# 1 Introduction

1.1 Overview

Correct reading requires psychological control, effort and an understanding how reading works. Without guidance, reading is arbitrarily complex. Essential theory reduces the complexity by various means of simplification.

The book explains general principles and methods of tactical reading, what to read, the objects and results of reading, the selection of moves to read, how to construct sequences during reading, how to collect and propagate information, and how to decide whether an aim is either fulfilled or rejected. However, strategic reading and dynamic reading with flexibly changing aims are postponed advanced topics for other books.

The most powerful and successful tool is the method of regular reading in combination with the principles of simplification. Techniques, such as throw-in or liberty shortage, can sometimes assist, but never replace, regular reading. In order to learn correct and fast reading, the reader must become familiar with the theory and practise its application to problems and his games.

Instead of guessing an outcome, avoid the laziness of not reading at all. Avoid insufficient reading. The central importance of reading is expressed in the following principle:
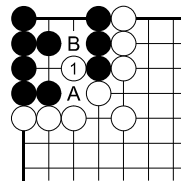
Verify each non-obvious status by reading.
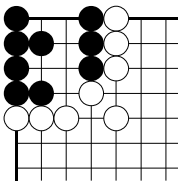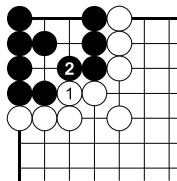

Example 1   Dia. 1.1: alive   Dia. 1.2: dead

Tactical reading answers some *aim,* that is, clarifies if the aim is either fulfilled or rejected. In *Example 1,* it is White's aim to capture the black
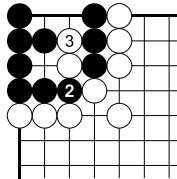
group. Reading answers this question: can White capture the black group?

At a player's turn, he needs *at least one* move that fulfils his aim. One successful move suffices because the player chooses it. In the start position of *Example 1,* White has the choice of where to play his first move. Move 1 in *Dia. 1.1* rejects his aim because he does not capture the black group. Move 1 in *Dia. 1.2* fulfils his aim because he captures the black group with either continuation Black A - B or Black B - A. The successful move 1 in *Dia. 1.2* is sufficient because White chooses it. Since White has at least one successful first move, we answer the aim: White can capture the black group.
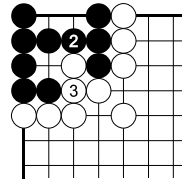
The position created in *Dia. 1.1* is a *terminal position,* in which it is obvious whether the aim is fulfilled or rejected. In every terminal position, we *collect information.* In the created terminal position it is obvious that the black group is alive and we collect the information that White's aim is rejected.
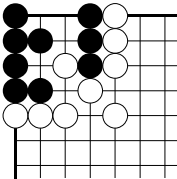
Dia. 1.3: branching position   Dia. 1.4: variation I   Dia. 1.5: variation II

Dia. 1.3 shows the position created in *Dia. 1.2.* It is a *branching position,* that is, a position in which the current player has two or more interesting next moves. It is Black's turn. He has two interesting next moves: move 2 in *Dia. 1.4* and move 2 in *Dia. 1.5.* Either move leads to a variation.

Either variation creates a terminal position. The terminal position created in *Dia. 1.4* obviously fulfils White's aim. We collect this new information. Afterwards, we *propagate information,* that is, we spread collected information to the moves played in prior branching positions and the start position. Here, we propagate the collected information to the move played in the branching position: Black 2 rejects Black's aim of preventing the capture of his group. We draw this conclusion because

Black's aim is complementary to White's aim, which the terminal position fulfils.

Similarly, we collect the information that White's aim is fulfilled in the terminal position created in *Dia. 1.5.* Afterwards, we propagate the information by concluding that Black 2 in *Dia. 1.5* rejects Black's aim.
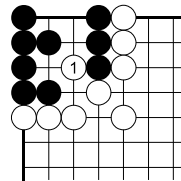
Now, we have enough information at the branching position in *Dia. 1.3:* each interesting Black 2 played in it rejects Black's aim. Accordingly, Black does not have any successful next move. We propagate this information to White 1 in *Dia. 1.2:* this move fulfils White's aim.
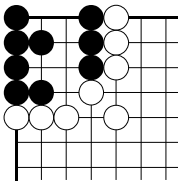

*Dia. 1.6: start position*
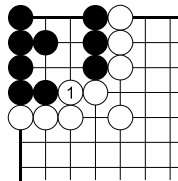
*Dia. 1.7: White's rejected aim*

