. A few exceptional aspects such as prisoners or remaining gote endgames can sometimes occur and must not be overlooked.

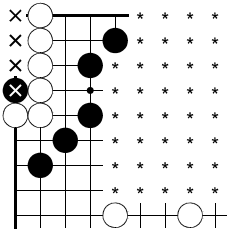
The more accurate a positional judgement is, the better. Kyu players would certainly not solve all the problems accurately, but every player has to start positional judgement somehow. Doing it with a margin of error is much better than not doing it at all. Dan players, however, should develop reduction sequences well and try to make as accurate a territory count as possible. The more carefully the nature of a reduction sequence's moves are considered, and the more variations, the more accurate the judgements of territories are.

1.2 Overview

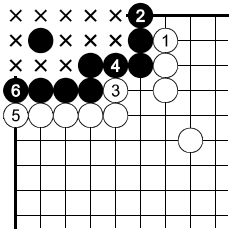
The book's chapters discuss the following topics in order:



Topic 1: groups



Topic 2: regions

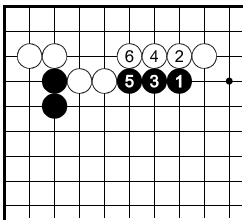


Topic 3: current territory

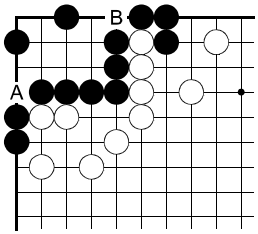
Topic 1: Groups and their statuses are identified. There are three groups, as indicated by the numbers. The life status of group 1 is 'unsettled'.

Topic 2: Regions and their types are identified. The region marked with crosses is White's 'territory', the region marked with asterisks is 'valuable' for fights about future territory and the unmarked regions are essentially 'neutral'. Identification of groups and regions is a basis for enabling determination of territory.

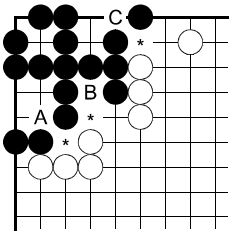
Topic 3: To determine the amount of a player's territory, a sequence is imagined, during which the opponent reduces the player's territory regions peacefully and in sente. The then remaining territory is called the 'current territory'. Black has 12 marked points of current territory in the upper left corner. Current territory is the core concept of territory assessment.



Topic 4: nature of reduction sequences



Topic 5: remaining boundary defense moves



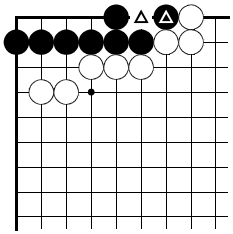
Topic 6: remaining gote endgames

Topic 4: Reduction sequences for positional judgement are not constructed arbitrarily, but they rely on principles. For example, one aspect of the nature of reduction sequences is that the attacker reduces - he does not invade. Here, Black 1 is not supposed to invade at 4. Instead, Black is supposed to reduce peacefully from the outside, as shown in this sequence, which starts reduction of White's territory.

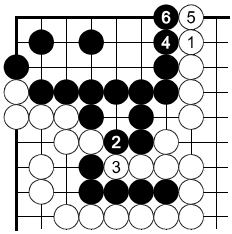
Topics 5 - 7: Remaining boundary defense moves, remaining gote endgames and remaining basic endgame kos are the possible unresolved remainders after the attacker's sente reduction of the defender's territories. Sente reduction sequences tend to clarify almost all territory boundaries. The mentioned remainders are occasionally occurring exceptions. Usually, their evaluation is easy. It is rare for remaining gote endgames to require advanced endgame calculations.

Topic 5: White has already reduced the black region, but he cannot continue reduction in sente. Nevertheless, Black will have to fill at A and B before the end of the game. He needs to make 'remaining boundary defense moves' and play stones there. As a consequence, the intersections A and B do not belong to Black's territory.

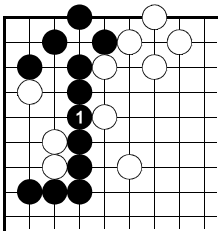
Topic 6: Depending on which player will play on any of the marked intersections, each of A, B and C can either become or not become an intersection of Black's territory. We speak of 'remaining gote endgames'. Since White cannot reduce either of these three local endgames in sente, they remain as gote endgames and are calculated as such. If Black protects such an intersection, he gets 1 point for it; if White prevents Black from protecting such an intersection, then Black gets 0 points for it. Thus, its expected average is 0.5 points for Black. A, B and C together are estimated as 0.5 + 0.5 + 0.5 = 1.5 points for Black.



Topic 7: remaining basic endgame ko



Topic 8: privilege



Topic 9: stability

Topic 7: White cannot reduce the marked basic endgame ko in sente. It remains after White's reduction of Black's territories on the board. Under territory scoring, the ko is assessed via its expected average value, 1/3 of a point for White. If Black wins the ko by filling it, he spends one move to get 0 points in the ko. If White wins the ko by capturing and then filling it, he spends two moves to get 1 point for the prisoner. The difference of points is 1 and the difference of moves is 3. Therefore, on average, the value is 1/3 of a point per move. Since only White can gain something in the ko, its value is in his favour.

