Commentary on the Asian Games 2013 Rules

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Preface

If you are the person having requested this commentary, please contact me by email from an address different from <...@daum.net> and <...@paran.com>. Currently, these servers reject my emails to you saying "The server is too busy".

The cited rules and their Attachments are the "4th Asian Indoor & Martial Arts Games Incheon 2013 Rules". Their title is "The Korean Rules of Baduk [Go]". However, this title appears to be misleading: although these rules and their Attachments were set by the Asian Go Federation and used at the 4th Asian Indoor & Martial Arts Games Incheon 2013 and are Korean style rules, it seems that they are not the rules used by the Korean Baduk Association and the Korean Amateur Baduk Association. In this document, I abbreviate the "4th Asian Indoor & Martial Arts Games Incheon 2013 Rules" as the "Asian Games 2013 Rules".

I comment on the rules of play. At the moment, I do not have time to comment on the tournament rules (Competition Code). I forgo trivial English language mistakes.

Version 2 of this document changes this preface and replaces improper occurrences of "(current) Korean (2013) Rules" by "Asian Games 2013 Rules" or "Korean style Rules", as necessary.

Rules Citation

[The non-obvious, essential parts of the rules (except for the tournament rules, examples, precedental diagrams, most of their comments and references) and their Attachments are cited below from a "4th Asian Indoor & Martial Arts Games Incheon 2013" document and what appears to be two "Attachments" to that. "Article" is abbreviated as "§". Text in italics is inserted by Robert Jasiek.]

The Korean Rules of Baduk [Go]

§6 Life and Death

All unremovable stones are alive stones and all removable stones are dead stones. [...]

§8 Territory and Neutral Point

1. Territory consists of points surrounded by completely independent living groups. Each intersection is one point. [...]

2. [Neutral Points are empty points] left between alive groups belonging to the two players [...] Neutral points shall be filled alternately.

§9 [...] Seki [...]

As stones with neutral points in [...] seki [...] are not independently alive, the points they surround are not territory.

§10 Recreation of the same Configuration

Recreation of the same configuration is returning to the same configuration after a sequence of moves.

1. Recreation of the same configuration repeatable by both players If both players agree, the game ends in a draw.

[Diagrams show triple-ko, eternal-life, round-robin-ko, two double-kos, three basic-kos (two open for Black, one open for White) and a double-ko-seki in its stable state, two double-ko-deaths, triple-ko-stones position.]

2. Recreation of the same Configuration repeatable by one player only

[...] only [one particular player] can recreate the same configuration, therefore, [this player] has an option of ending the game in a draw.

[Diagrams show triple-kos with one external approach ko or stage-ko.]

§11 Ending the Game

1. The first set of Passes

A player may find that making another move is not advantageous. If [he] chooses to skip a move, [he] should say "pass". If the opponent responds likewise by saying "pass", then, it constitutes the first set of passes.

2. Confirmation of the life and death of stones and territory after the first set of passes

After the first set of passes, the players decide which of the groups are alive and which are dead, with each position considered locally without regard to the whole board position.

3. The second set of Passes

After the confirmation of life and death of stones, a player may find there is no further move to make. In this case [he] should say "pass". If the opponent responds likewise by saying "pass", it constitutes the second set of passes. By this the game is completed.

§12 Scoring and Decision of Winner

1. After the completion of a game, each player removes opponent's dead stones from the board [...]

The detailed commentaries on the Recreation of the same Configuration (Attachment 1)

[Diagrams and comments on the rules' long cycle diagrams explain mainly when recreation occurs and how many "moves" a cycle has.]

Confirmation of Life and Death of Stones and Points after the Passes (Attachment 2)

1. Confirmation of Life and Death of Stones after the First set of Passes.

After the first set of passes, both players confirm the life and death of stones by considering the local situation only. For example, in case of Ko, Ko threats of other areas are not effective, but only local Ko threats are effective. At this stage, if one player can prove that he can capture an opponent's group of stones while the opponent cannot rescue this group, the stones belonging to this group are regarded as dead stones.

[Example 1: bent-4 and double-ko-seki; the position is partitioned into two local parts, where ko threats may be played: 1) the bent-4 and the surrounding region with an independently alive white group, 2) the double-ko-seki and the surrounding region with an independently alive black group. The bent-4 is dead; the double-ko-seki is a seki.]

[Example 2: two double-ko-deaths in their stable state and each surrounded by an independently alive black string.] [...] Before the first set of passes Black can make a draw or capture one of the group of white stones, but after the first set of passes all black stones *[in the double-ko-deaths]* are dead. [...]

[Example 3: bent-4 ko with black string, black ko stone and white stone, all surrounded by independently alive white strings.] If White captures the [ko stone], Black will be dead because Black has no local Ko threat. Therefore [...] Black must capture the white stone [...]

[Example 4: bent-5 ko with black string, black ko stone and white stone, all surrounded by independently alive white strings.] [...] Black has no need to place an additional stone *[...If White starts,]* there is no Ko threat for White. [...]

[Example 5: independently alive black region and group, of which one black stone at the region's boundary captures a white string in

snapback.] [...] White can not rescue these stones because of a snap back. Therefore, Black does not need to place an additional stone [...]

[Example 6: black bent-4 string, inner white string with three stones, surrounding region with an independently alive white group] [...] White does not need to place an additional stone.

[Example 7: triple-ko with one internal ko open for Black, one internal ko open for White and one external ko open for White, surrounding independently alive black strings.] The white stones [...] are alive because Black can not capture them. Black shall choose either a draw or [...] Seki [...]

[Examples 8]
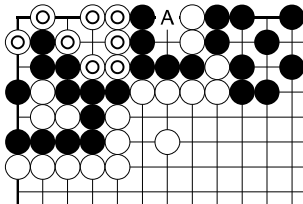
Example 9, Dia. 1
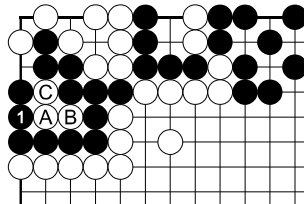
②at A, ❸at B, ④pass,
❺at C.
Dia. 2 + 3

[Example 9] White stones marked by [circles] are alive, and the three isolated white stones are alive also. If Black tries to capture the white stones after [White 2 in Dia. 3], the left group of black stones will be killed because Black has no Ko threat while White has Ko threats at [A]. Therefore, all groups of stones are in [...] Seki [...] It is advantageous for Black to capture the three isolated white stones as [in Dia. 2 + 3] before the first or second set of passes. The three stones are alive if they are not captured before the second set of passes is made.

2. The Second set of Passes.

It is understood that both players confirmed life and death of stones and points after the first set of passes. After the second set of passes, if the two players do not agree on the life and death of

groups, the referee shall judge as follow:

1) If the game has not ended properly, allow the player who first made a pass to play, and then end the game.
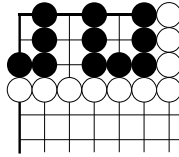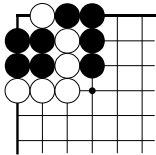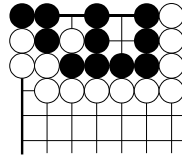

Dia. 1

If the players discover that there is a place to play as in Dia. 1 after both players made a pass the referee lets the player who first made a pass play. The game ends after it.

2) Judgment by right to play

(1) If both players gave up the right to capture, this part is regarded as [...] Seki [...]. In Dia. 1 and 2, Black can capture one white stone, and White can capture four (or three) stones. If the game ended without capturing as in Dia. 1 and 2, the stones in question are regarded as alive.

Dia. 1

Dia. 2

(2) If one player did not place where [he] can capture the opponent's stones or take advantage, it will be considered that [he] gave up the right to play. And all the right to place is at the opponent's disposal.
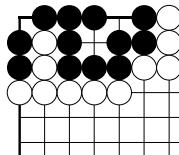
Dia. 1

If the game ended without capturing the two stones at the corner in

Dia. 1, regarding that White gave up the right to capture them, the referee ends the game after allowing Black to connect the two stones.

Mistakes in the Asian Games 2013 Rules of Baduk

§1 I

§1 "alternately playing one move at a time"

Correction: "alternately making one move or pass at a time"

Additional note: in English go rules language, usually "move" means "play or pass". Therefore, an even better correction is: "alternately making one play or pass at a time" Alternatively, "move" can be defined as "play or pass" and then one can write "alternately making one move at a time".

§1 II

§1 "to see who can take larger territory"

Correction: "to see who can get the greater number of his territory intersections and prisoner stones of opposing colour"

§3.2

§3.2 "Black and White take turns placing one stone at a time at an intersection"

Correction: "Black and White take turns to make one play or pass at a time."

Additional note: "play" can be defined in the rules.

§3.3

§3.3 is a superfluous rule.

§4.1 I

§4.1 better "contiguous string of same-coloured stones"

Additional note: In English, I strongly recommend to use "string" (or "chain") for a contiguous, mutually connected set of same-coloured stones. In rules, "group" should be used for "a set of one or several same-coloured strings for which their common life and death status is considered together". One must not confuse string and group. Therefore better:

"A **string** is a set of one or several contiguous, mutually connected, same-coloured stones."

§4.1 II

§4.1 "The number of liberties of a contiguous group is the sum of liberties of each stone in the group." is superfluous.

§4.2 I

§4.2 "surrounding" is ambiguous. The intended meaning is: "...because each adjacent intersection is occupied by a stone of the opponent."

§4.2 II

Many places in the rules, such as §4.2: Instead of expressing general contents in the rules text, only an example with a diagram reference is given. The rules need many corrections, so that always already the rule text describes the needed contents in general.

Additional note: I am aware that East Asian educational culture uses teaching by examples a lot. However, in rules or law texts, such an approach is wrong. Examples instead of general rules texts are a sign of weak and incomplete contents of the rules. Rules authors must not express their insufficient knowledge of how to write general rules contents, but they must overcome it. Examples can be useful in commentaries supplied in addition to generally applicable rules.

§4.2 III

§4.2 Diagram 3.1: the diagram is misleading, because it suggests that it could ever occur that White would capture three strings in different parts of the board. In other words, instead of being lazy, there should be three separate diagrams, one for each capture.

Additional notes: Is it really necessary to show trivial examples in the rules? If space is wasted for them, then why are there not hundreds of examples for difficult parts of the rules? Some examples for captures of several strings would be more helpful than showing three examples of capturing one string. Similarly,

there could also be examples of capturing strings near the edges. Anyway, I think that no such example is needed. They belong to commentaries or beginner books.

§5

§5: In my opinion, using forbidden intersections to define prohibited suicide is inelegant, because prohibited intersections can occur also due to the ko rule. Alternative: define "play" so that, after any removals of opposing strings, the string including the currently placed stone has at least one empty adjacent intersection (liberty).

§6 I

§6 general remark: The rules are a complete failure with respect to attempting to define life and death. The rules authors have had no clear idea how to do it. Even if the low levels of hypothetical-sequences, hypothetical-strategies and forcing (see the Japanese 2003 Rules) are omitted in the rules and hidden in expert commentaries, the application level related to uncapturable and capturable is still a complete failure. Therefore, I recommend to avoid defining life and death by means of (un)capturability. The much easier alternative is the possibility of transformation to two-eye-formations.

Historical note: The Korean 1992 Rules showed, at least in their examples, an understanding of capturable-1 occurring in nakade or snapback, but, like the Japanese 1989 Rules, overlooked the also necessary capturable-2.

§6 II

§6 "All unremovable stones are alive stones"

This is ambiguous because of possible multiple threats. For example, a double threat can attack two strings A and B; the defender can prevent removal of either A or B; he cannot protect both A and B.

Correction: define unremovable per string: "A particular string is uncapturable if..."

§6 III

§6 "all removable strings are dead"

Very wrong! This overlooks capturable-1 life (possible in nakade, snapback and a few arcane shapes) and capturable-2 life.

Correction: define capturable-1, define local-2, define capturable-2, define dead (as in the Japanese 2003 Rules).

Additional note: In independent life, uncapturable, capturable-1 or capturable-2 can occur when there is the possibility of transformation to a two-eye-formation.

§6.1 I

§6.1 "compartmentalized"

better "not adjacent"

§6.1 II

§6.1 "cannot"

Semantically correct English is "may not", because it is a matter of prohibition. It is not a matter of ability of physically placing a stone.

§6.1 III

§6.1 "cannot... neither"

I think that "cannot...either" is semantically correct English style. Single negation suffices.

§6.1 IV

§6.1 "group"

Here is an example where it is relevant to speak of "group" in the meaning of "life and death group" in contrast to "string", because a "life and death group" can consist of several strings.

§6.2 I

§6.2 "can take away"

This description is not good enough because of Black's possible

intervention.

Correction: "can remove the black string"; further text needs to be adjusted accordingly.

§6.2 II

§6.2 "cannot be removed...as long as it has liberties...are removed...after the game is completed"

This is a contradiction or needs further explanation why, after the game is completed, removal is done despite the still existing liberties.

§7 I

§7 "can...cannot... cannot"

Correction of the English: "could...may not...may not"

§7 II

§7: It should be clarified whether recapture in a ko is allowed (just) after a succession of two passes or the first succession of two passes.

§8.1 I

§8.1: "Territory consists of points surrounded by completely independent living groups."

Partial correction and deletion of a superfluous word:

"Territory of a player consists of intersections surrounded by his independently alive strings."

However, "surrounded by his independently alive strings." is ambiguous, because the surrounded part of the board might include regions that are surrounded by the opponent's independently alive strings or that are sekis.

Correction: one needs to be careful. The basic idea to a solution is: consider a region consisting of intersections that are empty or occupied by the opponent's not independently alive stones; the region is adjacent to and only adjacent to (that is, surrounded) by

the player's own independently alive stones.

§8.1 II

§8.1 "The intersection A is not counted as a point because the black stone marked by [triangle] can be captured."

This is bad reasoning, because the stone might be capturable-1 or capturable-2. One must exclude both, before the conclusion "is not counted" may be made.

§8.2

§8.2 "Neutral Point(s) is (are) empty point(s) left between alive groups belonging to the two players"

Surely, there are also neutral points in sekis. The rule does not want to prescribe their filling, but must not also pretend their non-existence.

Correction: "Those empty neutral points left in between Black's and White's independently alive strings shall be filled alternately."

§9 I

§9 "Tie"

In English, tie is not used to describe a seki. Tie can be used for a drawn game (jigo).

§9 II

§9 "a group of black stones and a group of white stones"

This contradicts the possibilities of sekis consisting of several black strings, several black groups, several white strings or several white groups.

Correction: "in which each group of a player's strings"

§9 III

§9 "seki...with one or more neutral points between them"

Matti Siivola has found an extremely rare seki shape with a group without any neutral point. See his webpage for the example.

However, nevertheless the rules may define seki as something with neutral points. The exceptional shape is too rare to be relevant in practice. On the other hand, one can define seki differently along the conceptual idea that locally neither player wants to start playing because of unfavourably altering the score.

§9 IV

§9 "Neither of these groups can capture the other because such an attempt will result in its own capturing."

Correction: "Neither player plays first within or in between the groups because of a disadvantageous change of the score. However, one or both players can play there to capture a few of the opponent's stones so that the change of the score is constant or advantageous."

§9 V

§9 "the points they surround"

This overlooks the possibility of capturable stones in sekis.

Correction: "the intersections they surround" (Note: this includes the possibility of intersections occupied by capturable stones.)

§10 I

§10 "configuration"

In English go rules, the distribution of the black and white stones on the board is called the "position". (For situational superko, when also considering the turn, one speaks of the "situation".)

§10 II

§10 "repeatable by both players" / "repeatable by one player only"

The difference between the two cases remains unclear and ambiguous. For example, in Diagram 20 or 21, the sequence White captures in double ko, Black captures in double ko, White passes, Black passes, White captures in double ko, Black captures in double ko proves that either position is repeatable by both players. If the players cooperate, more such sequences can be constructed.

One cannot even explain a difference by any of the following attempts of explanation:

- Using "force" (as in the Japanese 2003 Rules), such as "the opponent cannot start and force repetition", because repetition can occur nevertheless.

- Using "only one player can attack and force a cycle", because, in the eternal life of Diagram 14, only Black can do so, while the rules set "repeatable by both players" for this example.

- Using "Either (versus: Only one) player can start and force the opponent's positional repetition play, while the opponent prevents the player's area-improvement on the cycle-set." (see my Ko definition paper), because *both* examples Diagram 14 and 15 belong to the "repeatable by both players" type.

- Referring to the parity of the cycle length, because the examples do not allow this distinction.