Dia. 1.8: White's fulfilled aim

After having collected and propagated information, we are back at the start position to *answer* if White's aim is fulfilled or rejected. Reading has revealed that move 1 in *Dia. 1.7* rejects White's aim and move 1 in *Dia. 1.8* fulfils White's aim. White has at least one successful first move: he chooses the successful move 1 in *Dia. 1.8.* Hence, we conclude that White's aim is fulfilled: in the start position of *Dia. 1.6,* he can capture the black group.
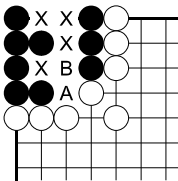

Dia. 1.9: ignored I
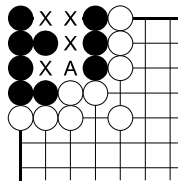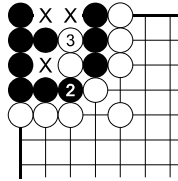
Dia. 1.10: ignored II
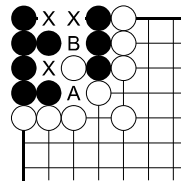
Dia. 1.11: ignored III

To avoid unlimited complexity, reading requires *simplification.* An example of a means of simplification is ignoring obviously inferior moves and only considering the interesting moves. In *Dia. 1.9 - 1.11,* the letters A and B denote the intersections of the available interesting moves. We ignore all obviously inferior moves on the intersections
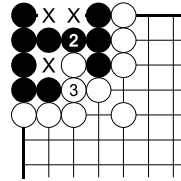
marked with X or outside the surrounding white wall. We greatly simplify reading by disregarding the obviously inferior moves because we do not read any evolving continuations and their variations.
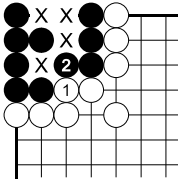
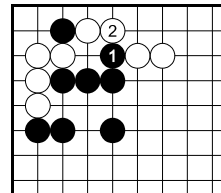| Dia. 1.12: non-branching sequence | Dia. 1.13: non-branching continuation | Dia. 1.14: non-branching continuation |

A basic kind of simplification is to ignore obviously inferior moves. This implies another important kind of simplification: following a non-branching sequence of obvious moves. While the first move of one of the sequences or continuations in *Dia. 1.12 - 1.14* is played in a branching position and one of two available interesting moves, the second move (move 2 in *Dia. 1.12* or move 3 in *Dia. 1.13 + 1.14*) is the only obvious move. We disregard playing it on any alternative intersection X. After the first move, such a sequence is non-branching.
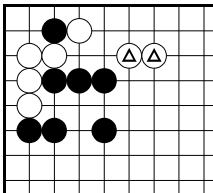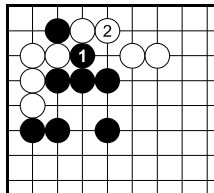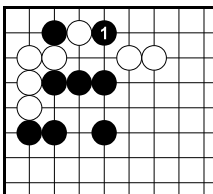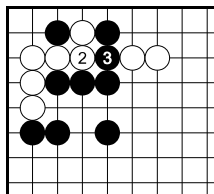

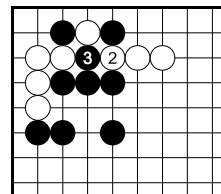| Example 2 | Dia. 2.1: connection | Dia. 2.2: connection |

Black has the aim to cut the marked string from the other white strings. Black chooses from the three interesting first moves in *Dia. 2.1 - 2.3*. Move 1 in *Dia. 2.1* or *2.2* rejects Black's aim because obviously the white strings are connected in the created terminal position.

| Dia. 2.3: branching position | Dia. 2.4: cut | Dia. 2.5: cut |

9

You continue with imagining three, four and later more sequences. At each step, start with very short sequences and proceed cautiously to longer sequences. Easy problem books help your learning of the skill to imagine move sequences and created positions at all and correctly.

Construct meaningful sequences.

Learning to imagine sequences can be arduous because of the many intersections and available alternatives at each imagined move. The construction of meaningful sequences is the key to good reading. Set a good aim for a player, imagine his moves following the aim and the opponent's moves opposing it. Disregard other moves: ignore moves of the player not following the aim or not pursuing it clearly and ignore the opponent's moves that do not, or not clearly, oppose the aim. Support earlier meaningful moves by continuing so that they remain meaningful.