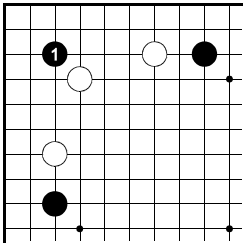
Topic 8: An ordinary reduction sequence assumes the attacker's local sente and the defender's local gote everywhere. However, a player may intervene with his privilege forcing exchange. Here, Black does not reply to White 1 locally immediately. Instead, Black plays his privilege, the forcing exchange Black 2 for White 3. The threat involved is so great that White is assumed to reply, before the usual reduction and defense continue with Black 4. Black 2 encloses another intersection, which counts as 1 point for Black.

Topics 9 - 11: Stability, peaceful reduction being a reasonable assumption and a quiet position are good conditions allowing accurate positional judgements. If a position still has unstable groups or a peaceful reduction is not a reasonable assumption yet, then a quiescence sequence must precede positional judgement.

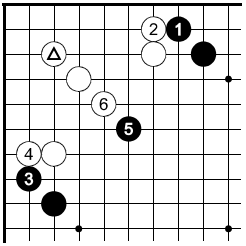
Topic 9: Before Black 1, White threatens to cut. Black 1 creates stability: afterwards, White cannot convincingly continue to attack the black stones' connection or Black's territory.

Topic 10: As long as the invasion Black 1 is available, the position is not ready for a peaceful reduction of the white corner region from the outside.

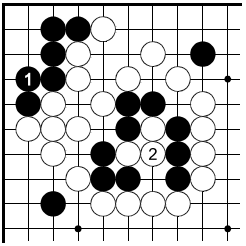
Dia. 10.1: With the marked white stone on the board, peaceful reduction from the outside is a reasonable choice. Before the sequence, the position is ready for territorial positional judgement by means of sente reductions.



Topic 10: no peaceful reduction

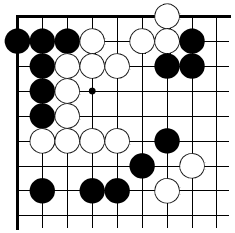


Dia. 10.1: peaceful reduction

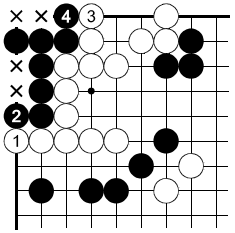


Topic 11: quiescence

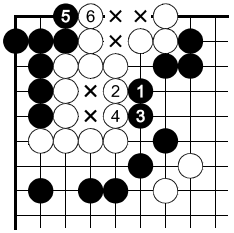
Topic 11: When groups are unsettled or stability is missing, attempts of positional judgement would be premature. A 'quiescence' sequence settles the important groups and creates stability. Only afterwards, positional judgement can be made for the position created.



Topic 12: territory count

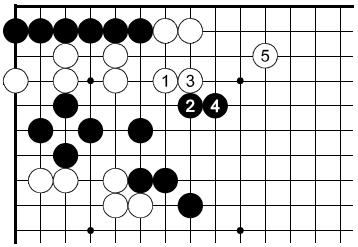


Dia. 12.1: Black's current territory

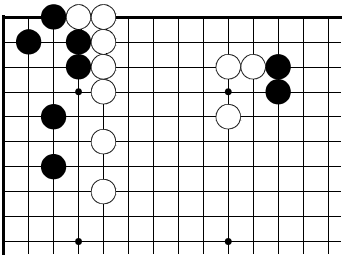


Dia. 12.2: White's current territory

Topic 12: The 'territory count' is Black's current territory minus White's current territory. To determine Black's current territory, White reduces in sente. Black has 4 remaining territory intersections. To determine White's current territory, Black reduces in sente. White has 5 remaining territory intersections. In the initial position, the territory count is 4 - 5 = -1 point. The negative value favours White, who leads by 1 point.



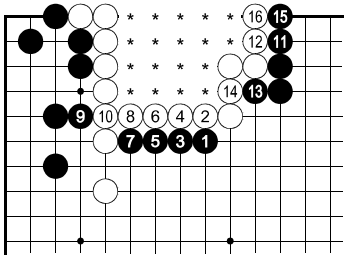
Topic 13: fighting position



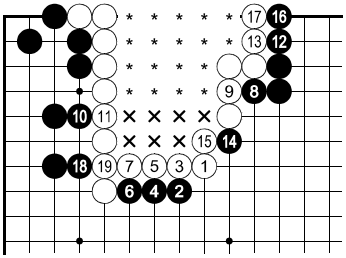
Topic 14: moyo

Topic 13: In a fighting position, a quiescence sequence settles or stabilises some important groups to create a position in which positional judgement is meaningfully possible.

Topic 14: White's region near the upper side is a moyo. It has both secure and insecure territory intersections. These must be identified and assessed.



Dia. 14.1: current territory of the moyo

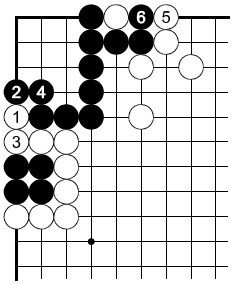


Dia. 14.2: half territory of the moyo

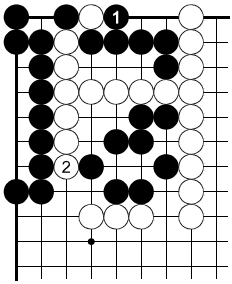
Dia. 14.1: The white moyo has a territory core near the upper edge. After Black's sente reduction, 18 points of White's current territory remain.