- Imagining one player to attack a few points on the outside and sacrifice most points on the inside, because Diagrams 16, 17, 20 and 21 do not belong to the same type.

- Referring to a player's initially greater number of possible ko captures.

Since, as far as I can think, the two "types" cannot be distinguished in general, the solution is:

Correction: delete 10.1 and 10.2. Write: "If a cycle including more than two plays recreates the position, the game ends in a draw."

Additional notes: This does not depend on the players' willingness to agree to have a draw; so collusion to prolong the game indefinitely is impossible. In a sending-2-returning-1 shape starting from its stable state, the potential attacker prefers not to attack, because, after a sufficiently great, finite number of cycles, the opponent will have collected a sufficient prisoner excess. The

condition "including more than two plays" still allows for an enhancement of the ko rule to allow recapture in a ko after successive passes.

Historical note: I am aware that the Korean 1992 Rules had a conceptual idea of one player possibly having "more rights in a ko". This ambiguous concept might be the cause for the current attempt to distinguish the two cases. The old concept and the new concept are both ambiguous and unclear. Therefore, it is the best solution to admit having been in a conceptual dead end and abandon the related rules exceptions entirely. Would anybody really care? Most of the examples occur once every 5000th game or much less frequently. For example, I am not aware of any professional or amateur game ever(!) with triple ko stones.

§10.1 I

§ 10.1 "If both players agree"

This allows the players' cooperation to never end the game, but proceed indefinitely.

Correction: see above.

§10.1 II

§ 10.1 "If both players agree"

It is undefined whether the players can agree during hypothetical analysis play.

§10.1 III

§ 10.1 Three-Stone Eternal Life

The usual English go rules expression is "triple ko stones".

§11.2 I

§ 11.2 "locally"

This is ambiguous: different partitions into local regions could be imagined, especially for difficult examples.

Correction: A solution would be possible along the concept of

local-2 in the Japanese 2003 Rules: partition the board into regions surrounded by the opponent's uncapturable or capturable-1 stones. However, such a solution is only possible for go rules experts. By far most players would not understand it in practice.

Alternative: Use the Simplified Korean Rules. Their concept of 'independent region' implies locales.

§11.2 II

§ 11.2 "without regard to the whole board position"

This is wrong when a group covers the whole board and "local" becomes global.

Correction: delete the text.

§12.1 I

§12.1 "removes opponent's dead stones from the board"

Correction: "removes the opponent's dead stones from the player's own territory"

Additional note: No dead stones are removed from sekis during scoring, because the rules want removal only from territory, that is, from within independently alive groups.

§12.1 II

§12.1 overlooks the possibility of excess prisoners that cannot be filled in on the board.

Correction: mention this possibility and explain how to count such excess stones.

§12.2

§12.2 "The player with the more points is the winner."

English note: "with the greater number of points" or "with more points".

Correction: it would be nice to the reader of the rules if they mentioned the possibility of a drawn game and any komi.

Mistakes in the Rules' Attachment 1

General Comment

It remains unclear why there is so much explanation of possible cycles and RSC (repetition of the same configuration) moments of repetition. Instead the commentary should really explain for each example *why* a pattern is either "repeatable by both players" or "repeatable by one player only", because this is the only difficulty of the ko rules. The commentary does not provide any clarification. Whenever sequences are shown followed by a comment of what Black or White shall choose, it remains absolutely unclear *why* the study of sequences shown *necessarily implies* a particular following comment of what Black or White shall choose. It remains also unclear why some sequences are shown and other sequences (for example, such with passes or such making captures in only part of all available kos) are not shown.

I.1

I.1 "moves"

For the sake of studying cycle length, it is important to specify clearly whether "moves" mean "plays only" or "plays or passes". Just writing "moves" is ambiguous.

I.2

I.2 "by Pattern"

Cycle lengths do not depend on patterns alone. For example, cycles can go through different patterns and accordingly have different lengths. For example, imagine a cycle of even length going throw two patterns each being a sending-2-returning-1. As a consequence, characterising cycles only by the parity of their numbers of plays is insufficient.

The question arises what is the purpose of considering play local to a particular pattern and then cycle length there. The purpose remains unclear in the commentary. Consider one sending-2-returning-1 starting from its stable state; a positional cycle has 3

plays; a situational cycle (which can recur in alternation) has 4 moves (3 plays followed by 1 pass).

II.1.1

II.1.1 Why is it "repeatable by both players"?

- It is repeatable by Black, because Black can start and force a cycle.

- It is not repeatable by White, because the starting White removes all black stones.

This explanation is missing in the commentary.

Is this explanation missing in the commentary because it would have to admit that the assignment of examples in the rules is wrong? There is simply no way that any reasonable player could overlook that White's first play removes all black stones. The triple ko starts from a position, in which the black strings are in atari. The example does not start from a position, in which the big black string has two liberties. In a *different* example, in which initially it has two liberties, White can start and force a cycle, while Black cannot, because he would start by removing all white stones. Triple ko is not quadruple ko starting from its stable state. In a quadruple ko starting from its stable state, either player can start and force a cycle.

Footnote (1)

English suggestion: Use "Diagram" and "Var." for "Variation", or use "Example 1" and "Dia. 1.1" for "Example 1 Diagram 1".

II.1.2

II.1.2 Why is it "repeatable by both players"?

- It is repeatable by Black, because Black can start and force a cycle.

- It is not repeatable by White, because the starting White creates nakade.

This explanation is missing in the commentary.

II.1.3 - 5

II.1.3 - 5 Why is it "repeatable by both players"?

- It is repeatable by Black, because Black can start and force a cycle of a set of cycles.

- It is repeatable by White, because White can start and force a cycle of a set of cycles.

This explanation is missing in the commentary.

II.1.4

II.1.4 <twice> "the situation is over"

It is not really correct that the situation is over, because there is still a double ko seki, in which, for example, a cycle Ko-capture - Ko-capture - pass - Ko-capture - Ko-capture is possible. Hence, some explanation is needed why the remaining double ko seki is "harmless" when applying the rules to only it.

II.1.6

II.1.6 Why is it "repeatable by both players"?

- It is repeatable by Black, because Black can start and force a cycle.

- It is not repeatable by White, because the starting White removes some black stones.

This explanation is missing in the commentary.

II.1.7

II.1.7 Why is it "repeatable by both players"?

- It is repeatable by Black, because Black can start and force a cycle.

- The starting White can create a basic ko fight and, if he loses it, partition his eyespace.

- It is not repeatable by White in a very long cycle, because the starting White cannot play a ko stone in the triple ko

stones region and because Black, when moving second, cannot play a ko threat in the triple ko stones region in time.

- The two-stage ko, constructed with passes, would not be related to "forcing". The two-stage ko, played with intervening ko threats on the rest of the board, would not lead to a repetition.

In summary, it would be an exaggeration to speak of "repeatable by both players".

This explanation is missing in the commentary.

II.2.1

II.2.1 Why is it "repeatable by one player only"?

- It is repeatable by Black, because Black can start and force a cycle.

- It is repeatable by White, if the players play only in the double ko and a single pass occurs. However, after the single pass, Black can choose to pass, so that White's attack is not "forcing".

- It is repeatable by White, if the players play only in the double ko and a succession of two passes occurs. After the passes, if I understand the rules correctly, recapture in a basic ko is allowed. Presuming a local territory scoring condition, Black cannot avoid this sequence. So White can "force" repetition. The repetition White can force affects the double ko pattern only; it does not affect all 3 or 4 kos in the example.

In summary, if "repeatable" refers to all local ko intersections, then the example is repeatable only by Black. If "repeatable" refers to any subset of local ko intersections, then the example is repeatable by both players. Either case then also requires an explanation of how the "local" region is defined.

This explanation is missing in the commentary.

II.2.2 I

II.2.2 Why is it "repeatable by one player only"?

This is similar to II.2.1.

II.2.2 II

II.2.2 "Black shall choose either a draw of Dual Life / Seki / Tie"

Not just in this example, but in every example, a choice between a drawn game and seki can involve undecidable strategy. This is so especially if choosing a seki leads to the score 0. Strategy is undecidable, because the game result "drawn game" is uncomparable to the game result 0 (or to any game result with a score). It is a mistake of rules to create undecidable strategic decisions.

II.2.2 III

II.2.2 "can not continue to play"

Correction: "can not immediately continue to play"

Notes: After passes, continuation is possible. It is, however, undefined in the rules if ko recapture is allowed after two successive passes.

II - All Examples I

The nature of "force" requires careful explanation and justification similar to my general Ko definition paper. For each example and each starting player, one must explain the nature of "forcing". The basic idea is: one player forces a cycle, while the opponent prevents the player's local territory score improvement. This must be worked out in detail, and "local" must be defined carefully in relation to an example's cycle-set (the set of intersections on which plays can occur during cycles).

Conclusion: the current classification of examples into "repeatable by both players" or "repeatable by one player only" is dubious. I think I could find some meaningful explanation using the techniques of my Ko definition paper. However, such a

classification and its explanation would be by far too difficult for go rules. I recommend to abandon any attempt of classification into "repeatable by both players" or "repeatable by one player only". Possible solutions:

- Solution 1: positional superko.

- Solution 2: basic ko rule and long cycle ko rule

- Solution 3: other ko rules

I am aware that Korean style rules have a history of trying to enforce finished yose. My recommendation: abandon the concept of enforcing finished yose. Alternative weaker recommendation: abandon it for patterns with possible long cycles. As a consequence, it is possible that also patterns other than double ko seki can remain on the board at the game end, if the players choose so. It is then necessary to score the positions by identifying life and death status. The ko rule(s) of either solution would then be used together with the definitions of life and death. This is possible for Japanese rules; it is also possible for Korean style rules. Needless to say, details of the rules for status assessment must be worked out carefully.

II - All Examples II

Comments like "White should give up [something]" or "Black shall connect" should clarify that White's strategic decision must be made before the game end, that is, during the regularly played alternation.

Mistakes in the Rules' Attachment 2

Whole Text

"ko threat", at various places of the commentary:

"ko threat" is undefined. Although I am confident to find a good definition within 5000 hours of research, I lack the necessary time. Presumably, others would need at least as much research time and effort.

Solution: avoid using "ko threat" in go rules.

Alternative approximation: describe "ko threat" informally in the rules. Warning: not each naive description makes sense.

Additional notes: Defining "ko threat" is the most difficult, because it depends on "forcing", scores, comparing scores of outcomes of different move-sequences, related imagined strategic decisions, locality, interdependence of cyclic plays in one ko or long-cycle shape being ko threats for another ko or long-cycle shape and vice versa, types of ko threats (such as tertiary or negative ko threats), passes as ko threats, forcing related to passes, pass-fights (fights about being the first or last to make a / the next pass) etc.

1 I

1 "only local Ko threats are effective"

Why should one allow only *local* ko threats? Is this simply the arbitrary preference of the authors of the rules? Is it an attempt to codify by all means a local-only concept of life and death in the status assessment of life and death at the game end?

1 II

1 "local"

"local" is ambiguous.

Solution: Use "local-2" of the Japanese 2003 Rules.

1 III

1 "effective"

"effective" is ambiguous.

Solution: speak of "force" as in the Japanese 2003 Rules.

Additional note: the rules expert also wants to see the definitions needed to defined "force" in the rules.

1 IV

1 "At his stage, if one player can prove that he can capture an opponent's group of stones while the opponent cannot rescue his group"

This is ambiguous, because 1) "group" is ambiguous, 2) multiple threats create ambiguity, 3) it is ambiguous whether "while the opponent cannot rescue his group" is the opponent's task during the player's attack or is a separate condition to be verified independently from "if one player can prove that he can capture an opponent's group of stones", 4) "can prove" is ambiguous (in particular, details should be spelled out, like in the Japanese 2003 Rules).

1 V

1 "At his stage, if one player can prove that he can capture an opponent's group of stones while the opponent cannot rescue his group"

What about anti-sekis? (Either player moving first can remove the opponent's local strings.)

Solution step 1: write "if exactly one player can"

Solution step 2: be particularly careful when defining "surrounded by independently alive stones" for the sake of defining territory.

1 VI

1: The first moving player is undefined.

1.1 I

1.1: It is unclear why where is a separation in exactly two parts and why into exactly these two parts. It is necessarily unclear because "local" is undefined in the rules.

For example, another partition would be into the four parts a) bent-4, b) independently alive white group, c) independently alive black group, d) double ko seki. Another kind of local analysis can be constructed by studying the local-2 (like in the Japanese 2003 Rules) of every string that is neither uncapturable nor capturable-1.

1.1 II

1.1 "Dual life / Seki / Tie"

It is insufficient for a commentary to claim "seki". Instead, one should first identify the living strings and any neutral points, because the rules define seki by means of alive and neutral points.

1.1 III

1.1 "no local Ko threat"

Temporary correction: "no effective local Ko threat"

Additional note: "effective" is undefined. For a real solution, see further above.

1.3

1.3 "Black must capture the white stone by playing a black stone at 'a'."

It should be mentioned that such a capture should occur before the first succession of passes.

1.4 I

1.4 caption "Dia. 2"

Correction: "Dia. 2 (Black 2 pass)"

1.4 II

1.4 "Black has no need to place an additional stone at 'a'."

It should be mentioned that this does not refer to hypothetical play, but to real play.

1.4 III

1.4 "White has no other choice but to pass."

Better: "In mandatory local play, White has no other choice but to pass."

1.4 IV

1.4: An explanation is missing that Black 2 pass is / can be used instead of a local ko threat.

1.5 I

1.5: "because of a snap back"

Snapback is not a rules term. Therefore, it does not suffice as an explanation of rules application.

1.5 II

1.5: The real problem of this diagram is the status of the black stone below 'a'. Its status must be explained, but an application of the rules lets it be 'removable' and so 'dead'.

1.6 I

1.6: "can capture"

When the rules will be improved, then the explanation can be continued with "and Black cannot play a permanent stone" or can become "Black cannot establish a two-eye-formation on at least one intersection of the marked black string".

1.6 II

1.6: "Bent-four at the corner"

English: "bent-four in the corner" or "bent-four-in-the-corner" or "bent-4 in the corner".

1.7

1.7 "The white stones marked [...] are alive because Black can not

capture them."

This contradicts the possibility that Black can capture at least the single outer white stone.

1.8

1.8: The explanation is weak. What is the local region in this example? Why? An exchange sequence is possible; why, according to the rules, does this not alter the seki status? Since three white stones in the corner are removable, they must be dead according to the rules.

At the very least, the commentary should convey the following:

Firstly, it must be clarified whether the confirmation according to §11.2 of the rules expects exactly one move-sequence or several move-sequences. Several move-sequences are expected, because a) confirmation is local for ko threats and b) Attachment 2 has comments for a position considering the cases 'Black starts' versus 'White starts'. Therefore, I make this assumption: *the confirmation can have several move-sequences.*

Secondly, it must be clarified whether move-sequences of the confirmation destroy the position after the game's first succession of two passes. For this purpose, I make the following assumption: *move-sequences of the confirmation are hypothetical.* This means that they are only imagined, but not executed with the played game's playing material.

Thirdly, it must be clarified whether prisoners made during move-sequences of the confirmation are counted. For this purpose, I make the following assumption: *prisoners made during move-sequences of the confirmation are ignored.*
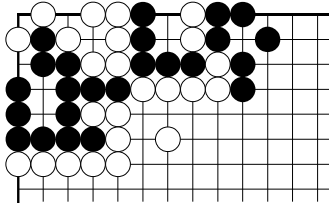
Example 8
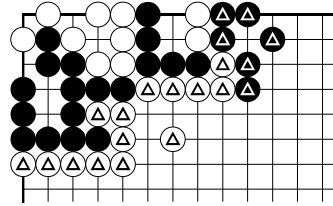
Dia. 8.1: obviously unremovable

Example 8: Confirmation of life and death after the first succession of passes.