It is possible that you cannot distinguish which early moves of a sequence are, or are not, meaningful with respect to the set aim. In such a case of doubt, every meaningful and every unclear, possibly meaningful move must be considered and related sequences are imagined. When you start learning to read, the sequences and their branches and variations can explode easily. Humility helps: only consider the most promising moves. Probably, your still partial reading occasionally makes wrong predictions. Tolerate your own mistakes because, at first, it is more important that you learn imagining moves and at least a few sequences at all. The stronger you become the more sequences and variations you can imagine and the more often your judgements due to reading will be correct.

When performing a reading task, we must develop the ability to remember which moves, sequences and outcomes we have already imagined, and so need not imagine again or still need to imagine. We must recall this especially for the currently studied branch variations. Our memory can pale about the details of follow-ups of moves which we have already explored and for which, now, it is sufficient to know whether they are a player's failures or successes. If we are confused about the currently studied variation, we need to read it again and waste thinking time. Disciplined thinking is part of the reading skill.
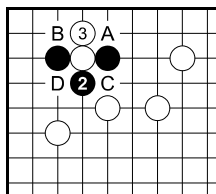
## 2.2.2 Examples
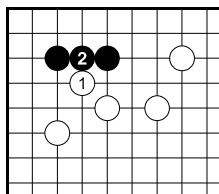
Example 1: Can White cut the black stones?
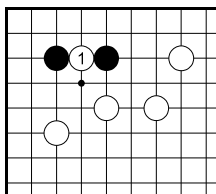

Dia. 1.1: meaningful

Dia. 1.2: unclear

Example 1: Suppose White's aim to cut the black stones and Black's complementary aim to maintain their connection. We can ignore White 1 and every other remote white move because Black 2 refutes White's aim immediately. *Dia. 1.1* shows his only meaningful first move 1. Accordingly, we imagine only sequences starting with it.
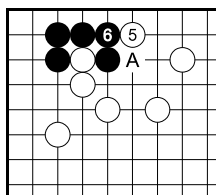
Dia. 1.2: Black 2 invites the obvious answer White 3. Afterwards, White threatens to move his new string to A or B while the black group has severe weaknesses at C and D. The situation is unclear. We prefer to imagine only sequences with meaningful, clear moves. *Dia. 1.3* is so much more meaningful that we can disregard *Dia. 1.2.*
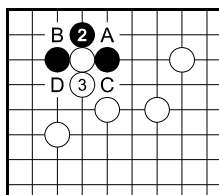
Dia. 1.3: meaningful
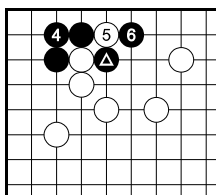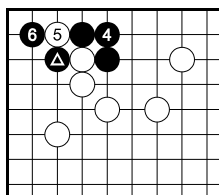

Dia. 1.4: connected I
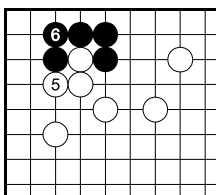

Dia. 1.5: connected II

Dia. 1.3: Although the situation is still unclear and White threatens to cut at A or B, it is much more peaceful than *Dia. 1.2:* White C or D improve on the potential of the new white string only slightly. As it is Black's turn to make the next move, chances are good that he can protect both cutting points A and B.

Dia. 1.4 - 1.8: Black 4 in *Dia. 1.4* or *1.6* succeeds for Black. White cannot cut the marked stone because Black captures the white stone 5 before White can capture, or successfully separate, the marked stone. The other variations, or White 5 in *Dia. 1.5* at A, allow Black's very easy connection at 6.
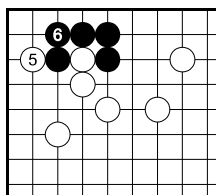
Example 1 conclusion: All meaningful variations are White's failures. He cannot cut the black stones.
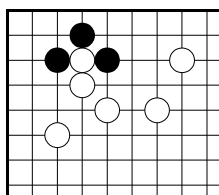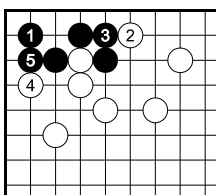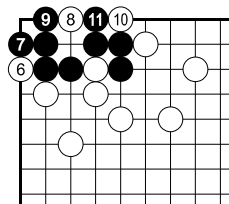
Dia. 1.6: connected III   Dia. 1.7: connected IV   Dia. 1.8: connected V

Example 2: Back to move   Dia. 2.1: start   Dia. 2.2: life I

Example 2: Can the black group live? The aim of defending the life of all black stones is a task greater than just connecting them. Black should start with the efficient connection 1 in *Dia. 2.1* or *2.5* to expand the eyespace as well as possible. Either first move guarantees life. However, we must not guess but verify by reading the sequences in *Dia. 2.1 - 2.5* that Black can create two eyes.