Dia. 14.2: White makes the one extra move 1 before Black starts his sente reduction. The additional territory intersections are marked with crosses and represent the white moyo's 'half territory'. There are 7 such intersections, and their value is 7/2 = 3.5 points.

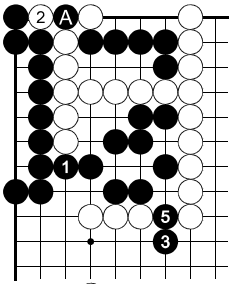
Topic 14 conclusion: Altogether, in the initial position of the *Topic 14* diagram, White has 18 points of current territory and 7/2 points of half territory: 18 + 7/2 = 18 + 3.5 = 21.5 points. This is the estimated territorial value of White's moyo in the initial position.



Topic 15: prisoners



Topic 16: middle game ko, Black wins ko

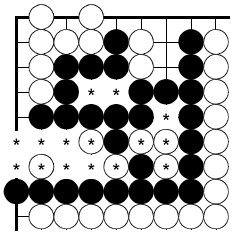


④ at A.

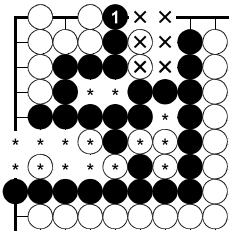
Dia. 16.1: White wins ko

Topic 15: When determining territory, one must also count the prisoners. 1 white stone and 4 black stones are removed during the sequence and added to the prisoners. If the sequence is used only for determining Black's current territory, the four removed black stones are ignored. They would be considered when determining White's current territory.

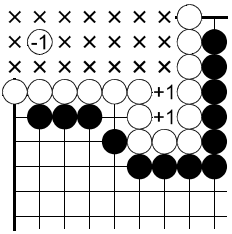
Topic 16 + Dia. 16.1: To evaluate a position with a middle game ko, let the ko winner dissolve the ko and the ko loser execute his ko threat. Afterwards, positional judgement is done for the created quiet position. The *Topic 16* diagram shows the case 'Black wins ko'; one positional judgement can be done for the position created by the sequence. *Dia. 16.1* shows the case 'White wins ko'; another positional judgement can be done for the other position created by this other sequence. Then, the two positional judgements can be compared and one can conclude which of the cases is better for which player.



Topic 17: count



Dia. 17.1: updated count



Topic 18: convenient counting

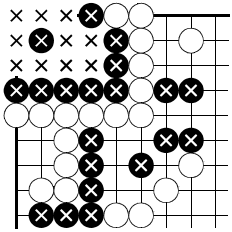
Topic 17: Without the gote endgame on the top, Black has 21 points of current territory on the marked intersections. We remember this value.

Dia. 17.1: By move 1, Black gains another 8 points of current territory on the intersections marked with crosses. Since we recall Black's earlier 21 points, we do not need to count all the old territory again. Instead, we simply update the count: 21 + 8 = 29 points is Black's new amount of current territory.

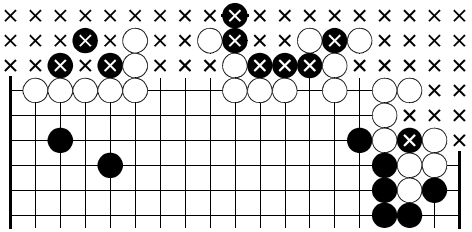
Topic 18: Instead of counting each intersection, one after another, we use this short-cut for convenient counting: White has a rectangle of 3 * 7 = 21 points, minus 1 for the inside white stone, plus 2 for the other empty intersections next to the rectangle, that is, White has 21 - 1 + 2 = 22 points.

Topic 19: Under area scoring rules, which score a player's territory and stones on the board, one need not count all the stones. During the middle game, it is unnecessarily slow to count Black's 10 points of territory and 20 stones on the board to get 30 as his total points. Since the players alternate, White also has 20 stones on the board, therefore the stones on the board can be ignored. It suffices

to count only Black's 10 points of territory and adjust this by the prisoners. The numbers of prisoners is very much smaller than the numbers of played stones; here there are 0 prisoners. Even under area scoring rules, it is possible to use the territory count instead of the area count for positional judgement during the opening or middle game because a) prisoner stones of a player's colour represent the number of his stones missing on the board, b) the players have not passed yet and c) the players have made an equal or almost equal number of moves during the game at any time.



Topic 19: area count



Topic 20: strategy

Topic 20: On the top, White has 67 points. Suppose the komi is 7 points. Altogether, White has 67 + 7 = 74 points. Therefore, it must be Black's strategy to get at least 74 points more than White on the rest of the board.