Dia. 8.1: Obviously, the marked strings are unremovable.
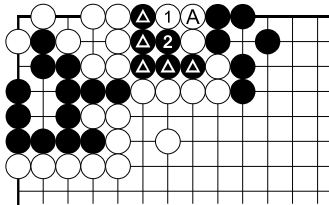
③ at ①, ❹ at A.
Dia. 8.2: unremovable
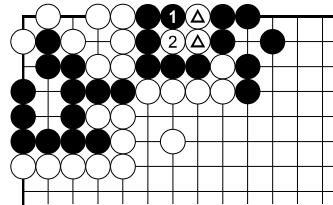
Dia. 8.3: unremovable

Dia. 8.2 + 8.3: Since it is undefined in the rules, I make the following assumptions: *1) one string is analysed at a time, 2) the opponent of an analysed string starts.* Due to this representative sequence, the marked string is unremovable.
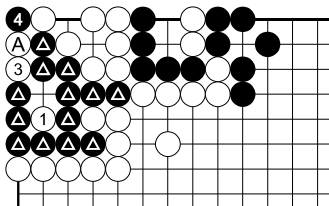
❷ pass, ⑤ at A.
Dia. 8.4: unremovable
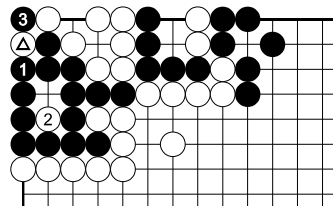
Dia. 8.5: removable I

Dia. 8.4: Even after an infinite repetition of the cycle 2 to 5, the marked string is not removed. White 3 at 4 does not help, either. Therefore, the string is unremovable.

Dia. 8.5 - 8.10: The status of the stone marked in *Dia. 8.5* is studied.
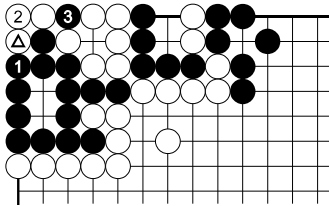
Dia. 8.6: removable II
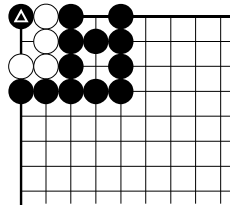
Dia. 8.7: removable, but not dead

Dia. 8.5 + 8.6: The marked stone is removable. According to the rules, removable stones are dead. However, as *Dia. 8.7* shows, this is not the rules' intention. Therefore, I make the following assumption: *a string can be alive if a) it is unremovable or b) the string is removed and its player can play an unremovable stone on at least one intersection of the initial string.* In the terminology of the Japanese 2003 Rules, if (a) does not apply and (b) applies, the string is 'capturable-1'. (The possibility of 'capturable-2' is still overlooked.) Now, we need to study if the marked string is capturable-1.
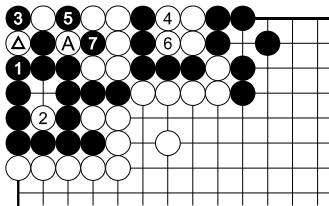
⑧ pass, ❾ at A.
Dia. 8.8: White's failure
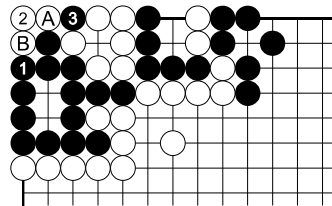
④ at A, ❺ at ②, ⑥ at B,
❼ ⑧ pass.
Dia. 8.9: capturable-1 I

Dia. 8.8: In this variation, the marked stone is removed and White does not play an unremovable stone on its intersection. Play 2 is White's mistake, because White 2 in *Dia. 8.9* is better for him.

Dia. 8.9 + 8.10: The marked stone in *Dia. 8.8* is capturable-1: if Black removes it, White plays an unremovable stone on its intersection.

Dia. 8.9: §11.2 of the rules does not specify how a finite move-sequence of the confirmation ends. Therefore, I make this assumption: *two successive passes end a move-sequence of the confirmation.* (Instead, different assumptions could be made,

starting with 'allowing ko recapture after two successive passes'. Then, however, one must make also further assumptions on a) restricting repeated ko recapture after two successive passes and b) consequences of long cycles during the confirmation.) White 8 ends the move-sequence. Therefore, Black cannot continue any attempt to remove the stone played by play 6.
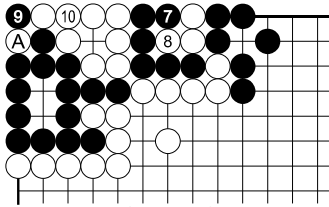
11 13 14 pass, 12 at A.
Dia. 8.10: capturable-1 II
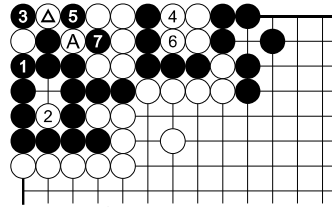
8 pass, 9 at A.
Dia. 8.11: White's failure

Dia. 8.10: Black 7 prolongs the sequence. At move 13, Black may not recapture the ko and does not have any useful play. This move-sequence ends with two successive passes 13 + 14. Therefore, Black cannot continue any attempt to remove the stone played by play 12. (Black 11 at A leads to a less interesting variation, in which White can play an unremovable stone at A.)

Dia. 8.11 - 8.13: The status of the stone marked in *Dia. 8.11* is studied.

Dia. 8.11: In this variation, the marked stone is removed and White does not play an unremovable stone on its intersection. Play 2 is White's mistake, because White 2 in *Dia. 8.12* is better for him.
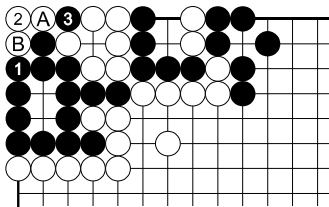
4 at A, 5 at 2, 6 at B,
7 8 pass.
Dia. 8.12: capturable-1 I
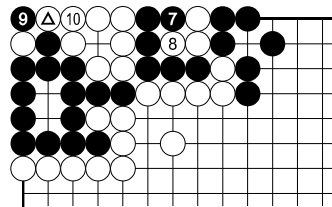
Dia. 8.13: capturable-1 II

Dia. 8.12 + 8.13: The marked stone in *Dia. 8.11* is capturable-1: if Black removes it, White plays an unremovable stone on its intersection.

Dia. 8.12: The two successive passes 7 + 8 end this move-sequence. Therefore, Black cannot continue any attempt to remove the stone played by play 4.

Dia. 8.13: Black 7 prolongs the sequence, but White 10 makes the marked stone unremovable.
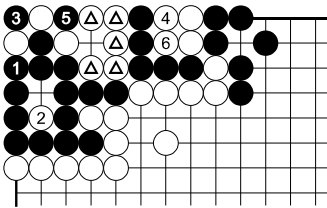
Dia. 8.14: unremovable I
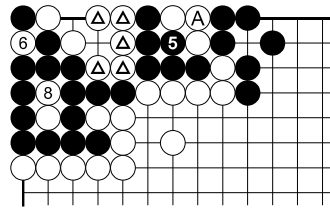
7 at A.
Dia. 8.15: unremovable II

Dia. 8.14 - 8.17: The status of the string marked in *Dia. 8.14* is studied. Regardless of whether White chooses to play 2 as in *Dia. 8.14* or *8.16,* Black cannot remove the marked string, so it is unremovable. It would suffice to consider only a) *Dia. 8.14 + 8.15* or b) *Dia. 8.16 + 8.17,* because White needs at least one successful strategy. He does not need two successful strategies, although two successful strategies do not hurt.

Dia. 8.15: In the rules, it is unclear whether Black 7 is a local play ('ko threat'). The ko threat avoids a premature second succession of passes(!), because Black 7 does not pass and invite White 8 to be a successive pass. Due to the unclarity, I make this assumption: *the locale, where plays (or more specifically: ko threats) may be made, is given in the position just after the game's first succession of two passes.* Here, this 'initial' position is seen in *Example 8.*
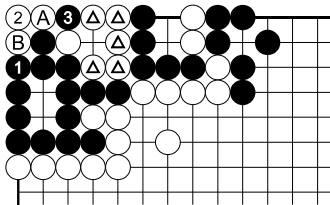
4 at A, 5 at 2, 6 at B,
7 8 pass.

Dia. 8.16: unremovable III
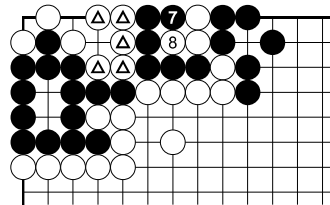
Dia. 8.17: unremovable IV

Dia. 8.16: The two successive passes 7 + 8 end this move-sequence. Therefore, Black 9 cannot continue to make further attempts to remove the marked string.
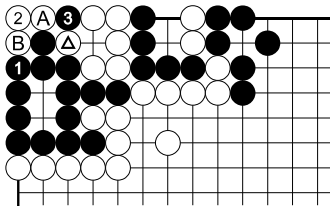
4 at A, 5 at 2, 6 at B,
7 8 pass.

Dia. 8.18: unremovable I
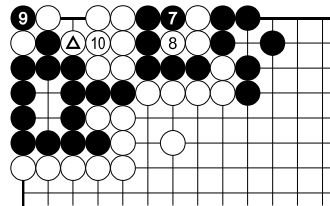
Dia. 8.19: unremovable II

Dia. 8.18 + 8.19: The status of the stone marked in *Dia. 8.18* is studied. It is unremovable. In *Dia. 8.18,* the two successive passes 7 + 8 end its move-sequence.
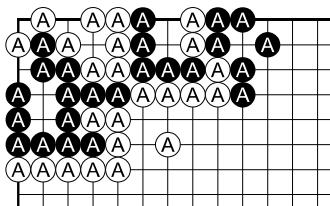
Dia. 8.20: alive strings A
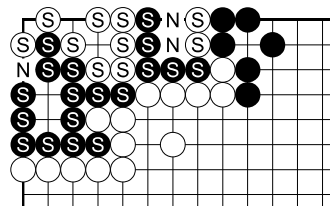
*Dia. 8.21: seki S and
neutral intersections N
in between them*

Dia. 8.20: This summarises the statuses of all strings: all strings are alive. (Part of them is unremovable, part of them is capturable-1.)

Dia. 8.21: There are four (two black and two white) seki groups,

which have the neutral intersections N in between them. (The seki groups consist of the strings, whose stones are denoted by S. It does not matter so much whether the other empty intersections within a seki group are also called 'neutral'. According to the rules, sekis do not contain any territory. Since a seki is already given, it would be White's strategic mistake to throw in one sacrifice stone in the *Example 8* position until the real game sequence's second succession of passes.)

Example 8 preliminary conclusion: The more careful analysis above essentially agrees to the too short comment in the Rules' Attachment 2, which says: "As White has local Ko threats at 'b', White does not need to place a white stone at 'a'. All groups of stones are in Dual Life / Seki / Tie as they are." This is careless in particular because the reason 'has local Ko threats' overlooks other reasons also needed for a thorough explanation.

Example 8 remark: The locales (where ko threats may be made) have not been clarified yet. In this example, remote ko threats elsewhere on the board would not improve at all the possibilities for 'unremovable' or 'capturable-1' statuses of any of the local strings. Locales are more important in other examples with capturable-2 strings.

1.8 Suggesting Theory for Partitioning the Board into Regions

After the game's first succession of two passes and before the confirmation according to §11.2 of the rules, create the partition as follows:

- A **two-eye-formation** is a set of one or several strings of the same player and exactly two empty intersections so that each of the strings is adjacent to each of the two intersections, none of the strings is adjacent to another empty intersection, and each of the two intersections is adjacent only to the strings.

- 'Can force' is defined as in the Japanese 2003 Rules.

- For each connected part of the board surrounded by a

player's stones, verify if he moving second can force a two-eye-formation of his on the part. Consider, with respect to a given intersection, maximal such parts, for which the opponent cannot do the same for a subpart. The part is called an **independent region** of the player.

- A **mixed region** is a part of the board that is not an independent region.

- In the confirmation according to §11.2 of the rules used for a not independently alive string, each play is required to be in the string's part of the board, called its **locale.**

The board can be partitioned into Black's independent regions, White's independent regions and the mixed regions.

In a player's independent region, his strings are independently alive and the opponent's strings belong to the so called 'dead' strings. A mixed region can consist of empty intersections or contain other independently alive, alive-in-seki or dead strings, or combinations of them. In a mixed region, 'other independent alive' means that a two-eye-formation constructed for a player's set of strings must grow beyond the intersections surrounded by them (or, if the set consists of one string, must grow beyond its intersections). There can be empty mixed regions with unfinished yose. During the opening or middle game, a mixed region can be huge or even cover the whole board.

A non-empty mixed region can contain fighting strings during the opening or middle game, a basic endgame ko, another removable string awaiting its yose treatment, sekis, anti-sekis or shapes with forced long cycles. However, also independent regions can contain shapes with long cycles that are not forced.
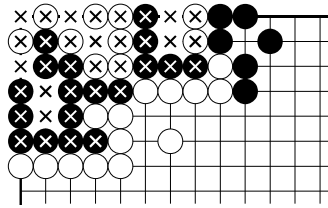
Dia. 8.22: locale

Dia. 8.22: Although the example position is improper with respect to the unmarked outer groups, for the sake of simplicity, we can assume them to be independently alive. The marked part of the board is the considered locale for each string that is not independently alive (careful analysis would verify this in detail; for example, Black cannot establish any two-eye-formation by using plays as in *Dia. 8.18*) and whose life and death status still awaits confirmation. Instead of speaking of 'ko threats', the problem of having this undefined term can be avoided by speaking of 'plays' and 'passes' and requiring each play to be in the locale. Now, the explanation in *Dia. 8.1 - 8.21* makes sense with respect to knowing the desired meaning of 'local' for it. A play is 'local' if it is 'in the locale'. In particular, those plays informally called 'ko threats' are also required to be played within the locale.

1.9

1.9: The explanation is weak. The following better explanation uses my assumptions and concepts invented for 1.8:
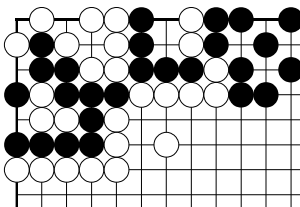
Example 9
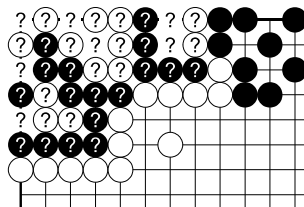
Dia. 9.1: still unclear part

Dia. 9.1: For the sake of simplicity, let us ignore the insufficient design of the open center in the *Example 9* position and assume the unmarked strings to be independently alive. For the sake of

determining the locale, we need to verify if one player, or both players, can force a two-eye-formation of his on at least part of the marked part of the board. Obviously, White cannot force it, because, to force it, he would need to approach the left black strings without putting himself in self-atari; this is impossible. Therefore, it suffices to study Black in greater detail.

1 11 pass, 3 at A, 5 at B,
12 at C, 13 15 pass, 14 at D,
16 at A, 17 pass, 18 at B.
Dia. 9.2: White's mistake

1 pass, 3 at A, 7 at B,
8 at 5, 9 at C, 10 11 pass.
Dia. 9.3: no two-eye-formation I
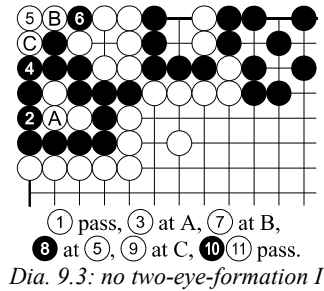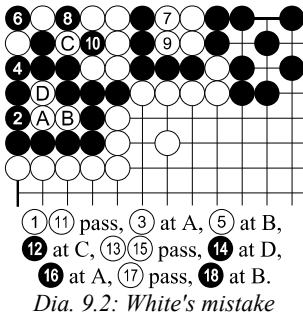
Dia. 9.2 - 9.4: These diagrams study if Black can force a two-eye-formation on part of the intersections marked in *Dia. 9.1.*

Dia. 9.2: White 5 is a mistake, due to which Black can force a two-eye-formation on part of the intersections marked in *Dia. 9.1.* Instead, White chooses *Dia. 9.3 + 9.4.*

Dia. 9.4: no two-eye-formation II
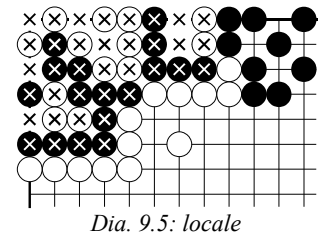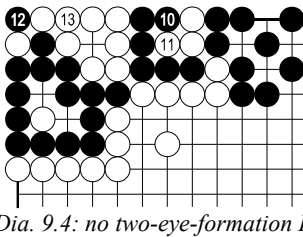
Dia. 9.5: locale

Dia. 9.3 + 9.4: Black cannot force any two-eye-formation on part of the intersections marked in *Dia. 9.1.*

Dia. 9.5: Since neither player can force a two-eye-formation of his in the marked part of the board, it is the locale for each of its strings in the following confirmation according to §11.2 of the rules.
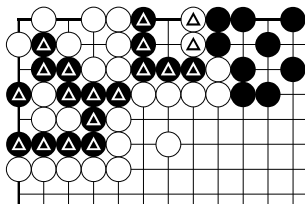
Dia. 9.6: obviously unremovable
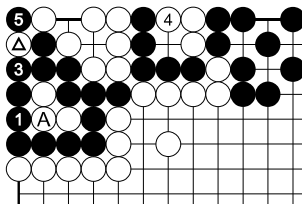
②at A.
Dia. 9.7: not unremovable I

Dia. 9.6: For each of the strings, verification is easy that it is unremovable. Therefore, I skip the related studies.

