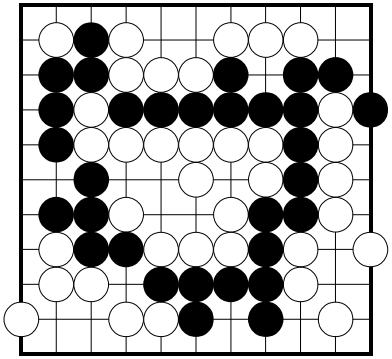
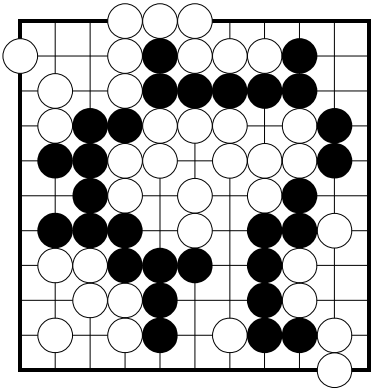
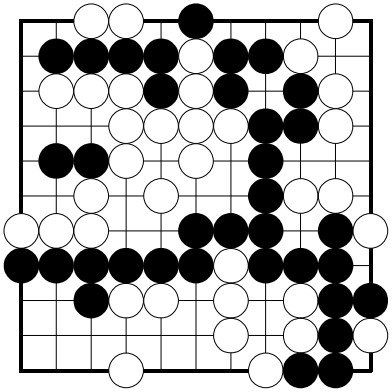


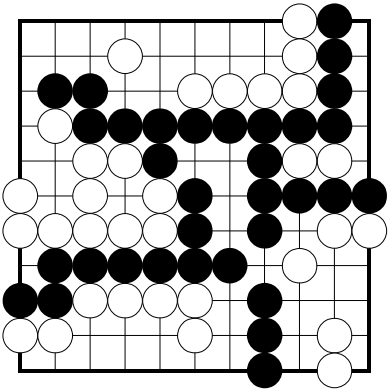
Problem 9



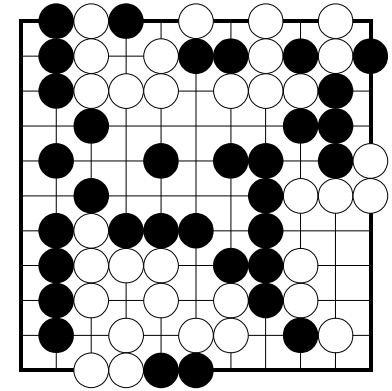
Problem 10



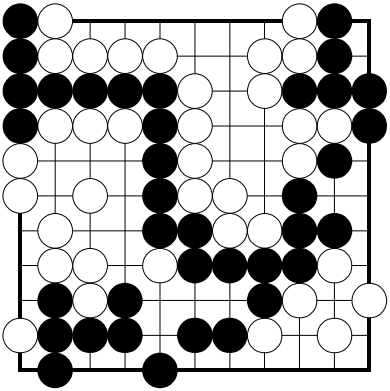
Problem 11



Problem 12



Problem 13



Problem 14

The *score* is the difference of the players' points of the usually settled whole board position at the game end. It can include the komi. The score expresses by how many points a player wins the game.

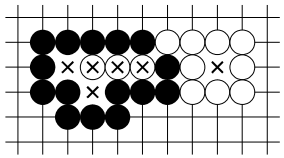
In endgame evaluation, we express counts and the score from Black's value perspective. For a settled position, we calculate a count or the score as Black's minus White's points. A positive count favours Black, a **negative count favours White** and zero expresses equally many points for both players. We need negative numbers to simplify the positional evaluation of a local endgame, or a follower, by expressing it by a single number.