1.3 Terms

Besides the terms 'double sente', 'sente', 'reverse sente' and 'gote', which are defined, for example, in the book *First Fundamentals,* this book presumes knowledge of the following terms:

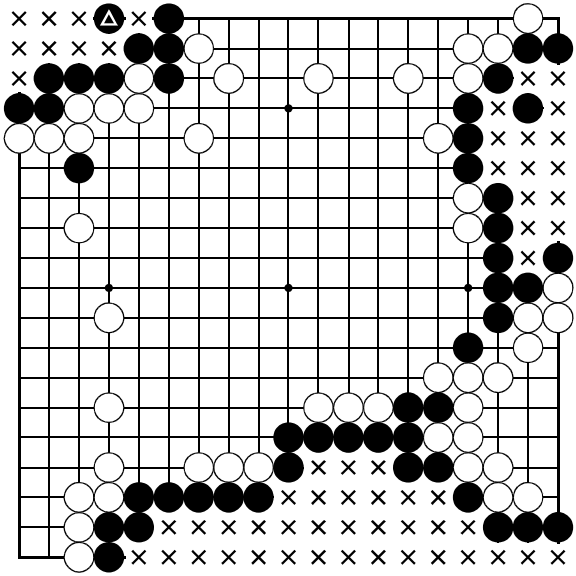
A **string connection** is a stone placement that connects itself to a string or unifies two, three or four strings as one string.

A **direct connection** prevents any opposing cut. If the opponent tries to cut nevertheless, his cutting stones will be captured.

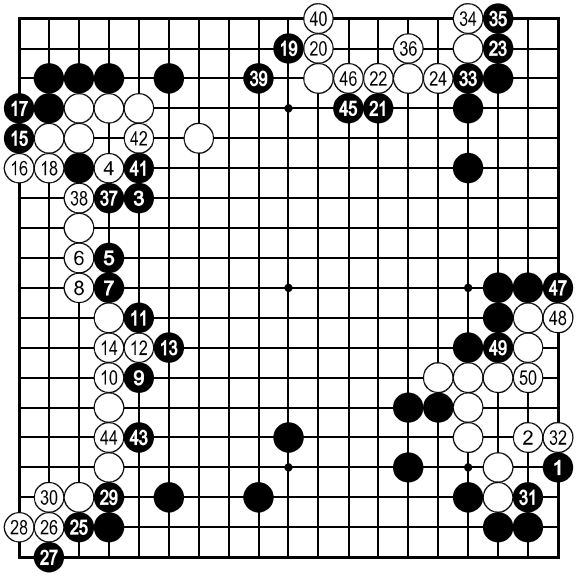
An **indirect connection** does not ensure a 100% connection but makes cutting unattractive or at best equal for the opponent.

A group is **settled** if the opponent does not have any good move against its life or stability.

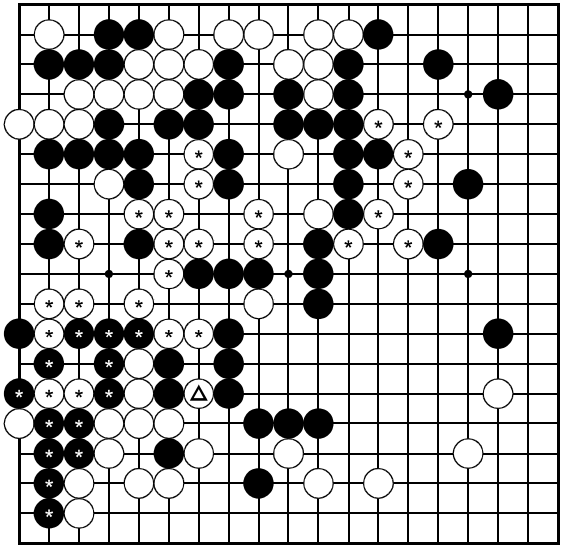
A group is **unsettled** if the opponent has at least one good move against its life or stability.



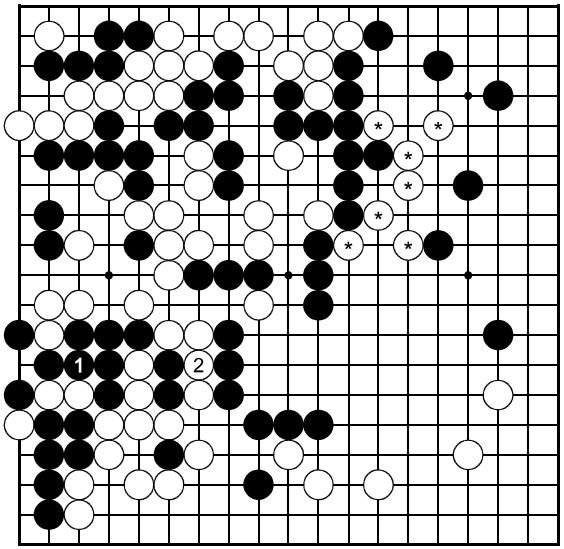
Dia. 1.2: After the reduction sequence and the reinforcement by the stone marked with a triangle, the remaining intersections surrounded by black stones are Black's current territory. He has 9 + 15 + 35 = 59 points.