Dia. 9.7 - 9.9: These diagrams study the status of the stone marked in *Dia. 9.7.*

Dia. 9.7 + 9.8: The marked stone is not unremovable.
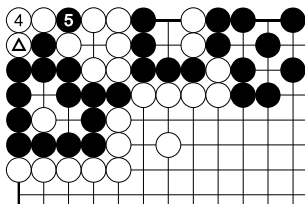
Dia. 9.8: not unremovable II
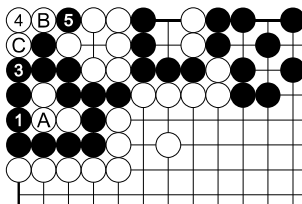
②at A, ⑥at B, **7** at ④,
⑧at C, **9** ⑩ pass.
Dia. 9.9: capturable-1

Dia. 9.9: The successive passes 9 and 10 end the move-sequence, so that Black cannot remove the stone played by White 8. Therefore, the stone marked in *Dia. 9.7* is capturable-1.
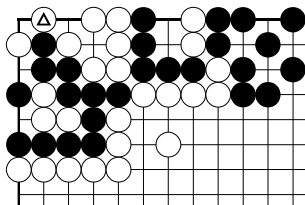
Dia. 9.10: capturable-1
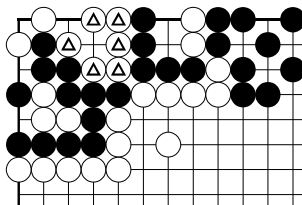
Dia. 9.11: unremovable

Dia. 9.10: Due to White 6 and the successive passes in *Dia. 9.9,* the marked stone is capturable-1. After White 10, Black cannot remove the stone played by White 6, because the move-sequence

has ended.

Dia. 9.11: Each of the marked strings is unremovable because of, for example, the move-sequence of *Dia. 9.9.*
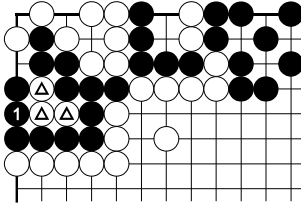
Dia. 9.12: not unremovable
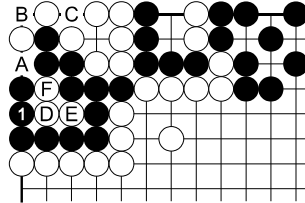
② at D, ❸ at E, ④ pass,
❺ at F.

Dia. 9.13: not capturable-1

Dia. 9.12 - 9.19: These diagrams assess the status of the string marked in *Dia. 9.12.*

Dia. 9.12: The marked string is not unremovable, because Black 1 removes it.

Dia. 9.13: The string marked in *Dia. 9.12* is not capturable-1, because Black can remove all white stones played on intersections of the string. Next, White cannot approach at A successfully: White A - Black B or White B - Black pass - White A - Black C, and White achieves nothing, regardless of any further problems for him due to long cycle restrictions for his later plays. - Now, we know that the string marked in *Dia. 9.12* is neither unremovable nor capturable-1. However, it would be premature to conclude that it is dead, because there can also be capturable-2 life, as *Dia. 9.14 - 9.17* show.
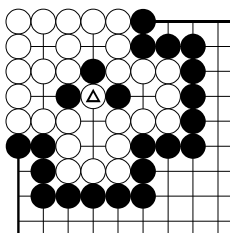
Dia. 9.14: not unremovable
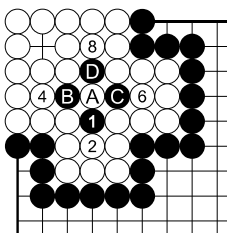
③ ⑨ at A, ⑤ ⑦ pass,
⑩ at ①, ⑪ pass,
⑫ at B, ⑬ pass,
⑭ at C, ⑮ pass,
⑯ at D, ⑰ pass.

Dia. 9.15: not capturable-1
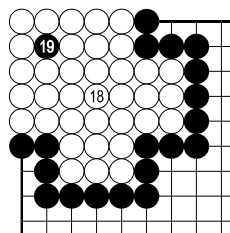
(continuation)

Dia. 9.14 - 9.17: These diagrams explain why capturable-2 as the third type of life is necessary, if one uses 'unremovable' at all to start defining life.

Dia. 9.14: The marked stone is not unremovable, because Black 1 in *Dia. 9.15* can remove it.

Dia. 9.15: The stone marked in *Dia. 9.14* is not capturable-1, because White 18, which is played on the intersection of the stone, is not unremovable. For the sake of verifying if the stone is capturable-1, White is required to play an unremovable stone on the marked stone's intersection, but White cannot do so.
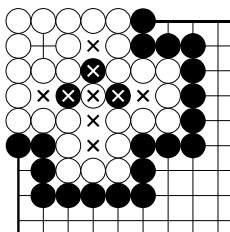
Dia. 9.16: local-2
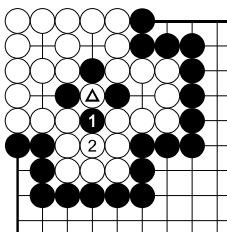
Dia. 9.17: capturable-2
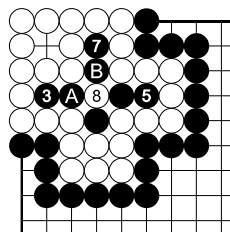
④ ⑥ pass, ⑨ at A,
⑩ at B.
(continuation)

Local-2 and capturable-2: Simply speaking, the Japanese 2003 Rules define: For a player's string, **local-2** is local-1 and, recursively, any adjacent intersection without a stone of a string that is of the player and either unremovable or capturable-1. A player's string is **capturable-2** if a) it is neither unremovable nor

capturable-1 and b) the opponent cannot force both capture of the string's stones and no local-2 then unremovable stone of the player. A string is **alive** if it is either uncapturable, capturable-1, or capturable-2.

Dia. 9.16: This region is the local-2 of the marked white stone. It reaches until the unmarked, unremovable white string.

Dia. 9.17: The marked stone is capturable-2, because the stone played by White 2 is in the local-2 of the marked stone and is then unremovable, as the sample continuation shows. Since the marked stone is capturable-2, it is alive.
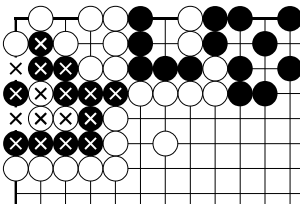
Dia. 9.18: local-2
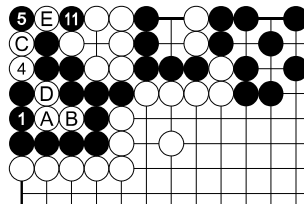
② at A, ❸ at B, ⑥ at C,
❼ at D, ⑧ at ❺, ❾ pass,
⑩ at ④, ⑫ at E, ⓫ at C.

Dia. 9.19: not capturable-2, but dead

Dia. 9.18: In order to verify if the marked white string is capturable-2, we consider its marked local-2, which reaches until unmarked unremovable or capturable-1 white stones.

Dia. 9.19: For verifying capturable-2 of the white string marked in *Dia. 9.18,* White must play a then unremovable stone in the local-2. In this representative move-sequence, White cannot play a then unremovable stone in the local-2: all white stones are removed from the local-2 and White cannot remove the big black string. Since White cannot play a then unremovable stone in the local-2, the white string marked in *Dia. 9.18* is not capturable-2. We already know that it is not unremovable or capturable-1, either. Therefore, it is not alive, but is dead.
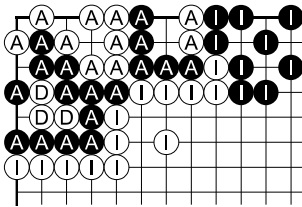
Dia. 9.20: statuses
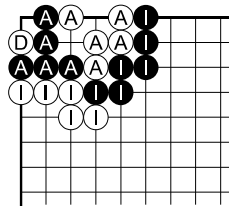
Dia. 9.21: reference

Dia. 9.20: This diagram summarises the statuses 'independently alive' I, 'alive but not independently alive' A and 'dead' D.

Mistakes in Attachment 2 Example 9: This mentions the most severe mistakes in the comments of Attachment 2 Example 9, which say: "[...] the three isolated white stones are alive [...] all [...] stones are in [...] Seki [...] The three stones are alive if they are not captured before the second set of passes is made." It cannot be justified that the three isolated white stones are alive; as the discussion above explains, they are dead. Besides, one should not call the three isolated white stones 'alive in seki'. It makes sense to call the strings marked A in *Dia. 9.20* 'alive in seki', but the string D is dead in a space surrounded by black strings that are alive in seki. Japanese and Korean style rules do not use an 'area scoring' philosophy of 'all stones remaining on the board are alive by definition'. In particular, there can also be dead opposing stones within a player's independent region. Hence, in Korean style rules, there is no systematic necessity to declare all strings in mixed regions to be 'alive' by definition.

Dia. 9.21: Nobody should be surprised that there can be mixed regions with alive and dead strings. Since the stone D is neither unremovable, capturable-1 nor capturable-2, it is dead. (Needless to say, during the game, Black should fill the stone's liberty, remove it and add it to the prisoners. If he forgets to do so until the second succession of passes, the stone remains on the board. Since a mixed region is not an independent region, there is no territory in the mixed region, from which the dead stone might be removed after the second succession of two passes during the 'decision of the winner'.)

2

2: The rules for the second set of passes regulate unfinished yose. These rules are inconsistent and unnecessarily complicated.

---

2 Suggesting a Consistent Solution

- Do not use any extra rules for regulating unfinished yose *after* the second set of passes.

- Use the concept of 'independent region' for the purpose of defining territory.

- As a side effect, there simply would not be any territory in mixed regions.

- §11 + §12.1 of the rules can recur until a succession of four passes.

This is generous and consistent, and avoids unnecessary complication. It is better to be generous with the basic procedure by allowing recurring successions of two passes than to use extra rules for regulating unfinished yose after the second set of passes.
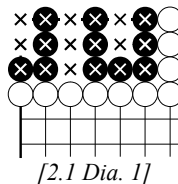
[2.1 Dia. 1]

2.1 Dia. 1: The mixed region is marked. Black does not surround any connected(!) independent region, so, if using the concept of independent regions, he has no territory yet. After the first succession of two passes, during the confirmation of territory, the players would notice that Black did not have territory yet or would disagree and determine this. As a consequence, the players would - even without referee - do what Attachment 2 suggests: "the referee lets the player who first made a pass play." Of course, the players would settle the boundaries and Black would create a connected

independent region surrounded by stones of his.
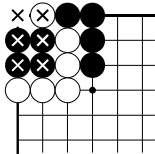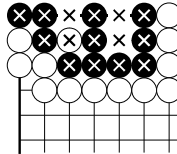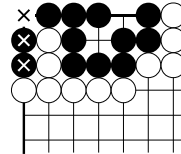
[2.2.1 Dia. 1]   [2.2.1 Dia. 2]   [2.2.2 Dia. 1]

2.2.1 Dia. 1 + 2 + 2.2.2 Dia. 1: The mixed region is marked. Since it is a mixed region, there is no territory in it and no stones are removed from it. (Only independent regions have territory and allow removal of stones according to §12.1 of the rules. It is immaterial that the marked stones are called dead and form a so called anti-seki. Of course, at least one player would want to continue the game in alternation, and so the players continue alternation.)

2.1 I

2.1 "If the game has not ended properly"

This is ambiguous, because "properly" is undefined.

2.1 II

2.1 "who first made a pass"

This is wrong, because the first pass might be a single pass. It must be: "who made the first pass of the previous succession of passes"

2.1 III

2.1 "The game ends after it."

It should be clarified whether this shall mean that only one more play is done, but, for example, no subsequent passes.

2.2.1

2.2.1: The possibility of a ko under the stones should be mentioned and studied.

2.2.2 I

2.2.2 "take advantage"

It is not obvious which advantage the text means. Better: "connect to prevent capture of one's own stones."

2.2.2 II

2.2.2 "all the right to place"

It is ambiguous if this shall allow a player to make successive plays.

Correction of the Asian Games 2013 Rules

[Basic definitions are omitted.]

Basic Rules

A **move** is either a play or a pass.

The game starts with Black on the empty board.

The players alternate moves.

Suicide is prohibited.

A play may not recreate a position just after any earlier play.

Hypothetical-sequence and Force

For a given player, a **hypothetical-sequence** is an imagined sequence of moves that a) starts from the [currently analysed] position with the given player, b) lets the players alternate moves and c) ends with the pass succeeding a pass.

['Force' is defined in the Japanese 2003 Rules.]

Life and Death Concepts I

A player's string is **unremovable** if the opponent cannot force capture of its stones.

A **permanent-stone** is a stone that is played during a hypothetical-sequence and then not removed during the rest of the hypothetical-sequence.

For a string, **local-1** is all the string's intersections.

A player's final-string is **capturable-1** if a) it is not unremovable and b) the opponent cannot force both capture of the string's stones and no local-1 permanent-stone of the player.

For a player's string, **local-2** is local-1 and, recursively, any adjacent intersection without a stone of a string that is of the player and either unremovable or capturable-1.

A player's string is **capturable-2** if a) it is neither unremovable nor

capturable-1 and b) the opponent cannot force both capture of the string's stones and no local-2 then unremovable stone of the player.

A string is **alive** if it is either unremovable, capturable-1, or capturable-2.

A string is **dead** unless it is alive.

Life and Death Concepts II

A **basic-life** is a connected part of the board consisting of a set of a player's strings and a set of single empty intersections, so that

- each of the strings is adjacent to at least two of the intersections,
- each of the intersections is adjacent only to one or several strings in the set, and
- no greater such connected part of the board includes the sets.

A player's **independent region** is a connected part of the board, so that

- unless the part is the whole board, a) each intersection adjacent to the part is without his stone and b) his stone is on each intersection that is in the part and adjacent to an intersection not in the part,
- he, moving second, can force a basic-life of his exactly on on the part,
- no greater such connected part of the board includes the part.

A **mixed region** is a connected part of the board that is not an independent region and so that no greater such connected part of the board includes the part.

A player's **territory** consists of those intersections in his independent regions that are empty or occupied by a stone of the opponent.

A string's **locale** is its independent region or mixed region.

Game End Procedure

1. Two successive passes occur.

2. The players agree or disagree on their independent regions, the alive strings, the dead strings and the territories. If the players agree, *go to (3.).* If the players disagree, *go to (7.).*

3. The players continue alternate moves, until no mixed region consists of empty intersections. If at least one play is made, *go to (2.).*

4. From each independent region of a player, the opposing stones are removed and added to the prisoners.

5. The score is Black's number of empty intersections in his independent regions plus the number of white prisoners minus White's number of empty intersections in his independent regions minus the number of black prisoners minus the komi.

6. If the score is positive, zero or negative, the game's result is Black's win, tie or White's win, respectively. *The procedure ends.*

7. Determination of the independent regions.

> a. Verify one region at a time.

> b. The opponent of a verified region starts.

> c. Apply the definition of independent region.

> d. For the currently verified independent region, each play is required to be in it.

> e. Hypothetical-sequences are used.

> f. There can be several hypothetical-sequences.

> g. Prisoners made during hypothetical-sequences are ignored.

> [h. The definition of 'force' implies hypothetical-strategy and other missing details.]

8. By definition, the mixed regions are known.

9. The players continue alternate moves, until no mixed region consists of empty intersections. If at least one play is made, *go to (2.)*.

10. By definition, the players' territories are known.

11. Confirmation of the alive and dead strings:

> a. Verify one string at a time.
>
> b. The opponent of a verified string starts.
>
> c. For the currently verified string, each play is required to be in the string's locale, as given in the verified position.
>
> d. Apply (e.) to (h.) of (7.).

12. The players continue alternate moves, until two successive passes. If they make only passes, *go to (4.)*. Otherwise, *go to (2.)*.

Comments on the Correction of the Asian Games 2013 Rules

General

The correction is only a sketch, which must be worked out, verified carefully and combined with the basic definitions.

The Asian Games 2013 Rules are too complicated for their authors. Their main differences to Japanese Rules concern exceptional rules in the Asian Games 2013 Rules or the Korean 1992 Rules about 'ko threats' and 'incomplete yose'.