For a local endgame in a position, a count combines Black's and White's points in a single number. Instead of expressing Black's and White's points as two numbers, we need only one number, which is the count, per local endgame and position. **The count expresses a) the positional value of a local endgame in a position and b) how many expected points a player has in it more than the opponent.**

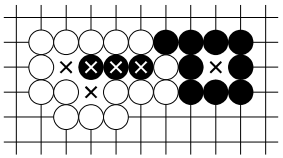
Having only one number has the following advantages. It is easier to: remember; combine evaluation of several local endgames; compare a local endgame in an initial position before a move or sequence to its created position afterwards; calculate move values or gains.

Under territory scoring, we account 1 point per empty territory intersection, 2 points per territory intersection occupied by a dead opposing stone and 1 point per opposing prisoner stone.

The variable C denotes the count of a local endgame in its initial position. In value calculations, we use variables and numbers to demonstrate that we always use the same formulas or value conditions despite varying numbers. During application, variables can use different letters or suffixes but their calculation schemes remain the same. If a local endgame has the count C, the colour-reversed local endgame has the negated count, that is, -C.



Example 1: count C = 7



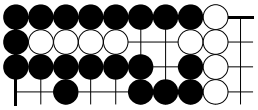
Example 2: count C = -7

Examples 1 + 2: The local endgame is settled. We calculate its count as Black's minus White's points.

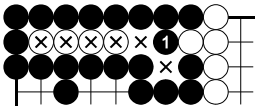
Example 1: Black has 8 points (2 points for the two marked empty intersections plus 6 points for the three marked intersections with captured white stones in his

er with the count R = -10. The sente move value M of the initial local endgame, which is Black's local sente, in *Example 2* is calculated as the difference value:

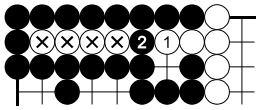
M = **S - R** = -9 - (-10) = 1.



Example 3: White's local sente, M = 2



Dia. 3.1: R = 10



Dia. 3.2: S = 8

Example 3: Black 1 in *Dia. 3.1* creates the black reverse sente follower with the count R = 10. White's sente sequence in *Dia. 3.2* creates the white sente follower with the count S = 8. The sente move value M of the initial local endgame, which is White's local sente, in *Example 3* is calculated as the difference value:

M = **R - S** = 10 - 8 = 2.

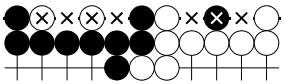
Exercise: For the examples of the previous section, calculate the move values. For this section, calculate the initial counts.

3.4 How to Read this Book

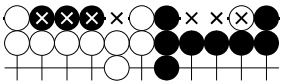
The book emphasises the important calculations but skips the lowest level of calculations and uses footnotes for recurring descriptions. Therefore, we apply the theory in the previous two sections to the principles and exercises in this section. This preparation enables our similar interpretation of the text in the following sections and chapters.

Verify the count of every settled local endgame by calculating Black's points minus White's points.

Every count of a settled local endgame is simply stated in a caption.



Exercise 1: count C = 2



Exercise 2: count C = -3

Exercises 1 + 2: Verify the settled local endgame's count stated in the caption.

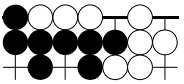
Answer 1: Black has 6 points (2 points for the two marked empty intersections in his territory region plus 4 points for the two marked intersections with captured white stones). White has 4 points (2 points for the two marked empty intersections in his territory region plus 2 points for the one marked intersection with a captured black stone). The count is C = 6 - 4 = 2. This positive number favours Black.

Answer 2: Black has 4 points (2 points for the two marked empty intersections in his territory region plus 2 points for the one marked intersection with a cap-

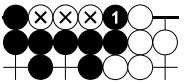
tured white stone). White has 7 points (1 point for the one marked empty intersection in his territory region plus 6 points for the three marked intersections with captured black stones). The count is C = 4 - 7 = -3. This negative number favours White.

Understand that "the gote count C = (B + W) / 2" calculates the average of the count B of the black follower and the count W of the white follower.