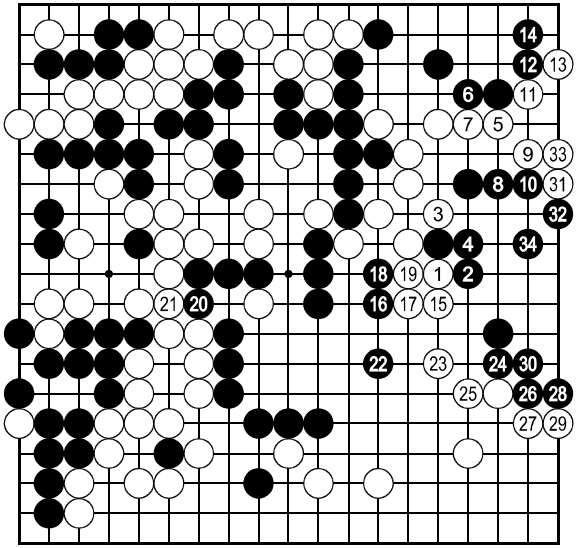
White's current territory: *Dia. 1.3: Sequence's prisoner difference: -1.* To determine White's current territory, Black plays a sente reduction sequence against the white territory regions.



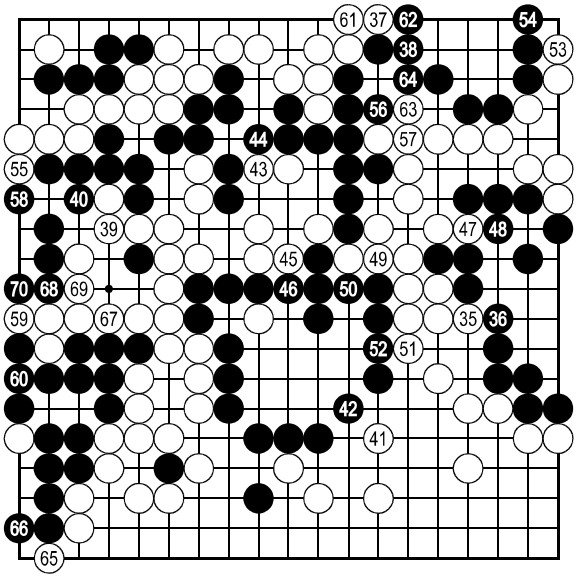
Example 5: *Black: Zhou Heyang 8p - White: Ding Wei 7p. Date: 2000-01-08. Komi: 5.5. Preliminary prisoner difference: 1. Black won by resignation. Black to move.* The marked groups are important and unsettled. The two marked groups on the left side depend on a ko. White has just played the small ko threat marked with a triangle, which allows the simple settling of *Dia. 5.1.*



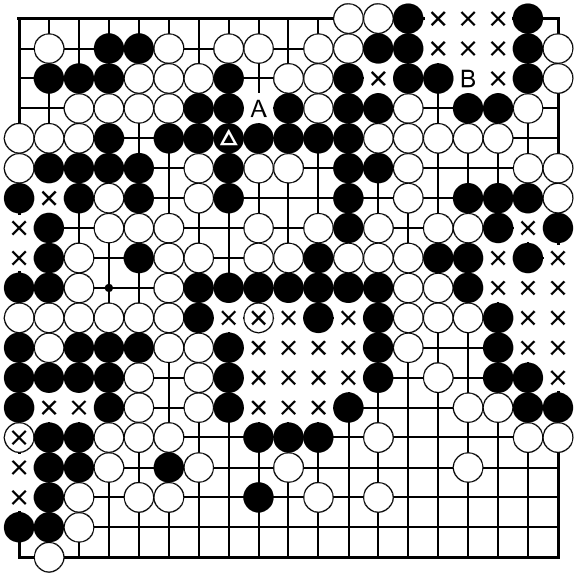
Settling and quiescence I: *Dia. 5.1: Initial prisoner difference: 1.* This short imagined sequence, which was also played in the game, dissolves the ko immediately and makes two of the previously unsettled groups quiet. The marked group remains as the only important unsettled group. Since it and the moyos on the lower and right sides are still unsettled, the following determination of a territory count is very insecure. For this purpose, the marked group is assumed to be alive.



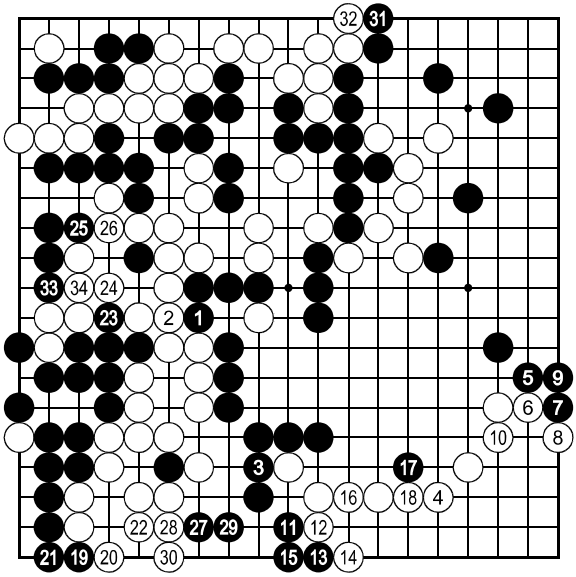
Determination I of Black's current territory: *Dia. 5.2: Sequence's prisoner difference: 0.* White reduces Black's territory in sente. White must run while reducing. Moves 16, 18 and 20 are Black's privileges.