Ko Rules

The stated ko rule is the 'positional superko' rule. Instead, a different, desired ko ruleset could be inserted, but one must be careful about allowing or prohibiting ko recapture after successive passes and about long cycles and their consequences in hypothetical-sequences. If a desired ko ruleset allows positional repetition, then the definition of 'hypothetical-sequence' needs one of these conditions:

- "[...] either has a finite number of moves and ends with the pass succeeding a pass, or has an infinite number of moves and does not have a pass succeeding a pass."

- "[...] ends on the pass succeeding a pass or the play recreating a position."

One must avoid any attempt to distinguish 'repeatable by both players' from 'repeatable by one player'. If the ko rules shall have an exception for asymmetric triple-kos, I might find time to model that later, but I recommend to avoid all exceptions.

Life and Death

The Asian Games 2013 Rules hide all low level rules. The correction of the Asian Games 2013 Rules describes the application level (several hypothetical-sequences can occur, condition for ending a hypothetical-sequence etc.) and hides only

the lowest level ('hypothetical-strategy' and 'force'). Already the application level of the low level requires quite a few rules, which are not in the Asian Games 2013 Rules but are in their correction. Do not blame the correction for being detailed, but become aware just how many details are missing in the Asian Games 2013 Rules. More details are missing, because definitions of the lowest level are still hidden; compare the Japanese 2003 Rules.

The Life and Death Concepts I are used only to explain how, in principle and for the examples in Attachment 2, one can complete the 'unremovable' concept of the Asian Games 2013 Rules and avoid their flawed 'removable' concept. Otherwise, the Life and Death Concepts I are superfluous and overridden by the Life and Death Concepts II.

It is superfluous to define 'seki', 'anti-seki', 'unfinished yose' etc. in the rules. Players can talk about such informally. Research in strategic concepts can define such.

"each play is required to be in the string's locale, as given in the verified position." clarifies "with each position considered locally" and "local ko threats", as used in the Asian Games 2013 Rules or their Attachments.

The Life and Death Concepts II are needed to describe the intention of the Asian Games 2013 Rules about a) where there is territory and b) where local plays may be made. Neither 'alive' nor 'independently alive', as defined elsewhere, capture the intention well enough, because there can be (sets of) alive or independently alive strings that need to seek (part or all of their) eyespace outside the region initially "surrounded" by them. In the Life and Death Concepts I, local-2 does not capture the Asian Games 2013 Rules' intention of local play well enough, but the concept 'mixed region' does so.

In principle, using either the Life and Death Concepts I or the Life and Death Concepts II suffices to model life and death of territory scoring rules. However, the authors of the Asian Games 2013 Rules did not understand yet how to restrict rules design to one of

the sets of concepts. The correction of the Asian Games 2013 Rules is honest by correcting them, instead of already simplifying them. Simplification is a task of Simplified Korean Rules, where also the concepts 'basic-life' and 'independent region' are simplified on the level of a rules text.

Game End Procedure

Similarly, the game end procedure states many details hidden in the Asian Games 2013 Rules.

Informally, (3.) and (9.) allow the players to fill the neutral regions in between Black's and White's independently alive strings.

(7.) and (11.) are subprocedures, which, in principle, can become arbitrarily complex. In practice, game end positions tend to have a rather low complexity.

(7.) serves two major purposes: a) (10.) is enabled and so the Asian Games 2013 Rules' "confirmation of [...] territory" is fulfilled; b) (11.) is enabled by determining the regions and locales, and so the Asian Games 2013 Rules' "confirmation of the life and death of stones" is fulfilled. (a) and (b) work out the details of §11.2 of the Asian Games 2013 Rules.

The game end procedure provides a consistent, reasonable treatment for the examples in the section "2. The Second set of Passes" of Attachment 2. The treatment by the definitions of 'independent region' and 'territory' and by the game end procedure differs a bit from the treatment in Attachment 2. In this respect, the Correction of the Asian Games 2013 Rules is not a correction, but a recommendation of consistency. A simpler recommendation is implied by the Simplified Korean Rules.

Simplified Korean Rules

[Basic definitions are omitted.]

Basic Rules and Terms

A **move** is either a play or a pass.

The game starts with Black on the empty board.

The players alternate moves.

Suicide is prohibited.

A play may not recreate a position just after any earlier play.

A **basic-life** is a connected part of the board consisting of a set of a player's stones and a set of single empty intersections, so that

- each of the stones' strings is adjacent to at least two of the intersections and
- each of the intersections is adjacent only to stones in the set.

In the position at the start of the analysis, a player's **independent region** is a connected part of the board, so that

- unless the part is the whole board, a) each intersection adjacent to the part is without his stone and b) his stone is on each intersection that is in the part and adjacent to an intersection not in the part and,
- in the position at the end of the analysis, his stones on and single empty intersections of the part are a basic-life.

Game End Procedure

1. Two successive passes occur.

2. The players determine their independent regions by agreement or by performing the **analysis,** which is an imagined move-sequence, starts from the position after the first two successive, alternates moves, ends with two successive passes, and ignores prisoners. During the analysis, the players can shorten it by agreement on some or all independent regions.

3. From each independent region of a player, the opposing stones are removed and added to the prisoners.

4. The score is Black's number of empty intersections in his independent regions plus the number of white prisoners minus White's number of empty intersections in his independent regions minus the number of black prisoners minus the komi.

5. If the score is positive, zero or negative, the game's result is Black's win, tie or White's win, respectively.

Comments on the Simplified Korean Rules

The Simplified Korean Rules omit everything superfluous: 'mixed region', 'territory', 'alive', 'dead', 'seki', 'anti-seki', 'unfinished yose' etc. Nevertheless, players can talk about such informally. Definitions of such terms can be left to researchers in formal go theory.

The 'positional superko' rule is used. Other ko rules would complicate the rules text.

'Basic-life' is a pragmatic concept. Unlike the concept 'two-eye-formation', basic-life is inelegant. This is so, because a basic-life can be part of a greater basic-life; basic-life does not have or imply a 'maximal' condition. In particular, if a basic-life contains some stones of some strings, it need not contain all stones of these strings. Basic-life is chosen to capture the spirit of the Asian Games 2013 Rules and their Attachments' examples as well as possible, when exchanges can occur outside independent regions. Also 'independent region' is a pragmatic concept and does not require maximality, but a player's independent region can be part of a greater independent region of his.

Unless the independent region is the whole board, the condition "a) each intersection adjacent to the part is without his stone and b) his stone is on each intersection that is in the part and adjacent to an intersection not in the part" specifies a part of the board *bounded* by a player's stones. Therefore, independent regions behave well by avoiding surprising shapes. The Simplified Korean Rules use the condition but do not use the word "surround", because it is ambiguous when, for example, a living white group is situated inside a living black group.

'Independent region' is a *local* concept, which maintains the main perception of typical 'territory scoring' rules. It does not coincide with 'independent life'. For example, during the middle game, strings can have independent life but not "surround" any empty intersections yet. Such strings do not form an independent region

yet. The concept of independent region excludes theoretically possibly existing arcane life of strings that are outside independent regions and seek part of their eyespace outside their already bounded region.

A part of the board that, at the start of the analysis, shall be an independent region must, at the end of the analysis, be covered by a basic-life of the player. That is, in the position at the end of the analysis, there must be a basic-life with at least two single empty intersections on that part of the board, where, in the position at the start of the analysis, the independent region is identified. It would be insufficient if intersections of a basic-life covered the part, but if there would be only zero or one single empty intersections of the basic-life on the part. In other words, the analysis must prove that basic-life can be established within the independent region.

The independent region is not necessarily 'independent' from the extra intersection adjacent to it. For example, during the analysis, it is possible that a basic-life grows beyond the intersections of a part of the board, which is being determined as an independent region. Therefore, neutral regions (dame) or intersections of them adjacent to an independent region can, but need not, be filled during an analysis. However, neutral regions and necessary reinforcement plays should be played during the game until the first succession of passes, so that intersections of possible reinforcement plays are not scored. The players are responsible to apply good strategy and settle territories; if they fail to do so, they have to bear the consequences during scoring. If the intersections of neutral regions and reinforcements are filled and rare long cycle exchanges are resolved by the players in time, i.e., until the first succession of passes, independent regions do not grow, but basic-lives can simply cover their intersections. During the game, it is possible to convert a so called 'independent life' to an independent region, so that, during the analysis, its basic-life can be established exactly on the intersections of the independent region. However, if, during the game, a player does not transform his independent life into an independent region, or if an arcane, rare shape does not encourage such a transformation, then the analysis might create a

basic-life on more intersections than those of the independent life.

The definition of 'independent region' does not need "no greater such connected part of the board includes the part" as a another condition, because, during the analysis, a player can, and wants to, competently construct locally maximal basic-lives. If, however, he makes strategic mistakes during the analysis, he would be determining a too small independent region of his or fail to establish at least two single empty intersections per desired independent region.

Unlike the Correction of the Asian Games 2013 Rules, in the Simplified Korean Rules, the independent regions are given due to the analysis, as it is hypothetically performed by the players, who may make strategic mistakes.

The rules do not need the terms 'hypothetical-sequence', 'force' etc., because God's perfect play is replaced by the players' one 'analysis' move-sequence. Referees have less work, because it is the players' right to make strategic mistakes. The players have this right a) until the first succession of two passes and b) after the first succession of two passes. The Simplified Korean Rules simply always grant this right to the players, when they make moves.

The game end procedure is so simple also because a) it does not prescribe filling of empty (neutral) intersections in between Black's and White's independent regions, b) the players must make all their desired plays, such as those in (a), before the first succession of passes, and c) only one analysis sequence is used to determine all independent regions. Needless to say, it is possible to complicate the procedure greatly by altering these conditions.

Examples for the Simplified Korean Rules

Every analysis presumes the players' disagreement about which are the independent regions. The players choose which sequence they want to play as the analysis; they could choose a different sequence.

Due to the positional superko rule during the game and the analysis, rare shapes with long cycles affecting different parts of the board can lead to strategic exchanges, which might not occur under particular other ko rules. Since this paper does not specialise in superko, related examples are not shown here. However, superko cannot serve as an excuse against the Simplified Korean Rules, because they can be modified to use other ko rules if local behaviour of the rare shapes should be preferred.

For the sake of simplicity, 0 komi and 0 prisoners are assumed for the initial positions.
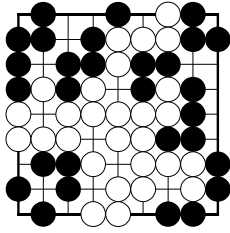
Example 1: White to move
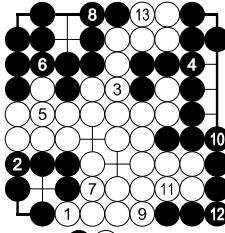
(14)(15) pass.
game
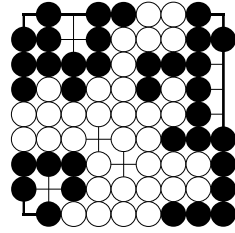
created position
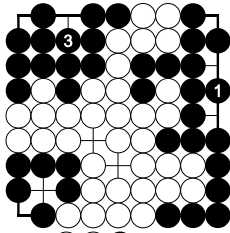
(2)(4)**5** pass.
analysis
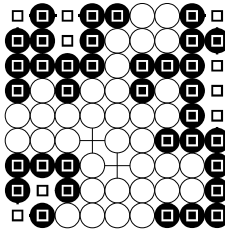
Black's independent regions
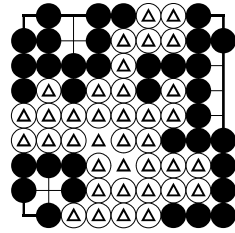
White's independent region
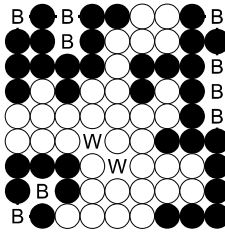
scoring intersections

Example 1: Neutral empty intersections and necessary reinforcements are played before the first succession of two passes. Since White makes the game's last move, Black continues alternate moving by making the analysis's first move. Before the analysis, there are two basic-lives. The analysis creates another two basic-lives. The four basic-lives in the position at the end of the analysis determine Black's three and White's one independent regions in the position at the start of the analysis. The score is 9 - 2 = 7 points in Black's favour.
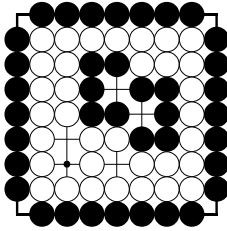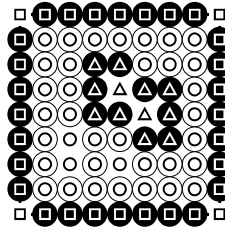
Example 2   *independent regions*

Example 2: The players agree on the three marked independent regions. Therefore, they do not perform the analysis. The score is 6 - 3 = 3 points in Black's favour.
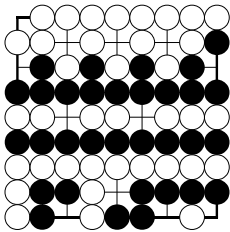
Example 3: White to move   ❷③ pass.   *created position*
                                 game
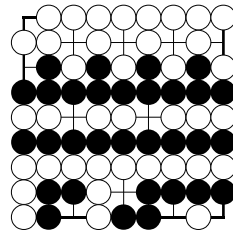
❾ at A, ⑩⑫ pass,   *created position*
❸ at B, ⑭⑯ pass,
❼ at C, ⑱⑳ pass.
analysis
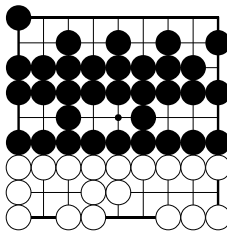
Example 3: During the analysis, after Black 21, the players agree on the independent regions in the position at the start of the analysis. Therefore, they need not continue the analysis to basic-lives with only single empty intersections.
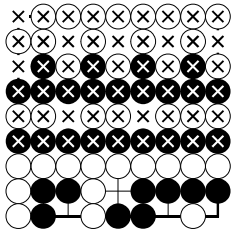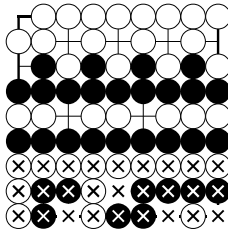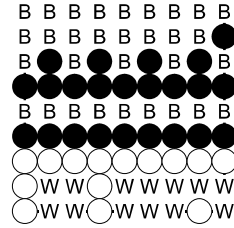
Black's independent region   *White's independent region*   *after removals, scoring intersections*

During scoring, the 24 white stones are removed from Black's independent region and the 9 black stones are removed from White's independent region; the removed stones are added to the prisoners. The score is 31 + 24 - 13 - 9 = 55 - 24 = 31 points in Black's favour.
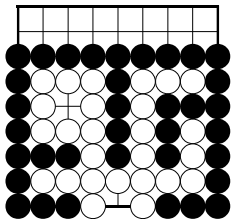
Example 4: Black to move   (8) (10) (14) pass.
analysis   *created position*
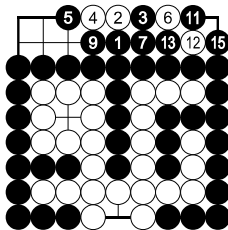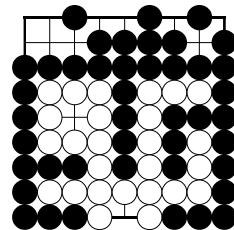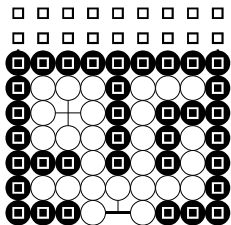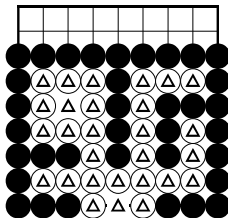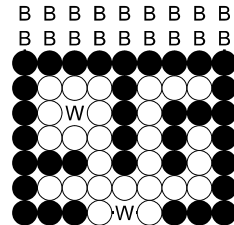
Black's independent region   *White's independent region*   *scoring intersections*