Dia. 2.1: When White 2 and 4 reduce from either side, it is meaningful to consider Black's simplest answers. As *Dia. 2.2 - 2.4* show, they succeed; otherwise, we would also need to study alternatives for Black 3 and 5.
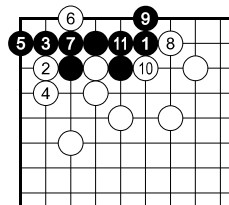
Dia. 2.2 - 2.4: White's moves are meaningful attacks: he continues to reduce the eyespace or tries to prevent Black from partitioning it. Contrarily, Black partitions the eyespace, threatens to partition it or blocks further reductions. These actions belong to the standard techniques of attacking or defending life.
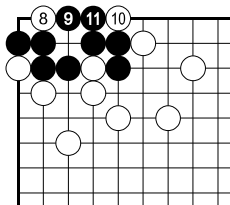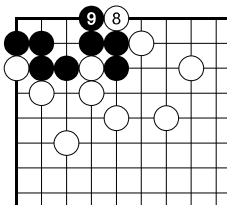
Dia. 2.3: life II   Dia. 2.4: life III   Dia. 2.5: alternative start

Dia. 2.5: After the alternative Black 1, this is a sample sequence. White 4 draws back so that White 6 can threaten the follow-up White 7, which would create a throw-in string. Without reading *Dia. 2.1 - 2.4,* we should imagine a similar variety of sequences for White's attacking moves in *Dia. 2.5.*

- **Set a threshold.**

- **Explore the interesting next moves.**

- **When exploring an interesting next move, consider at most the threshold's number of non-obvious test variations. If it cannot be decided if the move fulfils or rejects its player's aim, assess the move as 'complex'.**

- **Test reading ends with one of these cases:**

  1. **We find a next move fulfilling its player's aim.**

  2. **All interesting next moves reject their player's aim and are not complex.**

  3. **Test reading fails and regular reading is necessary.**

Test reading is speculative and so does not always lead to a useful conclusion. The effort is wasted, except that one can try to use already gained knowledge during regular reading. Test reading relies on this principle: *"On his turn, a player needs at least one move achieving his aim."*

The cases for ending test reading are checked in order. Successful test reading occurs in the cases 1 and 2 and works as a short-cut for regular reading beyond the next move.

The case 3 means the following. Test reading fails. None of the interesting next moves has both these features: a) fulfilling its player's aim and b) being not complex. Since some or all interesting next moves are complex, we cannot know if some of them fulfils the player's aim or all of them reject his aim.

Although we do not recognise any complex move as successful, the case 1 ends test reading on finding a successful move that is not complex.

Since test reading only applies to a next turn (or a player's first turn in the problem position), it does not necessarily replace regular reading. Instead, test reading modifies regular reading by trying to skip variations evolving from a particular branching position (or the start position). If regular reading creates different branching positions, test reading might be suitably applied to some of them.
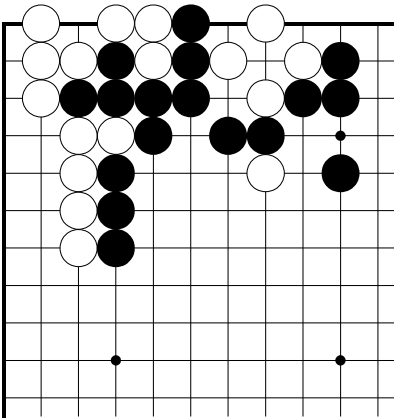
3   Problems

The answer diagrams and texts show every relevant sequence, explain all important decision-making and mention the applicable simplifications. Accordingly, the reader can check to which extent his reading of variations and related decision-making is complete or incomplete. When solving the problems, it is insufficient to find the correct answer to a problem's question or to read part of the necessary variations.

Reading must include a) all the necessary variations, b) all non-essential variations the reader reads before the related necessary variations and c) the decision-making.