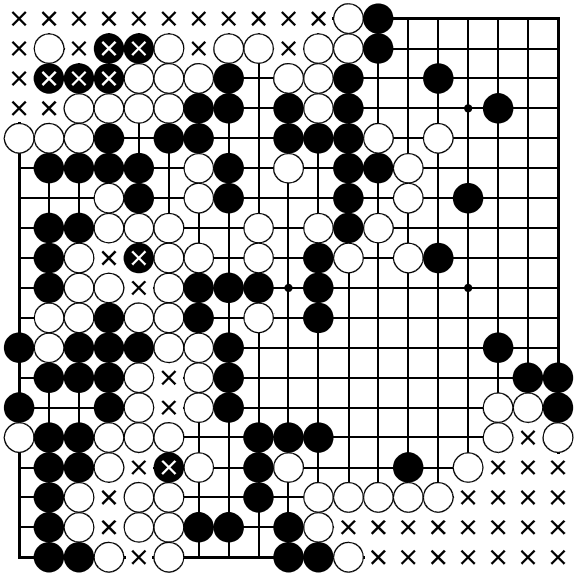
Dia. 5.3, continuation: Black 56 and 68 are privileges.



Dia. 5.4: Black's current territory is 12 + 6 + 16 + 11 = 45 points.

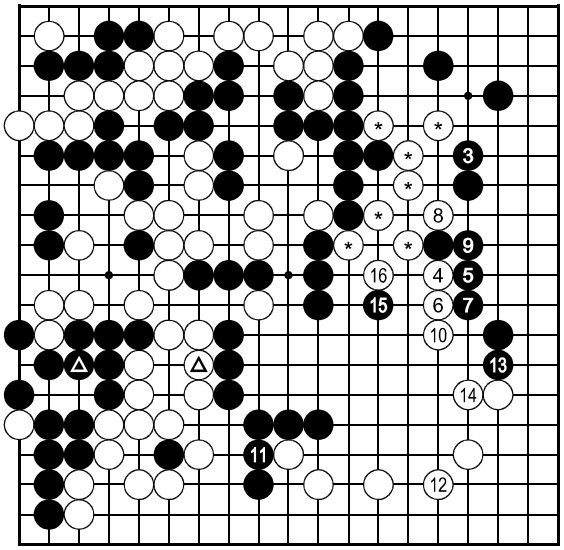


Determination I of White's current territory: *Dia. 5.5: Sequence's prisoner difference: 0.* Black reduces White's territory in sente. White 4 is a peaceful reply because it eliminates aji in the lower right corner. Exceptionally, the move may switch the direction because it closes the most valuable of the previously three open gaps of the currently reduced territory region around the lower right corner.

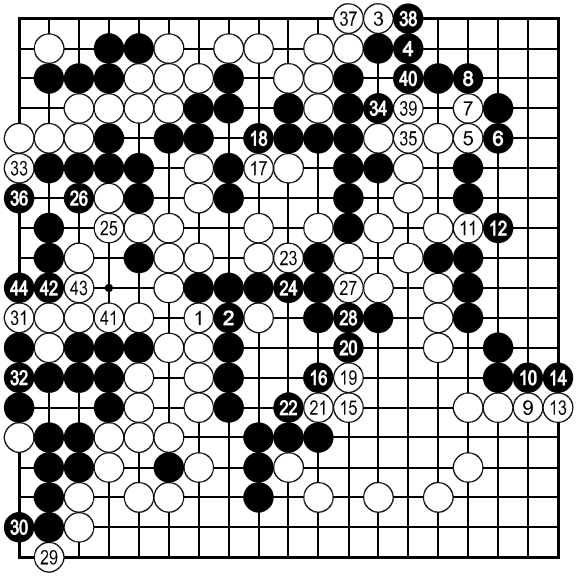


Dia. 5.6: White's current territory is 28 + 12 + 23 = 63 points.

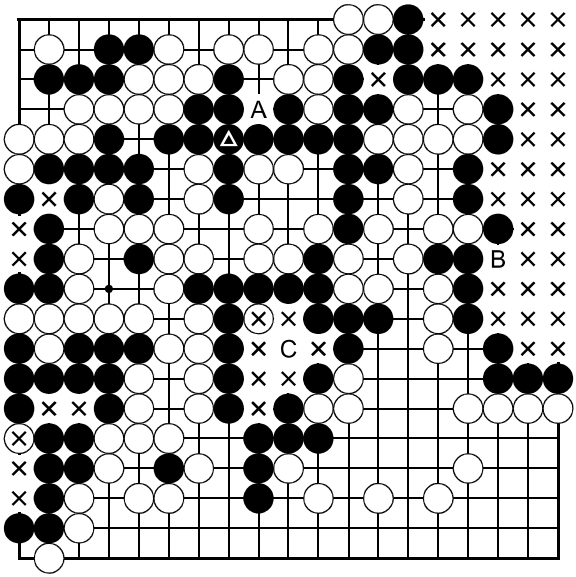
Territory count I: The territory count including the initial prisoner difference and komi is 45 - 63 + 1 - 5.5 = 46 - 68.5 = -22.5 points in White's favour. Black needs to get a greater excess of additional points by attacking the weak white group marked in *Dia. 5.1.*