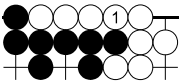
For every gote count, there is the declaration 'the gote count', the stated formula and the calculation with actual numbers.



Exercise 3: local gote, C = 3



Dia. 3.1: B = 6



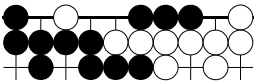
Dia. 3.2: W = 0

Exercise 3: The local gote has the gote count

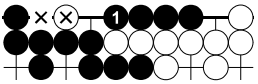
C = (B + W) / 2 = (6 + 0) / 2 = 6/2 = 3.

Interpret this calculation.

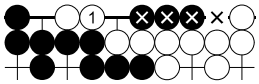
Answer 3: Black 1 in *Dia. 3.1* creates the black follower with the count B = 6. White 1 in *Dia. 3.2* creates the white follower with the count W = 0. The gote count C of the initial local endgame, which is a local gote, in *Exercise 3* is calculated as their average: C = (B + W) / 2 = (6 + 0) / 2 = 6/2 = 3. The positive count favours Black.



Exercise 4: local gote, C = -2



Dia. 4.1: B = 3



Dia. 4.2: W = -7

Exercise 4: The local gote has the gote count

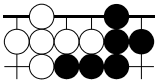
C = (B + W) / 2 = (3 + (-7)) / 2 = (3 - 7) / 2 = -4/2 = -2.

Interpret this calculation.

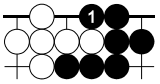
Answer 4: Black 1 in *Dia. 4.1* creates the black follower with the count B = 3. White 1 in *Dia. 4.2* creates the white follower with the count W = -7. The gote count C of the initial local endgame, which is a local gote, in *Exercise 4* is calculated as their average: C = (B + W) / 2 = (3 + (-7)) / 2 = (3 - 7) / 2 = -4/2 = -2. The negative count favours White.

Usually, the text simply states a variable with suffix, such as C_1, without mentioning that the suffix can refer to the same diagram subnumber, such as 1, and the variable belongs to the position created in the diagram.

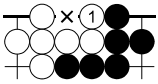
Understand that the suffix of a variable can refer to the diagram subnumber and the position created in the diagram.



Exercise 5: local gote, C = -1/2



Dia. 5.1: $C_1 = 0$



Dia. 5.2: $C_2 = -1$

Exercise 5: The local gote has the gote count

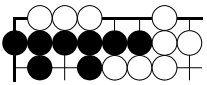
$C = (C_1 + C_2) / 2 = (0 + (-1)) / 2 = (0 - 1) / 2 = -1/2.$

Interpret the variables.

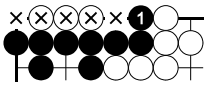
Answer 5: Black 1 in *Dia. 5.1* creates the black follower with the count $C_1 = 0$. White 1 in *Dia. 5.2* creates the white follower with the count $C_2 = -1$. The initial local endgame in *Exercise 5* is a local gote with the calculated count C = -1/2.

Understand that "the sente count C = S" calculates the sente count C by inheriting the count S of the sente follower.

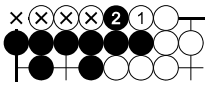
For every sente count, there is the declaration 'the sente count', the stated formula and the calculation with actual numbers.



Exercise 6: White's local sente, C = 7



Dia. 6.1: R = 8



Dia. 6.2: S = 7

Exercise 6: White's local sente has the sente count

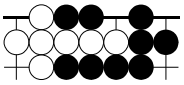
C = S = 7.

Interpret this calculation.

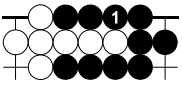
Answer 6: White starts his sente sequence in *Dia. 6.2* creating the white sente follower with the count S = 7. The initial local endgame in *Exercise 6* is White's local sente. Since it inherits the count S of its sente follower, we calculate the count C of White's local sente as C = S = 7. For this calculation, we ignore the count R = 8 of the black reverse sente follower in *Dia. 6.1.*

Understand that "the gote move value M = (B - W) / 2" calculates half the difference value, that is, we calculate the count B of the black follower minus the count W of the white follower and then divide by 2.