In practice, only hindsight makes it possible to avoid reading superfluous, non-essential variations entirely. When no more powerful principle applies, we can only strive to minimise the number of read superfluous variations by identifying well the most interesting next moves. The captions denote the necessary variations by **bold font.**

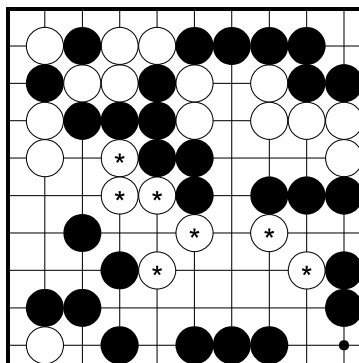## 3.1   Important Moves

3.1.1   Problems

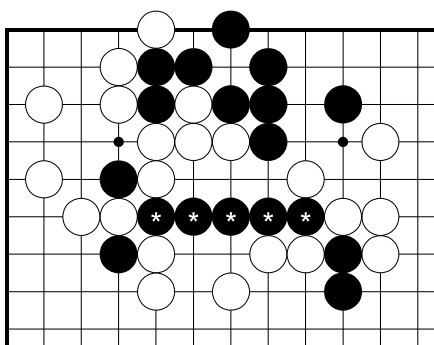*Problem 1: White to move*   *Problem 2: White to move*
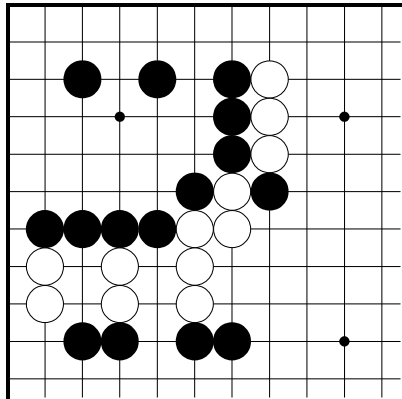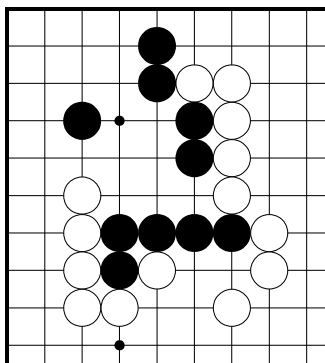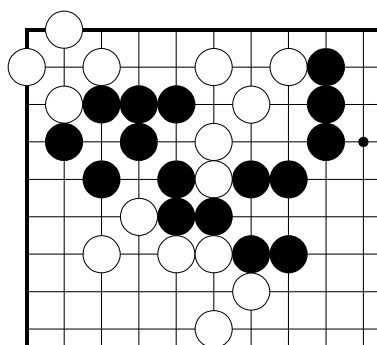
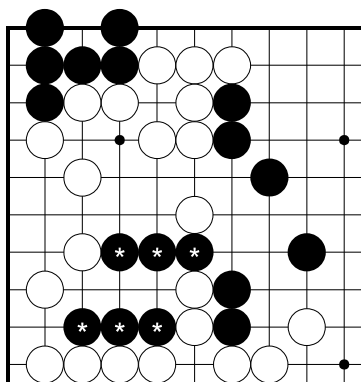*Problem 5: Are the
black strings connected?*

*Problem 6: Are the marked stones
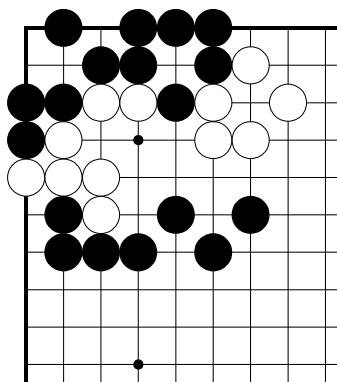connected to the corner group?*

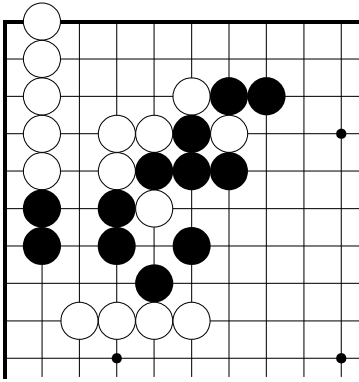*Problem 7: Is the marked string connected?*
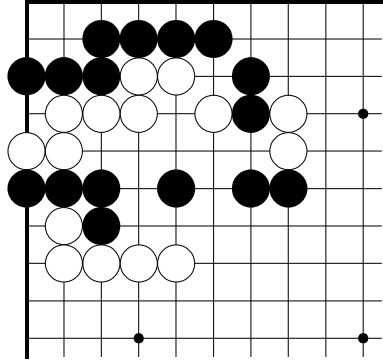