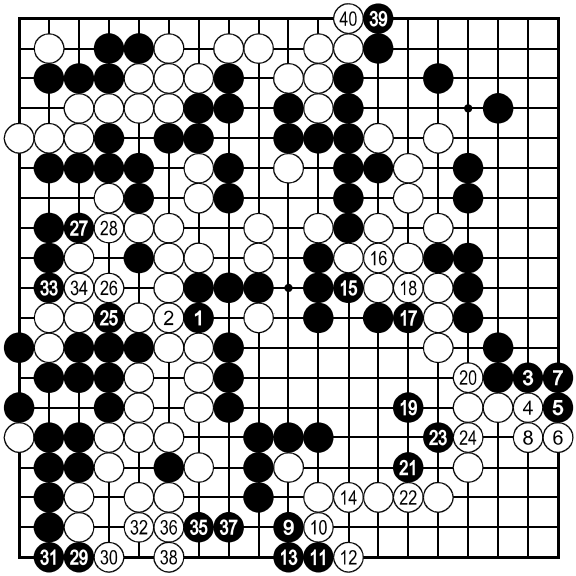
Settling and quiescence II: *Dia. 5.7: Initial prisoner difference: 1.* After the exchange of the stones marked with triangles, the white group marked with asterisks is weak. We imagine Black's attack and simple strategy of turning his right side moyo into territory. Finally, the lower side is made quiet. Does this peaceful quiescence sequence guide Black to a win? The following diagrams determine the related territory count, whose value is a reasonably secure assessment of the position created in this diagram.

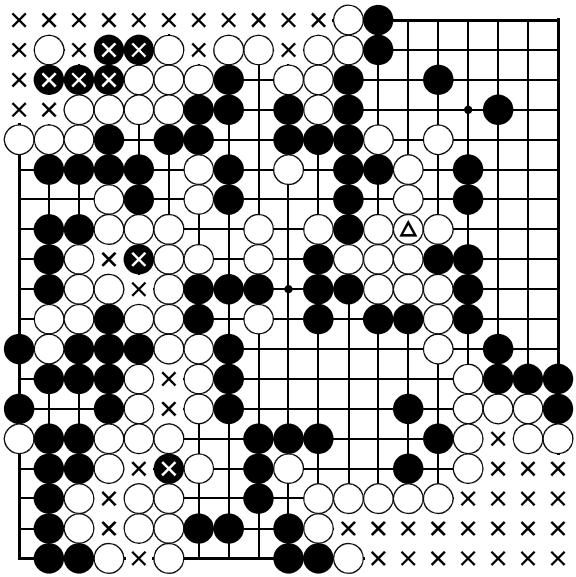


Determination II of Black's current territory: *Dia. 5.8: Sequence's prisoner difference: 0.* White reduces Black's territory in sente. White 1 starts with a double sente, so that Black cannot use a privilege there. Moves 34 and 42 are Black's privileges.



Dia. 5.9: Black's current territory is 40 + 6 + 8.5 = 54.5 points.



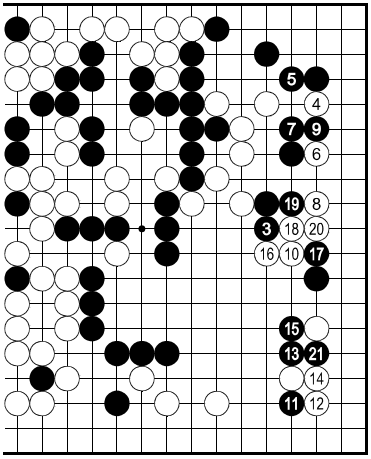


Determination II of White's current territory: *Dia. 5.10: Sequence's prisoner difference: 0.* Black reduces White's territory in sente.

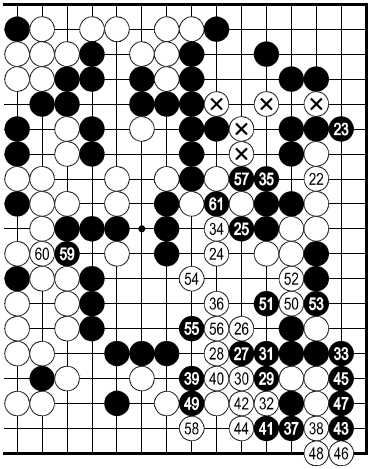
Dia. 5.11: White's current territory is 28 + 12 + 23 = 63 points.

Territory count II: For the position at the end of the sequence in *Dia. 5.7,* the territory count including the initial prisoner difference and the komi is 54.5 - 63 + 1 - 5.5 = 55.5 - 68.5 = -13 points in White's favour. This is still far from a winning possibility for Black.

Example 5 conclusion: In conclusion, Black can win only if he attacks the remaining weak white group in *Dia. 5.1* harshly and is prepared to accept exchanges, if necessary.