Example 4: During the analysis, after Black 15, the players agree on the independent regions in the position at the start of the analysis. Therefore, they need not continue the analysis until Black has his basic-life with only single empty intersections. The score is 18 - 2 = 16 points in Black's favour.
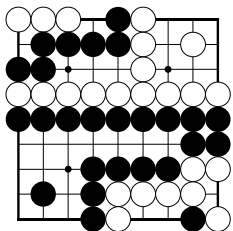
Example 5: Black to move
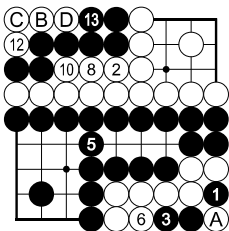
④ at A, **7** **9** **11** pass,
⑭ at B, **15** at C,
⑯ at ⑫, **17** pass,
⑱ at D.
analysis
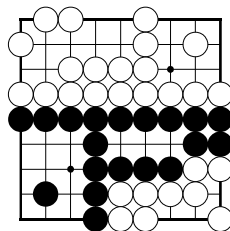
created position
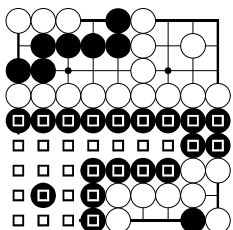
Black's independent region
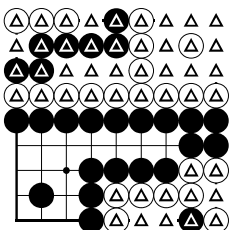
White's
independent regions
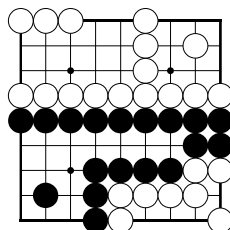
after removals
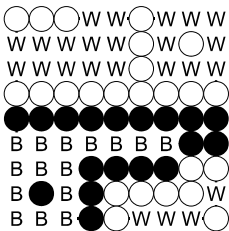
scoring intersections

Example 5 (see Attachment 2 Examples 1.3, 1.4, 1.6): During the analysis, plays or single passes are used as, what is informally called, 'ko threats'. After White 18, the players agree on the independent regions in the position at the start of the analysis. Therefore, they need not continue the analysis to basic-lives with only single empty intersections. 8 black stones are removed from White's independent regions. The score is 15 - 24 - 8 = 15 - 32 = -17 points in White's favour.
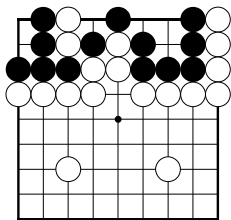
Example 6: White to move
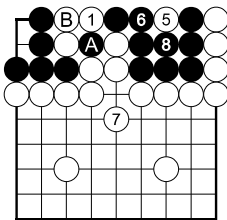
2 at A, ③ at ①,
4 at B.
analysis
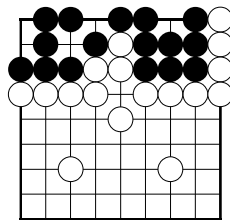
created position
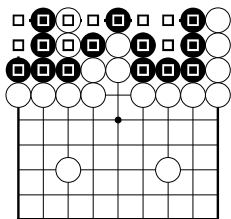
Black's independent region
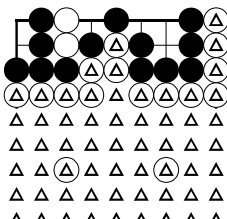
White's independent region
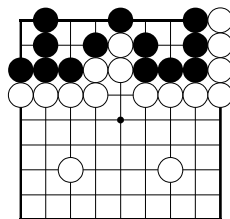
after removals
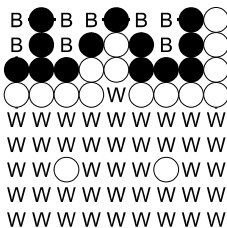
scoring intersections

Example 6 (see Attachment 2 Example 1.5): A so called 'snapback' at the boundary of an independent region does not pose the slightest problem to the Simplified Korean Rules. During the analysis, after Black 8, the players agree on the independent regions in the position at the start of the analysis. Therefore, they need not continue the analysis to basic-lives with only single empty intersections. 2 white stones are removed from Black's independent region. The score is 8 + 2 - 44 = 10 - 44 = -34 points in White's favour.
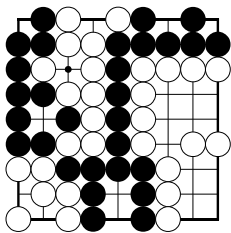
Example 7: Black to move
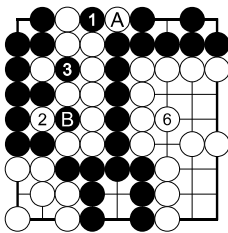
④ at A, ❺ at B,
❼ at ❶.
analysis
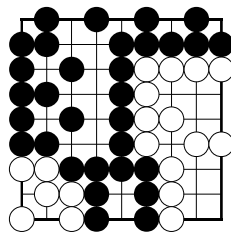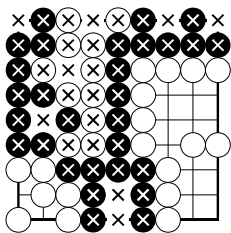
created position

Black's independent region
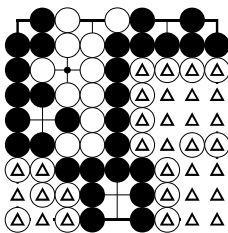
*White's
independent regions*
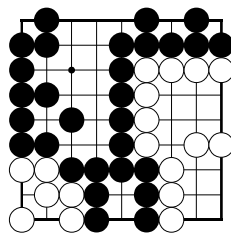
after removals
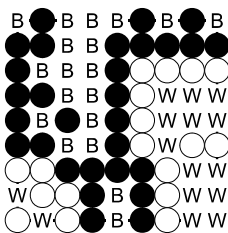
scoring intersections

Example 7 (see Attachment 2 Example 1.7): During the analysis, the positional superko rule prevents White 6 from capturing the stone 3. Black removes the white stones in the 'triple-ko'. After Black 7, the players agree on the independent regions in the position at the start of the analysis. Therefore, they need not continue the analysis to basic-lives with only single empty intersections. 11 white stones are removed from Black's independent region. The score is 19 + 11 - 15 = 30 - 15 = 15 points in Black's favour.
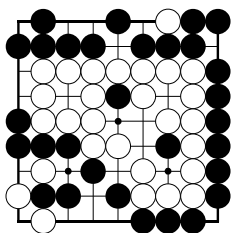
Example 8: Black to move
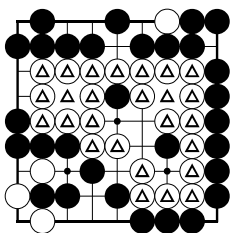
White's initial basic-life

(8)(10)(12)(14)**15** pass.
analysis
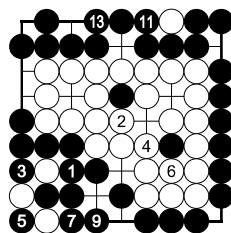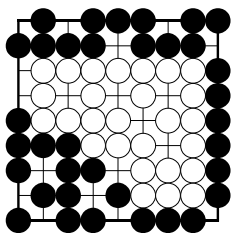
created position
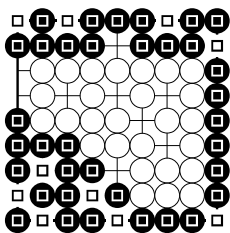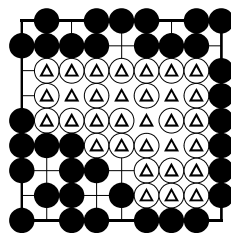
Black's basic-life

White's basic-life
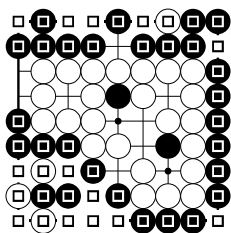
Black's independent region
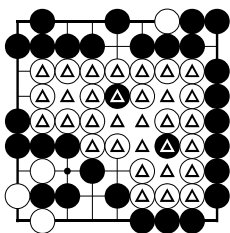
White's independent region
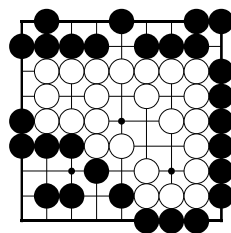
after removals
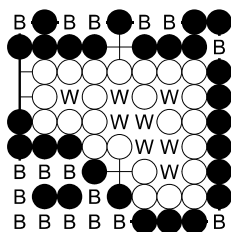
Example 8: Initially, Black does not have any basic-life. White has an initial basic-life, which is not good enough to identify his greatest possible independent region. White's basic-life in the position created by the analysis is good enough to identify his desired independent region in the position at the start of the analysis. The same can be said for Black. 4 white stones are removed from Black's independent region and 2 black stones are removed from White's independent region. The score is 17 + 4 - 8 - 2 = 21 - 10 = 11 points in Black's favour.
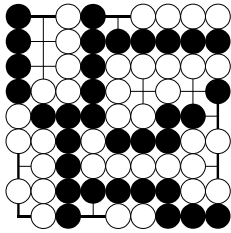
Example 9: White to move
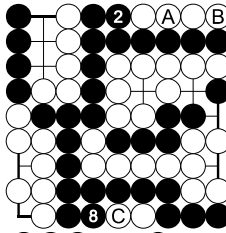
1 3 5 pass, 4 at A,
6 at B, 7 9 pass,
10 at C, 11 12 pass.
analysis
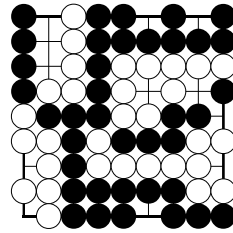
created position
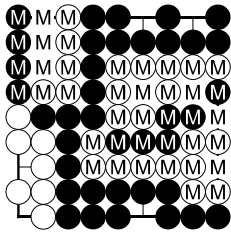
not basic-lives
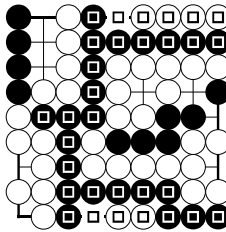
Black's independent region
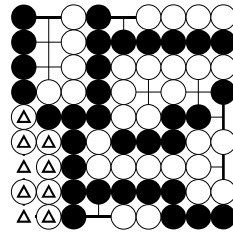
White's independent region
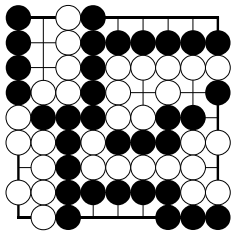
after removals
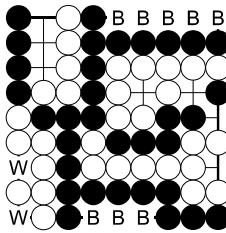
scoring intersections

Scoring intersections exist only in independent regions.

Example 9: During the analysis, neither player attacks the opponent's (informally so called) 'seki' strings, otherwise the opponent could create a bigger or another basic-life and determine a bigger or another independent region in the position at the start of the analysis. In the 'M'-regions in the position at the end of the analysis, there are no basic-lives. In the position at the start of the analysis, those are the (in the Correction of the Asian Games 2013 Rules so called) 'mixed regions', that is, the regions that are not independent regions. In them, there are no scoring intersections. 6 white stones are removed from Black's independent region. The score is 8 + 6 - 2 = 14 - 2 = 12 points in Black's favour.
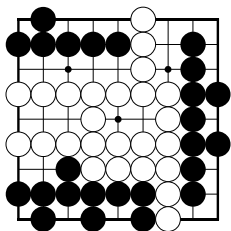
Example 10: Black to move
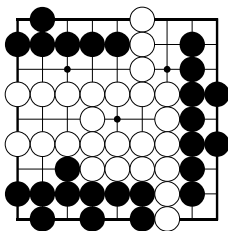
①② pass.
game I
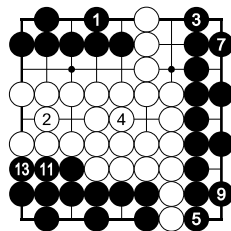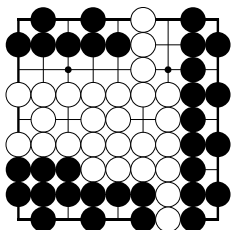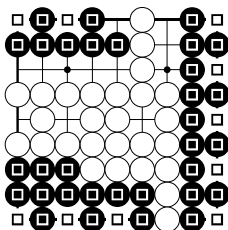
⑥⑧⑩⑫ pass.
analysis I

created position I

Black's maximal basic-lives I
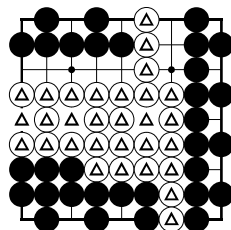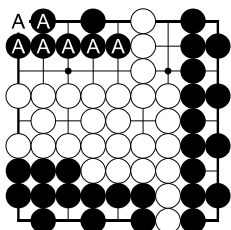
White's basic-life I

A is not Black's basic-life
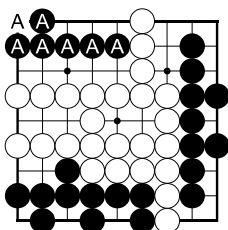
A is not Black's independent region
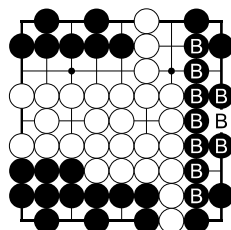
B is not Black's basic-life
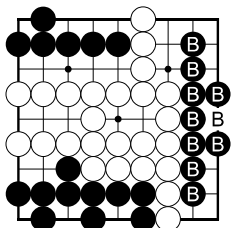
B is not Black's independent region
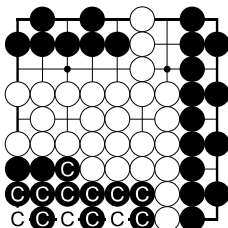
C is Black's basic-life
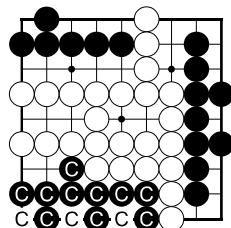
C is Black's independent region
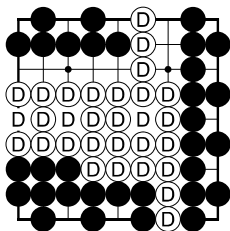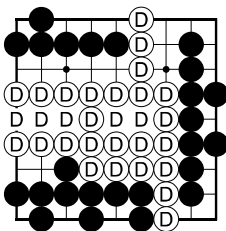
D is White's basic-life | *D is White's independent region* | *scoring intersections I*
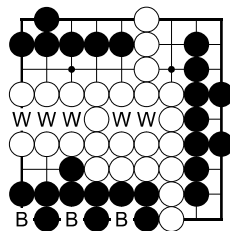
Example 10, game + analysis I: Black makes the mistake to end the game's move-sequence prematurely, because his upper and right groups are (informally so called) independently alive, but do not represent independent regions yet. White makes the mistake to end the game's move-sequence prematurely, because he does not complete the yose; this mistake is much less severe than Black's other mistakes. The diagram 'Black's maximal basic-lives I' is not good enough for distinguishing what are from what are not his independent regions. For this purpose, one must study the parts A, B and C of the board:

- In the position at the end of the analysis, only the part A of the board is not covered by Black's basic-life; therefore, in the position at the start of the analysis, the part A is not Black's independent region.

- In the position at the end of the analysis, only the part B of the board is not covered by Black's basic-life; therefore, in the position at the start of the analysis, the part B is not Black's independent region.

- In the position at the end of the analysis, only the part C of the board is covered by Black's basic-life (in particular, the part C has at least two single empty intersections); therefore, in the position at the start of the analysis, the part C is Black's independent region.