Problem 8: Black to move

*Problem 9: Can White cut and
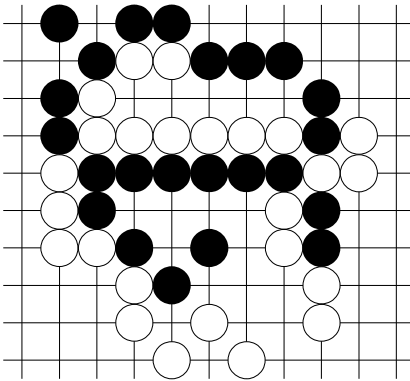capture the marked stones?*

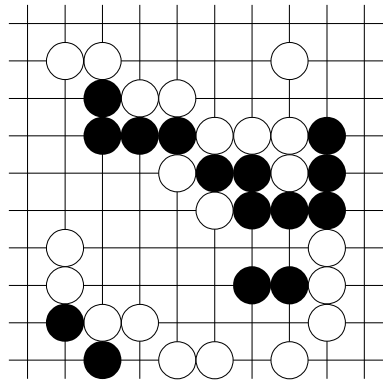*Problem 10: White to connect
all his strings unconditionally*

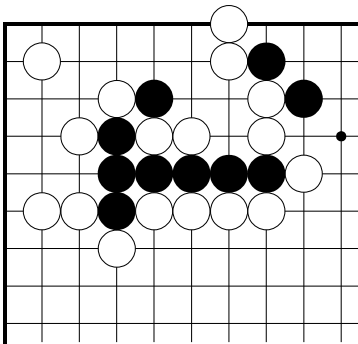117

Problem 33: White to move

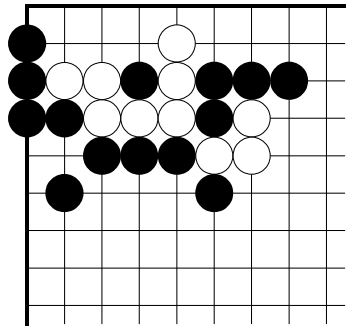*Problem 34: White to play the best endgame*

Problem 35: White to move

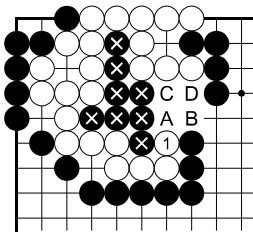*Problem 36: Black to move*

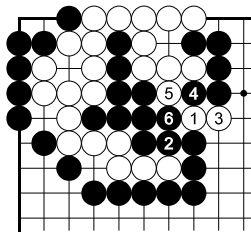*Problem 37: Is the white territory safe?*

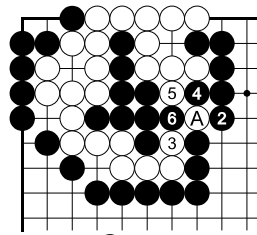*Problem 38: Can White prevent the capture of his big string?*

The upper white group is captured. In the *Problem 3* position, Black need not reinforce.


***Answer 4:** correct*   *Dia. 4.1: failure*   ⑦ at A.
Dia. 4.2: Black's mistake
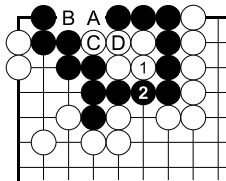
Answer 4 key: Regular reading.

Answer 4: The white group lives by capturing the marked black string. Black cannot rescue it with Black A - B, Black B - A, Black C - D or Black D - C. White 1 makes reading *Dia. 4.1 + 4.2* superfluous.

Dia. 4.1: The mistake 1 permits Black 2 to capture the big white group. Instead of move 1, White 4 or 5 are answered by Black 1. White 3 at 4, 5 or 6 is blocked by Black 3.
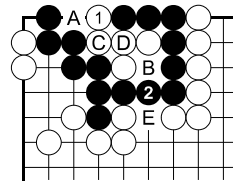
Dia. 4.2: If the wrong move 2 is considered first, one must also read *Dia. 4.1*.
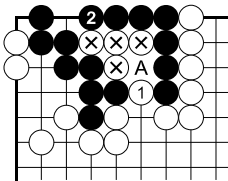
***Answer 5:** failure*   ***Dia. 5.1:** failure*   ***Dia. 5.2:** failure*
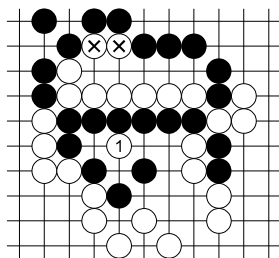
Answer 5 keys: Regular reading, technique 'liberty shortage'.