Dia. 5.12: exchange



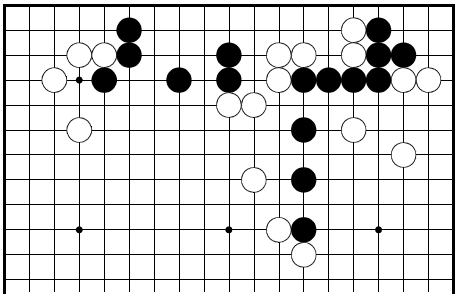
Dia. 5.13: capture

Example 5 actual game: *Dia. 5.12 + 5.13:* Continuing *Dia. 5.1* and following the actual game sequence, Black attacked the weak white group and initiated an exchange: he sacrificed the territory he could get in *Dia 5.7* on the right side in order to attack the white group, reduce the lower right corner and make a few points adjacent to it. Since White was busy defending his new reduction group on the right side, Black 61 captured the marked stones. Later, Black won the game. Without positional judgement, he could have fallen into the trap of trying to win by the simpler strategy of 'making territory while attacking' in *Dia. 5.7.*

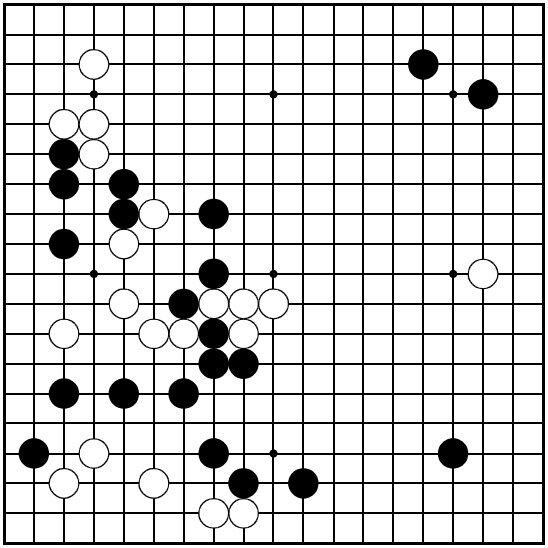
In fighting positions, we have done the following in order: settled the hot fights, optionally applied partial quiescence, assumed the remaining unsettled important groups' life and determined the territory count.

Problems

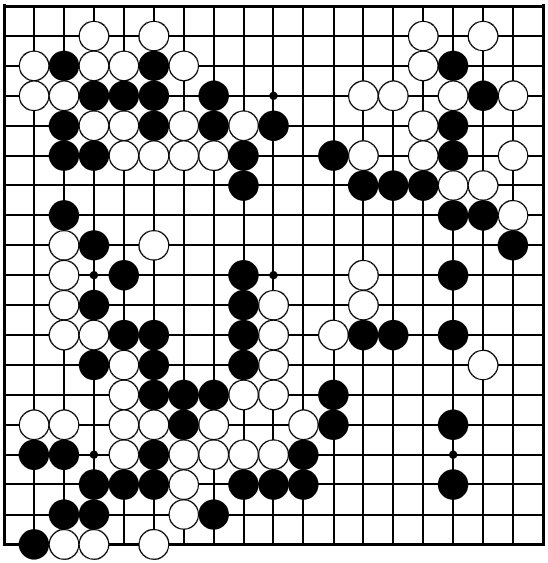
Prepare and then determine the territory count!



Problem 1: Black: Otake Hideo 9p - White: Nakano Hironari 9p. Date: 2010-03-08. Komi: 6.5. Preliminary prisoner difference: 0. Result: White won by resignation. Black to move. The territory count of the hidden lower part of the position is 14.5 points in Black's favour.



Problem 2: Black: Kim Seong-ryong 9p - White: Liu Xing 7p. Date: 2005-05-16. Komi: 6.5. Preliminary prisoner difference: 0. Result: Black won by 3.5 points. White to move. The very intense center fight about connection, stability of the still unsettled important groups and access to development directions requires a few more moves. Afterwards, a short quiescence sequence can ease positional judgement by transforming the lower right black moyo into territory.



Problem 3: Black: Ozawa Mitsugoro 5p - White: Murase Yakichi 5p. Date: 1860-06-03. Komi: 0. Preliminary prisoner difference: -1. Result: Black won by resignation. White to move.

5 Strategy

Positional judgement, reading, planning, decision making, conceptual knowledge and psychology belong to the important bases for good strategy. In this chapter, we assume that positional judgement of territory is the only relevant factor. The other bases and other aspects of positional judgement such as influence or options must have an only marginal impact when the following principles shall be applied.

If territorial positional judgement is the only relevant basis, then a clearly leading player

- **takes no unnecessary risks,**
- **avoids unpredictable fights,**
- **prefers peaceful strategies,**

a player in a close game

- **takes no unnecessary risks,**
- **chooses only fair unpredictable fights,**
- **can choose peaceful or fighting strategies,**

a player being clearly behind

- **seeks risks,**
- **seeks unpredictable fights,**
- **prefers fighting strategies.**

Since unnecessary risks or unpredictable fights can endanger a player's lead, he prefers to avoid them while his opponent welcomes them. In a close game, unnecessary risks can too easily shift the balance in the opponent's favour. A player can choose reasonably fair fights. A fight can become complicated and unpredictable. If, however, the position supports both players' unsettled groups, one must not reject a fight just because the game is close. Instead, different strategies of peaceful increments and reductions versus, for example, invading or profiting from attacking must be considered.