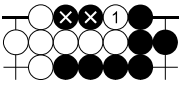
For every gote move value, there is the declaration 'the gote move value', the stated formula and the calculation with actual numbers.



Exercise 7: local gote, M = 2



Dia. 7.1: B = 0

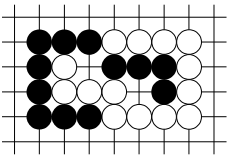


Dia. 7.2: W = -4

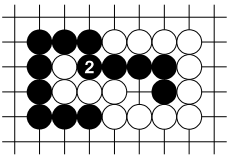
Exercise 7: The local gote has the gote move value

Answer 32

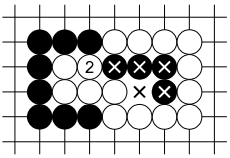
White's Follow-up



Dia. 32.1: simple gote, W = -4 1/2, F = 4 1/2



Dia. 32.2: $W_B = 0$



Dia. 32.3: $W_W = -9$

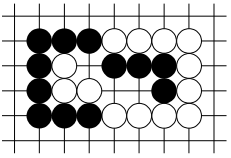
We have the white follower's black follower in *Dia. 32.2* with the count $W_B = 0$ and the white follower's white follower in *Dia. 32.3* with the count $W_W = -9$. White 1 in *Dia. 32.5* creates the simple gote in *Dia. 32.1* with the gote count[1]

$W = (W_B + W_W) / 2 = (0 + (-9)) / 2 = -4\ 1/2$

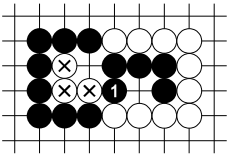
and gote move value[2]

$F = (W_B - W_W) / 2 = (0 - (-9)) / 2 = 4\ 1/2.$

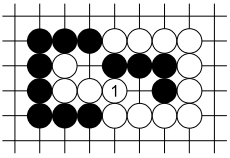
Initial Local Endgame



Answer 32: local gote, C = 3/4, M = 5 1/4



Dia. 32.4: B = 6



Dia. 32.5: White creates follow-up

Suppose the initial local endgame is a local gote with the black follower's count B = 6 in *Dia. 32.4,* white follower's count W = -4 1/2 in *Dia. 32.1,* tentative gote move value[2]

$M = (B - W) / 2 = (6 - (-4\ 1/2)) / 2 = 5\ 1/4$

and follow-up move value F = 4 1/2. The decreasing move values[3] confirm this:

$M > F <=> 5\ 1/4 > 4\ 1/2.$

The gote count[1] is

$C = (B + W) / 2 = (6 + (-4\ 1/2)) / 2 = 3/4.$

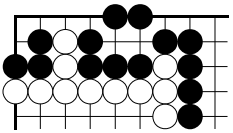
---

1 Calculated as the average.
2 Calculated as half the difference value.
3 The tentative gote move value M is larger than the follow-up move value F.

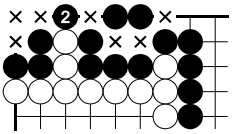
Answer 108

We use the locale in the diagram *'Answer 108'*.

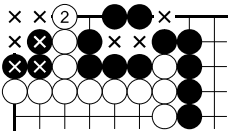
Black's Follow-up



Dia. 108.1: simple gote, prisoners = 2, B = 2 1/2, F = 6 1/2



Dia. 108.2: prisoners = 2, B_B = 9



Dia. 108.3: prisoners = 2, B_W = -4

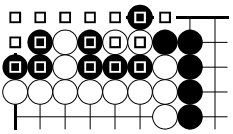
We have the black follower's black follower in *Dia. 108.2* with the count $B_B = 9$ and the black follower's white follower in *Dia. 108.3* with the count $B_W = -4$. Black 1 in *Dia. 108.4* creates the simple gote in *Dia. 108.1* with the gote count[1]

$B = (B_B + B_W) / 2 = (9 + (-4)) / 2 = 5/2 = 2\ 1/2$

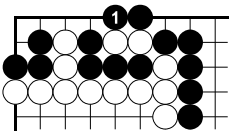
and gote move value[2]

$F = (B_B - B_W) / 2 = (9 - (-4)) / 2 = 13/2 = 6\ 1/2$.