Answer 5: Black 2 captures the marked string in a liberty shortage. Instead, the self-atari Black A would a mistake.
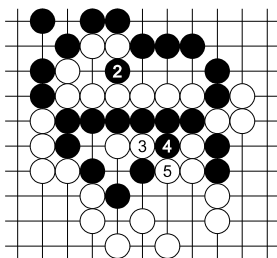
Dia. 5.1: White A - B - C - D or White A - B - D - C still allow Black to partition the eyespace of his own group. Instead of move 2, Black A also is correct.

Dia. 5.2: Black 2 or A are correct replies. Later, when White approaches the outside liberties, Black needs to fill A and B, remove the inner white string and create the equal options to partition the eyespace at C or D. Instead of move 2, Black avoids the self-atari B and the snapback after Black E - White 2.
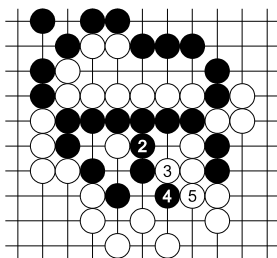
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Answer 34 techniques: The following techniques have been useful: building an eye, throw-in, squeeze, otherwise approaching outside before inside liberties in the capturing race.

Answer 35: *branching position* — **Dia. 35.1:** *White's success* — **Dia. 35.2:** *branching position*

Answer 35 keys: Regular reading; obvious first move; simplifications 'reversion', 'equivalent liberties'; techniques 'sacrifice', 'preventing partition of eyespace', 'preventing ko'.

Answer 35 overview: The obvious first move prevents Black from playing there and preparing ko trouble. White sacrifices an unimportant string. We apply the technique of filling equivalent liberties having the same shape in one representative order of moves. To determine the success of White 1 in *Answer 35,* we choose each interesting Black 2 and verify its failure by regular reading. Whenever a particular Black 2 leads to a branching position and Black's next move, there are two such interesting next moves, each of them is his failure and so we conclude the failure of the particular move 2. White 13 in *Dia. 35.4* and White 15 in *Dia. 35.12* are critical moves filling a liberty of a relevant, instead of an irrelevant, string in the capturing race (compare *Dia. 35.14*). When possible, we use reversion as a means of simplification.

Answer 35: White has the aim to capture the central black group. White avoids the too greedy aim of also defending the marked string; he is prepared to sacrifice it. White 1 is the obvious first move because it fills a liberty of the essential black string, prevents Black from partitioning the eyespace and prevents any ko shape. Therefore, we consider White 1 first. If it succeeds, alternative move 1s need not be considered.

Dia. 35.1 - 35.12: In reply to White 1 in *Answer 35,* we study every interesting Black 2 and its consequences.
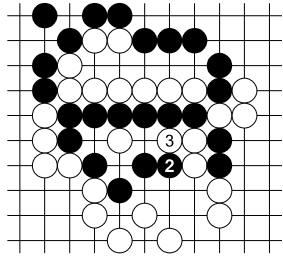
Dia. 35.2 - 35.4: The failure of Black 6 in *Dia. 35.3 + 35.4* implies the failure of Black 2 in *Dia. 35.2.*
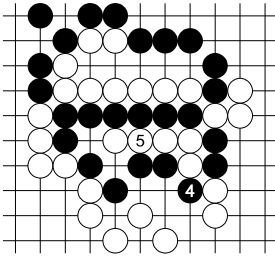
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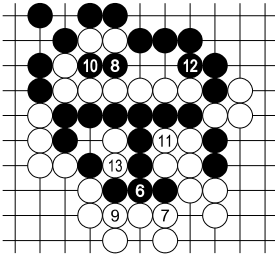
Dia. 35.3: White's success
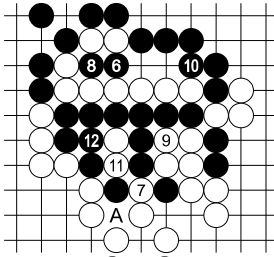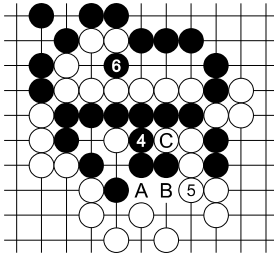
Dia. 35.4: White's success

⑬ at ⑪.