The diagram 'White's basic-life I' is good enough for determining White's independent region. The study of part D of the board determines this more carefully: in the position at the end of the

analysis, only the part D of the board is covered by White's basic-life (in particular, the part D has at least two single empty intersections); therefore, in the position at the start of the analysis, the part D is White's independent region. There is territory only in the identified independent regions. The score is 3 - 5 = -2 points in White's favour.
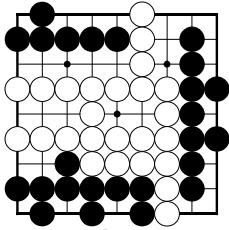
1 2 pass.
game II
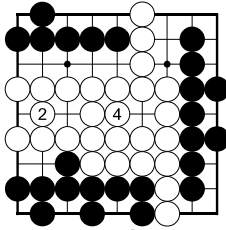
1 3 5 6 pass.
analysis II
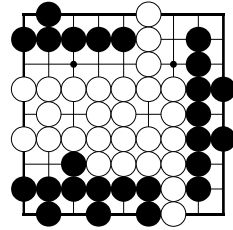
created position II
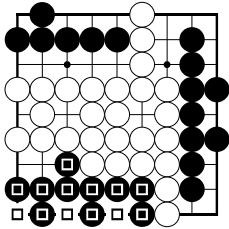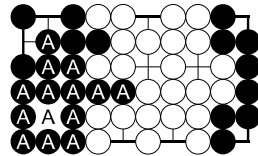
Black's basic-life II
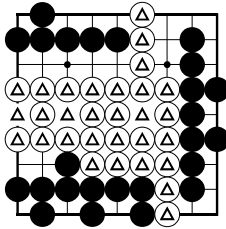
White's basic-life II
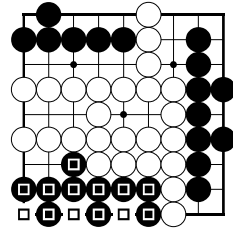
Black's independent region II
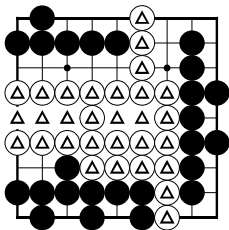
White's independent region II
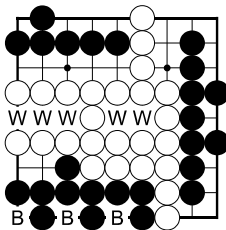
scoring intersections II

Example 10, game + analysis II: The players make the same strategic mistakes as during game I, but it is easier to identify Black's independent region. The score is 3 - 5 = -2 points in White's favour.

game III

created position

analysis III

created position
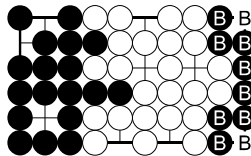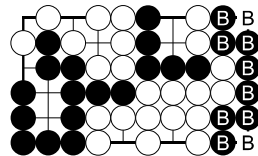
Black's basic-lives III

White's basic-life III

Black's independent regions III

White's independent region III

scoring intersections III
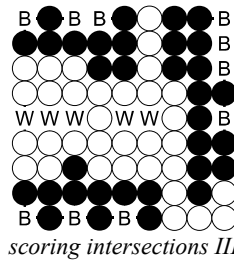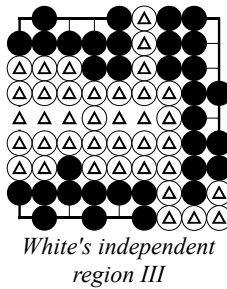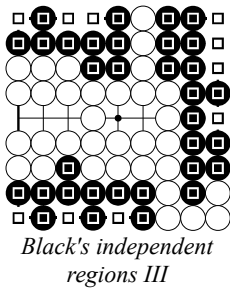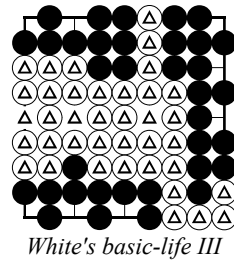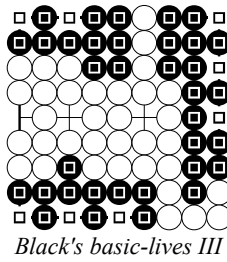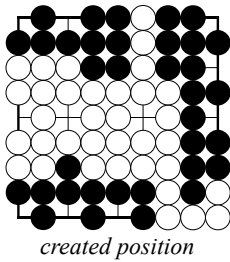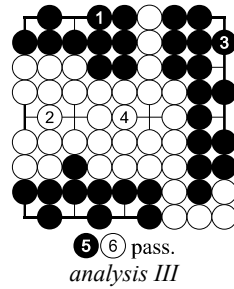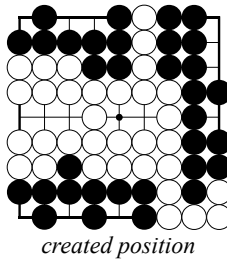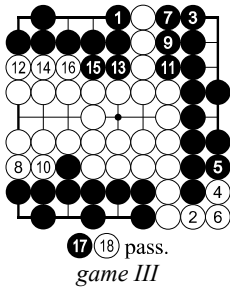
Example 10, game + analysis III: Now, the players do not make any strategic mistakes during the possible game III and analysis III move-sequences. The basic-lives in the position at the end of the analysis cover the same parts of the board as the thus determined independent regions in the position at the start of the analysis. The score is 10 - 5 = 5 points in Black's favour. A game is won by playing well both its move-sequence and the imagined analysis move-sequence. (Alternatively, the players can agree on the independent regions.) Note that the different analyses are shown only for the purpose of explanation of rules application. The players choose exactly one analysis. Here, they should choose analysis III.
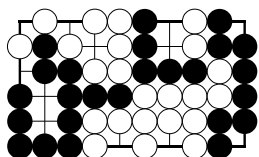
Example 11, Black to move
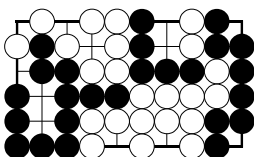
①② pass.
analysis I
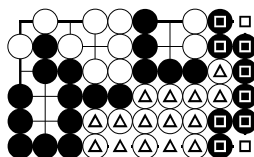
basic-lives I
independent regions I

Example 11 (see Attachment 2 Example 1.8), analysis I: Passing is both players' correct strategy during the analysis. The independent regions are marked in the position at the start of the analysis; the players have basic-lives there in the position at the end of the analysis. The score is 2 - 2 = 0 points; the game is a tie. (Informally, the unmarked region is called a 'mixed region', and the groups there form 'sekis'.)
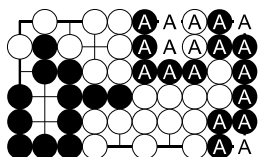
part A
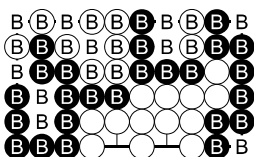
part B
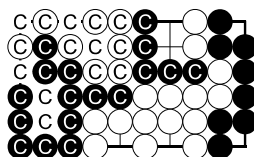
part C
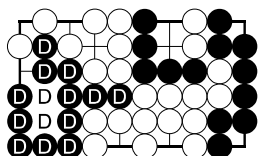
part D
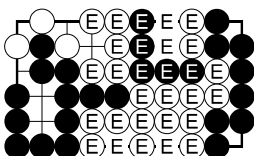
part E
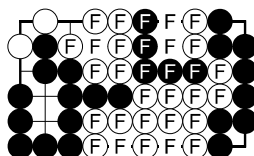
part F
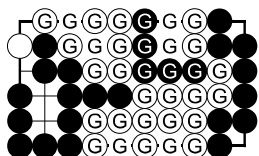
part G
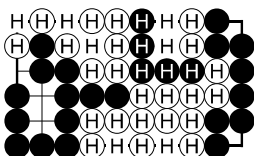
part H
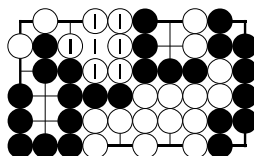
part I

part J

part K

part L

part M   *part N*
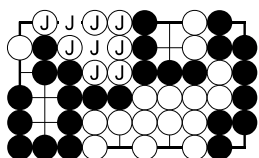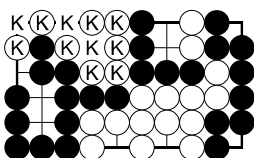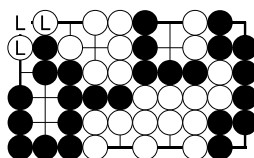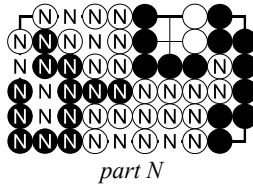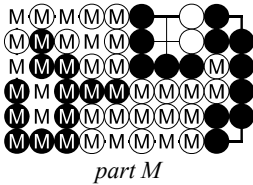
Just in case the reader wonders about other bounded parts of the board, their explanation follows:

- Let us consider either of the parts A to D of the board. Since, in the position at the end of the analysis, the part is not covered by Black's basic-life, it is not Black's independent region in the position at the start of the analysis.

- Let us consider either of the parts E to N of the board. Since, in the position at the end of the analysis, the part is not covered by White's basic-life, it is not White's independent region in the position at the start of the analysis.

In particular, part J is not covered by a basic-life, because the left marked stone is not adjacent to at least two marked single empty intersections. Part K is not covered by a basic-life, because the left marked stone is not adjacent to at least two marked single empty intersections.

Note that the different analyses are shown only for the purpose of explanation of rules application. The players choose exactly one analysis. Here, they should choose analysis I. The reader can appreciate just how simple the correct analysis I is. Simple rules allow simple application even in complicated positions, if the players choose simplicity. (The different analyses below explain application of the rules, if the players choose complexity, such as exchanges resulting from strategic mistakes.)

4 at A, 5 at 2, 6 at B,
7 8 pass.
analysis II

created position

not a basic-life A

not a basic-life B

not a basic-life C

not a basic-life D

not a basic-life E

independent regions II

scoring intersections II
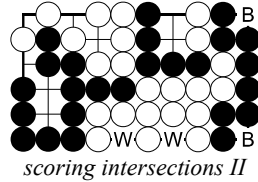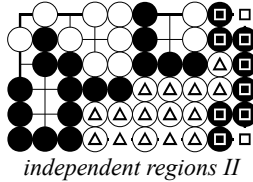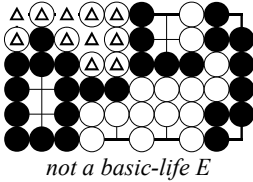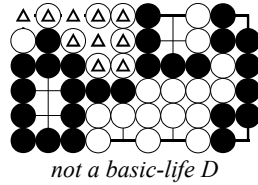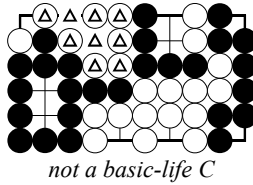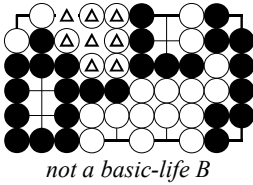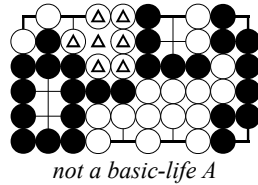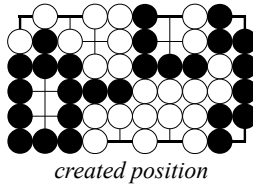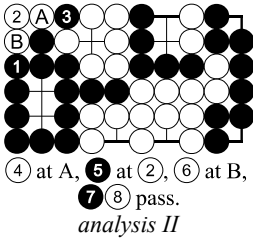
Example 11, analysis II: White 8 is White's strategic mistake during analysis II, because White 8 in analysis III is better for him. Since White can choose the latter, Black's attack in analysis II is Black's strategic mistake; passing as in analysis I is better for him. In the position at the end of analysis II, giving sample reasons,

- A is not a basic-life, because the marked part does not contain at least two single empty intersections,

- B is not a basic-life, because the upper single empty intersection is not only adjacent to marked strings,

- C is not a basic-life, because the left marked string is not adjacent to at least two marked single empty intersections,

- D is not a basic-life, because the left single empty intersection is not only adjacent to marked strings,

- E is not a basic-life, because the left marked string is not adjacent to at least two marked single empty intersections.

In the position at the start of the analysis, the independent regions II, the scoring intersections II and the score are as for analysis I.
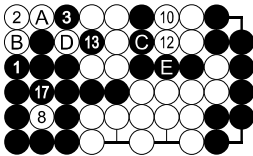
④ at A, ❺ at ②, ⑥ at B,
❼ pass, ⑨ at ②,
⓫ at ❸, ⑭ at C, ⓯ at D,
⑯ at E, ⑱ ⓳ pass.
analysis III
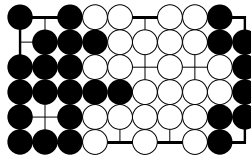
created position
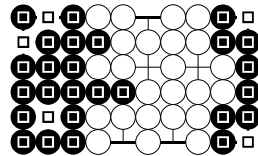
*Black's maximal
basic-lives III*
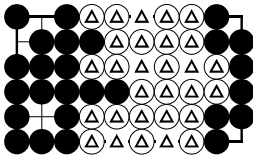
White's basic-life III
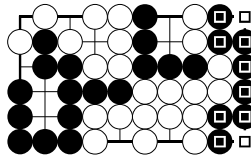
*Black's independent
region III*

A is not Black's basic-life
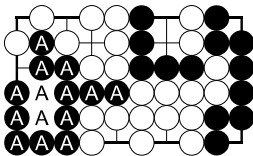
*A is not Black's
independent region*

B is Black's basic-life

*B is Black's
independent region*
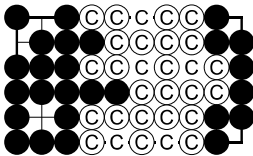
C is White's basic-life
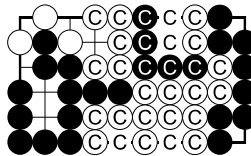
*C is White's
independent region*
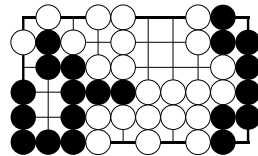
after removals III
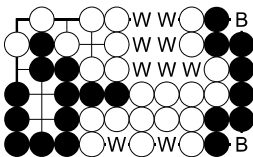
scoring intersections III

Example 11, analysis III: Playing as in analysis III is Black's strategic mistake, because analysis I is better for him. The diagram 'Black's maximal basic-lives III' is not good enough for distinguishing what are from what are not his independent regions. For this purpose, one must study the parts A and B of the board:

- In the position at the end of the analysis, only the part A of the board is not covered by Black's basic-life (because there are not at least two single empty intersections in the part); therefore, in the position at the start of the analysis, the part A is not Black's independent region.

- In the position at the end of the analysis, only the part B of the board is covered by Black's basic-life (in particular, the part B has at least two single empty intersections); therefore, in the position at the start of the analysis, the part B is Black's independent region.

The diagram 'White's basic-life III' is good enough for determining White's independent region. The study of part C of the board determines this more carefully: in the position at the end of the analysis, only the part C of the board is covered by White's basic-life (in particular, the part C has at least two single empty intersections); therefore, in the position at the start of the analysis, the part C is White's independent region. 5 black stones are removed from White's independent region. The score is 2 - 9 - 5 = 2 - 14 = -12 points in White's favour.

As you can see, if the players make strategic mistakes during the analysis, the consequences (such as the surprising destruction of a so called 'seki' and the score) can contradict common go theory. The rules are designed to produce nice behaviours and results only when the players do not make any strategic mistakes. Since Black can choose Black 1 in analysis I, he does not want to attack as in analysis III, which leads to a score that is much worse for him. Although the behaviour may be surprising, the players can identify their strategic mistakes by comparing the resulting scores: the score 0 (analysis I) is better for Black than the score -12 (analysis III).

4 at A, 5 at 2, 6 at B,
7 pass, 9 12 ko at 2,
13 at C.
analysis IV

15 17 19 21 23 25 27 pass,
28 pass.
(continuation)

created position

Black's basic-life IV

White's basic-life IV

Black's independent region IV

White's independent region IV

after removals

scoring intersections IV
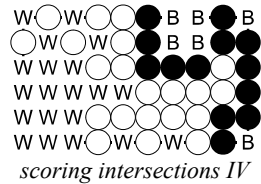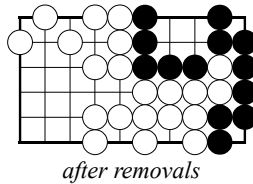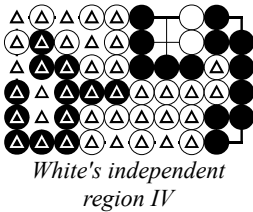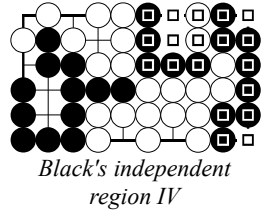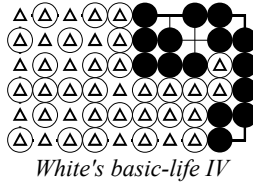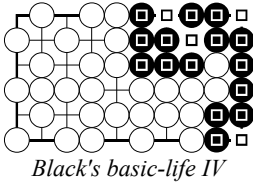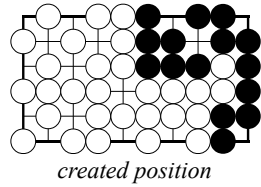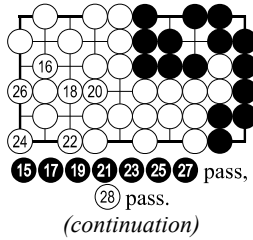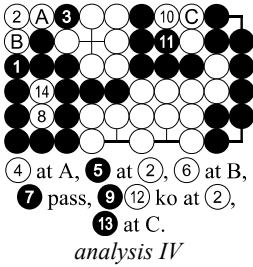
Example 11, analysis IV: Black makes strategic mistakes during the analysis, but the position at its end has basic-lives. They determine the bounded parts of the board as the independent regions in the position at the start of the analysis. Accordingly, 2 white stones are removed from Black's independent region and 12 black stones are removed from White's independent region. The score is 6 + 2 - 20 - 12 = 8 - 32 = -24 points in White's favour. The exchange during the analysis is bad for Black.