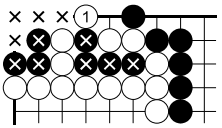
Initial Local Endgame



Answer 108: locale, simple gote, C = -7 3/4, M = 10 1/4



Dia. 108.4: B = 2 1/2



Dia. 108.5: W = -18

We have the counts B = 2 1/2 of the black follower in *Dia. 108.1* and W = -18 of the white follower in *Dia. 108.5*. Suppose the local endgame is a simple gote with the tentative gote count[1]

$C = (B + W) / 2 = (2\ 1/2 + (-18)) / 2 = (-15\ 1/2) / 2 = -7\ 3/4$,

gote move value[2]

$M = (B - W) / 2 = (2\ 1/2 - (-18)) / 2 = (20\ 1/2) / 2 = 10\ 1/4$

and follow-up move value F = 6 1/2. The decreasing move values[3] confirm this:

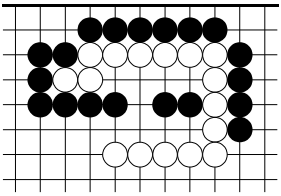
$M > F <=> 10\ 1/4 > 6\ 1/2$.

---

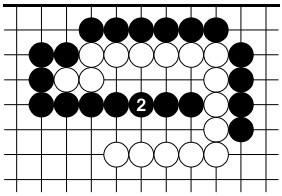
1 Calculated as the average.
2 Calculated as half the difference value.
3 The tentative gote move value M is larger than the follow-up move value F.

Answer 114

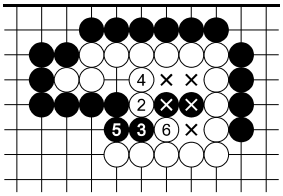
Black's Follow-up



Dia. 114.1:
B = -3 1/2, F = 3 1/2



Dia. 114.2: $C_2 = 0$



Dia. 114.3: traversal,
$C_3 = -7$

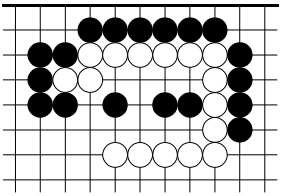
We have the counts $C_2 = 0$ of the black follower in *Dia. 114.2* and $C_3 = -7$ of the white follower in *Dia. 114.3.* Black 1 in *Dia. 114.4* creates the local gote in *Dia. 114.1* with the gote count[1]

$B = (C_2 + C_3) / 2 = (0 + (-7)) / 2 = -3\ 1/2$

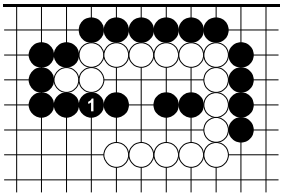
and gote move value[2]

$F = (C_2 - C_3) / 2 = (0 - (-7)) / 2 = 3\ 1/2.$

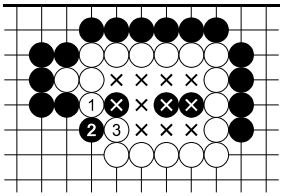
Initial Local Endgame



Answer 114: local gote,
C = -8 3/4, M = 5 1/4



Dia. 114.4: B = -3 1/2



Dia. 114.5: traversal,
W = -14

We have the counts B = -3 1/2 of the black follower in *Dia. 114.1* and W = -14 of the white follower in *Dia. 114.5.* Suppose a local gote with the tentative gote count[1]