Dia. 35.5: branching position

Dia. 35.4: In this and similar variations, White must avoid the mistake of playing at A and losing the capturing race by one liberty.
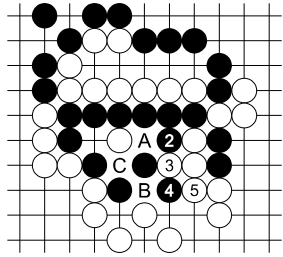
Dia. 35.5 - 35.7: From the failure of each interesting Black 4 in *Dia. 35.6 + 35.7,* we conclude the failure of Black 2 in *Dia. 35.5.*
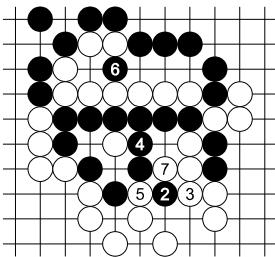
Dia. 35.6: White's success

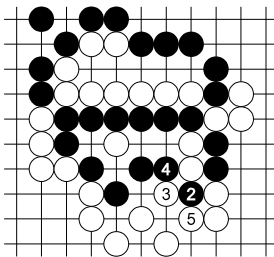*Dia. 35.7: White's success*

Dia. 35.8: White's success

Dia. 35.7: Except for different, but equivalent, locations of liberties on the intersections A, B and C, the sequence reverts to *Dia. 35.4* after its move 6.
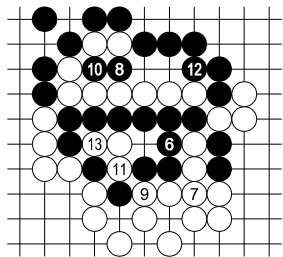
Dia. 35.8: Next, Black A - B, Black B - A and Black C - B fail.
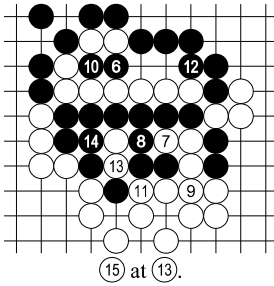
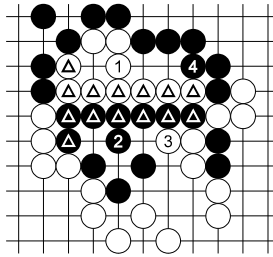*Dia. 35.9: White's success*

Dia. 35.10: branching position

Dia. 35.11: White's success

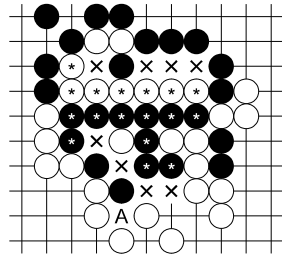*Dia. 35.9:* This reverts to *Dia. 35.4* after its move 7.

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Dia. 35.10 - 35.12: Since each interesting Black 6 in *Dia. 35.11 + 35.12* fails, we learn that Black 2 in *Dia. 35.10* is Black's failure.

⑮ at ⑬.

Dia. 35.12: *White's success*

Dia. 35.13: White's failure

Dia. 35.14: liberties

Dia. 35.1 - 35.12 conclusion: The failure of each interesting Black 2 implies the success of White 1 in *Answer 35.*

Answer 35 conclusion: White 1 in *Answer 35* fulfils White's aim of capturing the central black group.

Dia. 35.13: Since the marked strings do not share any liberties, move 1 does not help White to build an eye. Contrarily, the move hurts White because it fills one of his own string's liberties. Reading this diagram is superfluous if White 1 in *Answer 35* is chosen first.

Answer 35 simplifications: We have simplified regular reading by the means of reversion and equivalent liberties. For the latter, we have used the implicit understanding that it is sufficient to only consider one representative order of filling a group's liberties as soon as their shape is clean enough to recognise their homogeneity. Furthermore, we could greatly reduce variations by starting with the obvious move 1 in *Answer 35.* However, there is no short-cut for considering each interesting reply 2; only by choosing and reading each, can we be sure that Black does not have any successful reply.

Answer 35 techniques: When the shapes of liberties become sufficiently harmless so that kos cannot occur, the liberties are equivalent and reversion is applicable, we might also apply the technique of counting liberties. For example, after the sequence shown in *Dia. 35.7,* it is White's turn and the strings marked in *Dia. 35.14* have the denoted liberties. Since each marked string has four liberties, White's turn guarantees his win of the capturing race. One must be careful not to count A as an approach liberty of the marked black string because White can approach and fill its denoted four liberties without playing at A. This is so because White has the technique of throwing in at 13 in *Dia. 35.4.* While advanced players have the experience to make such considerations correctly, be-