8 at A, 9 at B, 10 at C,
12 13 pass.
analysis V
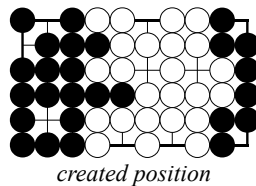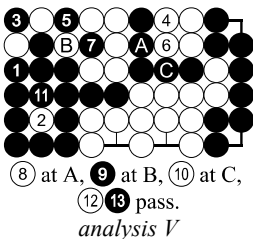
created position

Example 11, analysis V: Analysis V creates the same position as does analysis III, see there.

6 at A, **7** at B.
analysis VI

9 11 13 15 17 19 21 pass,
22 pass.
(continuation)
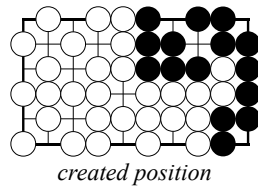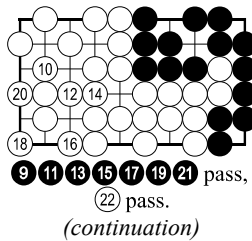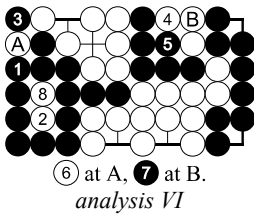
created position

Example 11, analysis VI: Analysis VI creates the same position as does analysis IV, see there.

Example 12: Black to move

2 at A, **3** at B, 4 pass,
5 at C, 6 **7** pass.
game I

created position
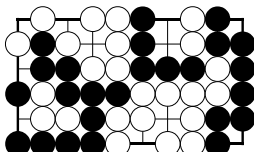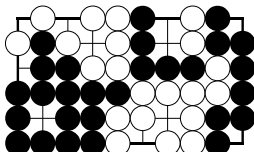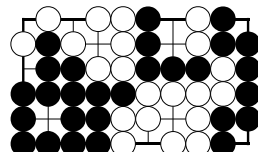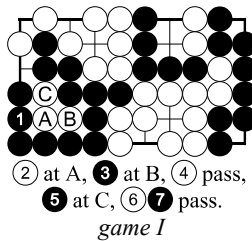
1 **2** pass.
analysis I
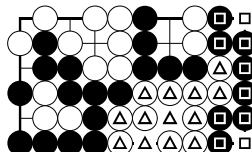
independent regions I
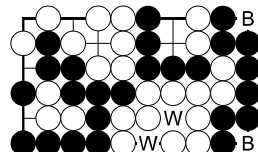
scoring intersections I

Example 12 (see Attachment 2 Example 1.9), game + analysis I: The move-sequences of game I and analysis I are correct. During the game, Black removes 4 white stones (three immediately, one after White's throw-in and Black's filling of its liberties). The analysis determines the marked independent regions. The score is 2 + 4 - 2 = 6 - 2 = 4 points in Black's favour. The analysis is very simple. (Most of the different analyses below explain application of the rules, if the players choose complexity, such as exchanges resulting from strategic mistakes. In practice, the players choose only one game and analysis, and they should choose this game + analysis I.)
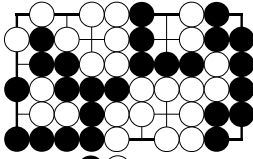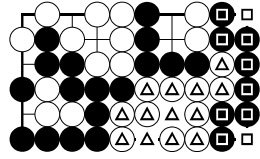
game II

analysis II

independent regions II
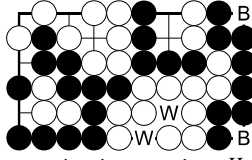
scoring intersections II

Example 12, game + analysis II: Black's pass during the game's move-sequence is his strategic mistake. (This is so also during all game sequences studied below.) The score is 2 - 2 = 0 points; the game is a tie. Since the left black group does not represent an independent region, no white stones are removed from it; after the game's sequence, it is too late to remove stones from intersections that do not belong to independent regions (but are in so called 'mixed regions').
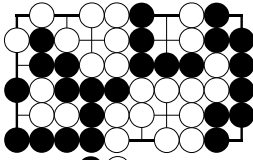
game III
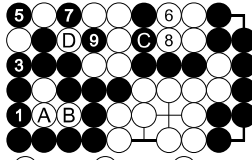
2 at A, 4 at B, 10 at C,
11 at D.
analysis III
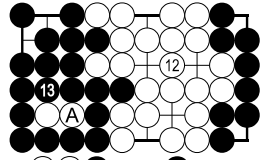
14 16 17 pass, 15 at A.
(continuation)
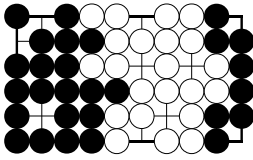
created position
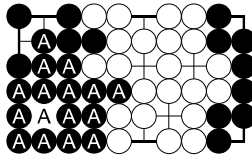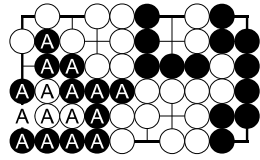
A is not Black's basic-life

A is not Black's independent region
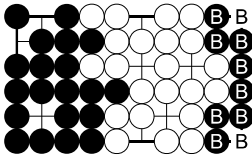
B is Black's basic-life
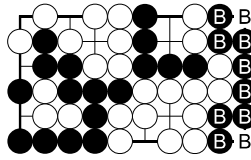
B is Black's independent region
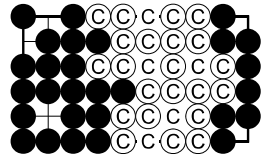
C is White's basic-life
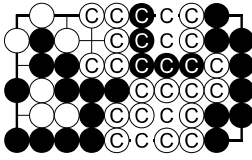
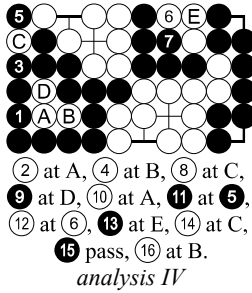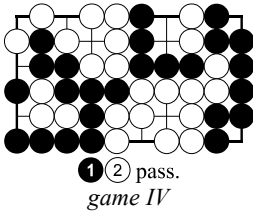*C is White's independent region*
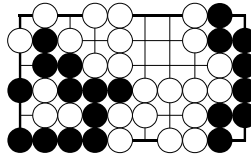
after removals
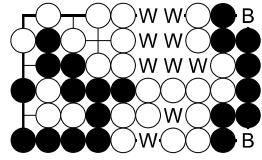
scoring intersections III

Example 12, game + analysis III: During the analysis, Black's attack is his strategic mistake. For distinguishing what are from what are not his independent regions, one must study the parts A and B of the board:

- In the position at the end of the analysis, only the part A of the board is not covered by Black's basic-life (because there are not at least two single empty intersections in the part); therefore, in the position at the start of the analysis, the part A is not Black's independent region.

- In the position at the end of the analysis, only the part B of the board is covered by Black's basic-life (in particular, the part B has at least two single empty intersections); therefore, in the position at the start of the analysis, the part B is Black's independent region.

In the position at the end of the analysis, only the part C of the board is covered by White's basic-life (in particular, the part C has at least two single empty intersections); therefore, in the position at the start of the analysis, the part C is White's independent region. 5 black stones are removed from White's independent region. The score is 2 - 9 - 5 = 2 - 14 = -12 points in White's favour. On the left side, no white stones are removed, because there is no independent region on the left side, from which they might be removed. (White

4 at 5 would be White's strategic mistake during the analysis.)

1 **2** pass.
game IV

2 at A, **4** at B, **8** at C,
9 at D, **10** at A, **11** at **5**,
12 at **6**, **13** at E, **14** at C,
15 pass, **16** at B.
analysis IV

17 **19** **21** **23** **25** **27** **29** pass,
31 **32** pass.
(continuation)

created position

Black's basic life IV

White's basic-life IV

Black's independent region IV

White's independent region IV

after removals

scoring intersections IV
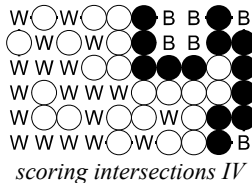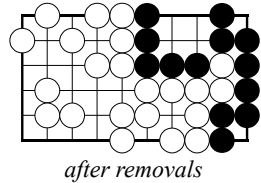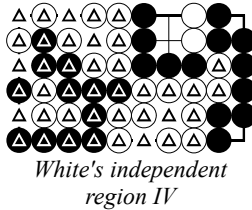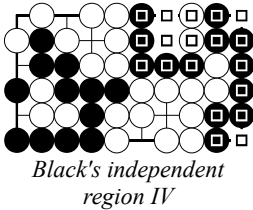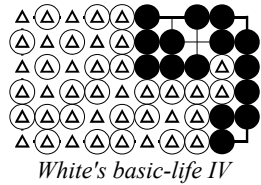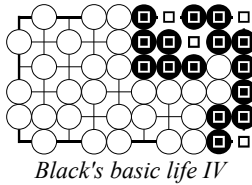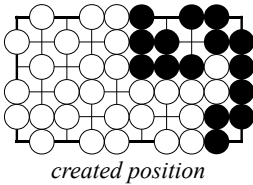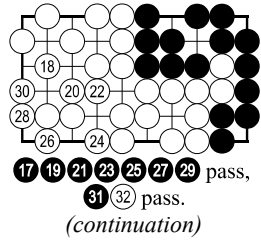
Example 12, game + analysis IV: During the analysis, Black's attack is his strategic mistake. The basic-lives in the position at the end of the analysis determine the independent regions in the position at the start of the analysis. 12 black stones are removed from White's independent region and 2 white stones are removed from Black's independent region. The score is 6 + 2 - 19 - 12 = 8 - 31 = -23 points in White's favour. (White 10 at 5 would be White's strategic mistake during the analysis.)
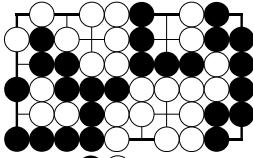
1️⃣ 2️⃣ pass.
game V
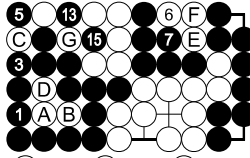
2️⃣ at A, 4️⃣ at B, 8️⃣ at C,
9️⃣ at D, ⑩ at A, 1️⃣1️⃣ at 5️⃣,
⑫ at 6️⃣, ⑭ at E, ⑯ at F,
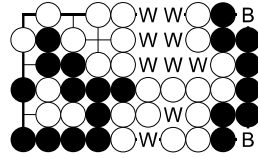1️⃣7️⃣ at G.
analysis V
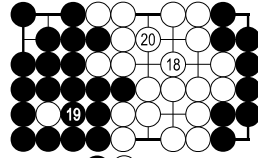
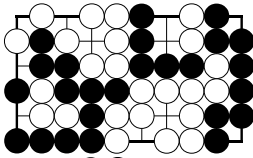2️⃣1️⃣ 2️⃣2️⃣ pass.
(continuation)
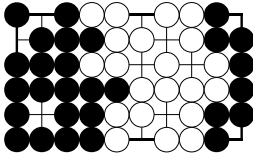
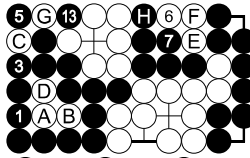*created position*
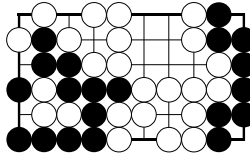
after removals
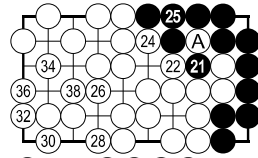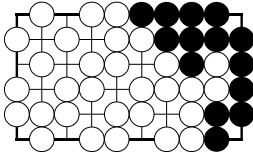
scoring intersections V

Example 12, game + analysis V: During the analysis, Black's attack is his strategic mistake. Analysis III explains basic-lives and independent regions. 5 black stones are removed from White's independent region. The score is 2 - 9 - 5 = 2 - 14 = -12 points in White's favour. On the left side, no white stones are removed, because there is no independent region on the left side, from which they might be removed.
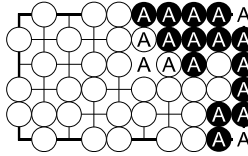
1️⃣ 2️⃣ pass.
game VI

2️⃣ at A, 4️⃣ at B, 8️⃣ at C,
9️⃣ at D, ⑩ at A, 1️⃣1️⃣ at 5️⃣,
⑫ at 6️⃣, ⑭ at E, 1️⃣5️⃣ at F,
⑯ at G, 1️⃣7️⃣ at 7️⃣, ⑱ at C,
1️⃣9️⃣ at H, ⑳ at B.
analysis VI

2️⃣3️⃣ at A, 2️⃣7️⃣ 2️⃣9️⃣ 3️⃣1️⃣ 3️⃣3️⃣ pass,
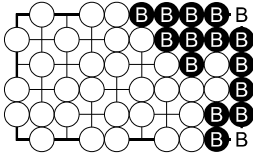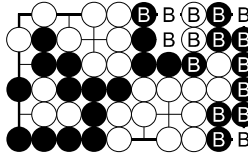3️⃣5️⃣ 3️⃣7️⃣ 3️⃣9️⃣ ⑳ pass.
(continuation)

created position
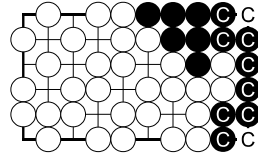

A is not Black's basic-life
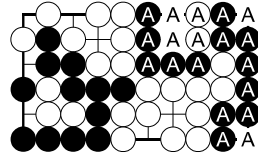
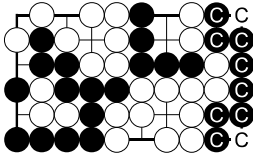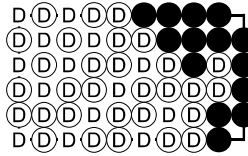*A is not Black's independent region*

B is Black's basic-life
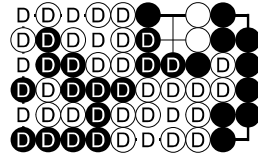

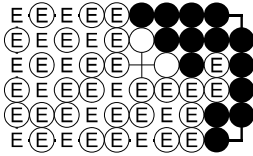*B is not Black's independent region*

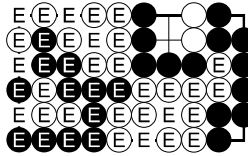*C is Black's basic-life*

C is Black's independent region
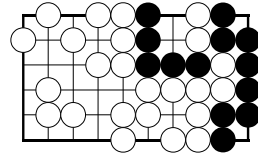

D is White's basic-life

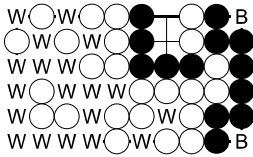*D is not White's independent region*

E is White's basic-life

E is White's independent region

after removals

scoring intersections VI

Example 12, game + analysis VI: During the analysis (or similar analysis sequences), Black's attack is his strategic mistake. Identification of the independent regions is not easy, but it is possible with care:

- The part A of the board is a candidate for Black's independent region, but, in the position at the end of the analysis, Black does not have his basic life on all intersections of the part. Therefore, in the position at the start of the analysis, A is not Black's independent region.

- Although, in the position at the end of the analysis, Black has his basic-life on the part B of board, it is not his independent region in the position at the start of the analysis, because, in this position, it is not bounded by his stones.

- The part C of the board is Black's independent region in the position at the start of the analysis, because, in the position at the end of the analysis, Black has a basic-life of his on the part C.

- Although, in the position at the end of the analysis, White has his basic-life on the part D of board, it is not his independent region in the position at the start of the analysis, because, in this position, it is not bounded by his stones.

- The part E of the board is White's independent region in the position at the start of the analysis, because, in the position at the end of the analysis, White has a basic-life of his on the part E. In particular, in the position at the start of the analysis, the part E is bounded by White's stones. In the position at the end of the analysis, the marked part E is White's basic-life, because each marked stone is white, each marked stone belongs to a string with at least two marked single empty intersections and each marked single empty intersection is only adjacent to marked stones.

C and E are the independent regions. 12 black stones are removed from White's independent region. The score is 2 - 19 - 12 = 2 - 31 = -29 points in White's favour.