C = (B + W) / 2 = (-3 1/2 + (-14)) / 2 = (-17 1/2) / 2 = -8 3/4,

gote move value[2]

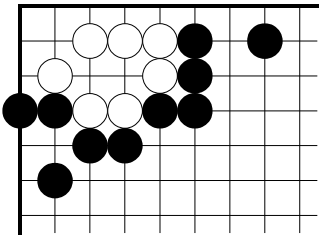
M = (B - W) / 2 = (-3 1/2 - (-14)) / 2 = (10 1/2) / 2 = 5 1/4

and follow-up move value F = 3 1/2. The decreasing move values[3] confirm this:

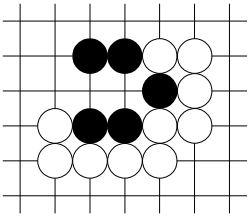
M > F <=> 5 1/4 > 3 1/2.

---

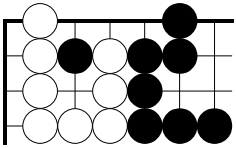
1 Calculated as the average.
2 Calculated as half the difference value.
3 The tentative gote move value M is larger than the follow-up move value F.
These footnotes also apply to the following page.



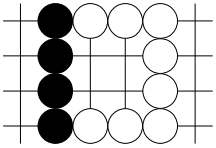
Problem 137



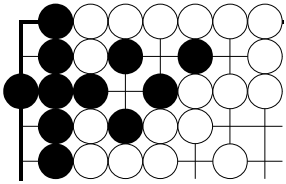
Problem 138: Assume that Black can connect but cannot make any territory.



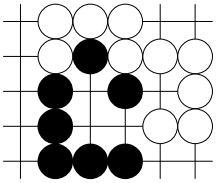
Problem 139



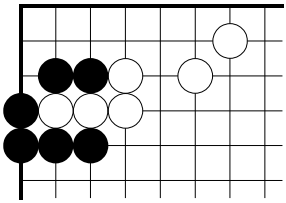
Problem 140



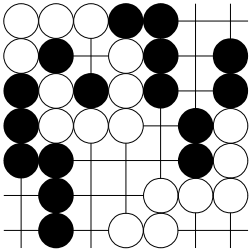
Problem 141



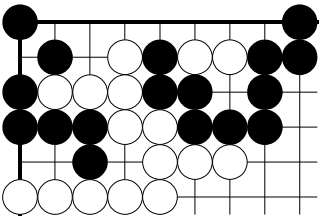
Problem 142



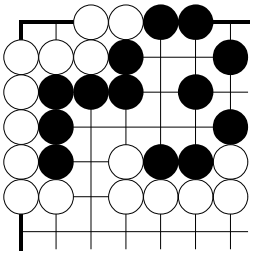
Problem 143



Problem 144

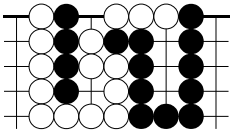


Problem 145

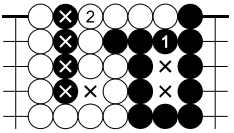


Problem 146

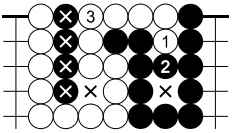
Answer 125 Naive Evaluation



Answer 125: Black's local sente, C = -7, M = 1



Dia. 125.I: B = -7



Dia. 125.II: W = -8

We guess that the sequences in *Dia. 125.I* + *125.II* are worth playing successively. We have the counts B = -7 of the black sente follower in *Dia. 125.I* and W = -8 of the white reverse sente follower in *Dia. 125.II.* The initial local endgame in *Answer 125* is Black's local sente with the sente count[1]

C = B = -7

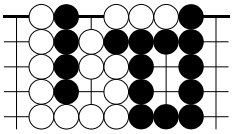
and sente move value[2]

M = B - W = -7 - (-8) = 1.

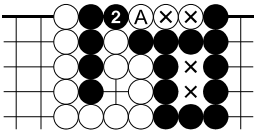
Answer 125 Accurate Evaluation

We can calculate the following in order: 1) the counts of the settled followers, 2) the values of the follow-up after Black 1, 3) the values of the follow-up after White 1 - Black 2, 4) the values of the follow-up after White 1, 5) the gains of the subsequent plays in the alternating sequences, 6) the values of the initial local endgame.

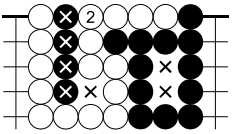
Follow-up after Black 1



Dia. 125.1: simple gote, C_1 = 0, M_1 = 7



Dia. 125.2: C_2 = 7



Dia. 125.3: G_{B2} = 7, B = -7

Black 1 in *Dia. 125.10* creates the simple gote in *Dia. 125.1* with the counts C_2 = 7 of the black child in *Dia. 125.2* and B = -7 of the white child in *Dia. 125.3.* The simple gote has the gote count[3]

$C_1 = (C_2 + B) / 2 = (7 + (-7)) / 2 = 0$

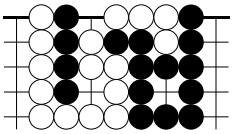
and gote move value[4]

$M_1 = (C_2 - B) / 2 = (7 - (-7)) / 2 = 7.$

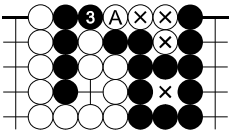
---

1 Inherited from the sente follower.
2 Calculated as the difference value.
3 Calculated as the average.
4 Calculated as half the difference value.

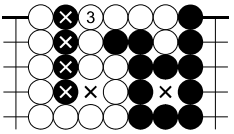
Follow-up after White 1 - Black 2



Dia. 125.4: simple gote, $C_4 = 0$, $M_4 = 8$



Dia. 125.5: $C_5 = 8$



Dia. 125.6: $G_{W3} = 8$, $W = -8$

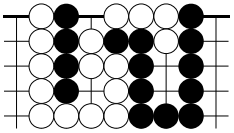
The sequence White 1 - Black 2 in *Dia. 125.11* creates simple gote in *Dia. 125.4* with the counts $C_5 = 8$ of the black child in *Dia. 125.5* and W = -8 of the white child in *Dia. 125.6.* The simple gote has the gote count[1]

$C_4 = (C_5 + W) / 2 = (8 + (-8)) / 2 = 0$

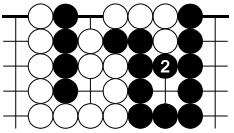
and gote move value[2]

$M_4 = (C_5 - W) / 2 = (8 - (-8)) / 2 = 8.$

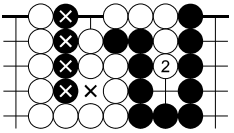
Follow-up after White 1



Dia. 125.7: Black's simple sente, $C_7 = -8$, $M_7 = 1$



Dia. 125.8: $G_{W2} = 8$



Dia. 125.9: $C_9 = -9$

White 1 in *Dia. 125.11* creates the local endgame in *Dia. 125.7.* Suppose it is Black's simple sente with the sente sequence in *Dia. 125.8 + 125.6* resulting in the count W = -8, white reverse sente play in *Dia. 125.9* resulting in the count $C_9 = -9$, tentative sente count[3]

$C_7 = W = -8,$

sente move value[4]

$M_7 = W - C_9 = -8 - (-9) = 1$

and follow-up move value $M_4 = 8$ *(Dia. 125.4).* The increasing move values[5]

$M_7 < M_4 <=> 1 < 8$

confirm this.

---

1 Calculated as the average.
2 Calculated as half the difference value.
3 Inherited from the sente follower.
4 Calculated as the difference value.
5 The tentative sente move value M_7 is smaller than the follow-up move value M_4.