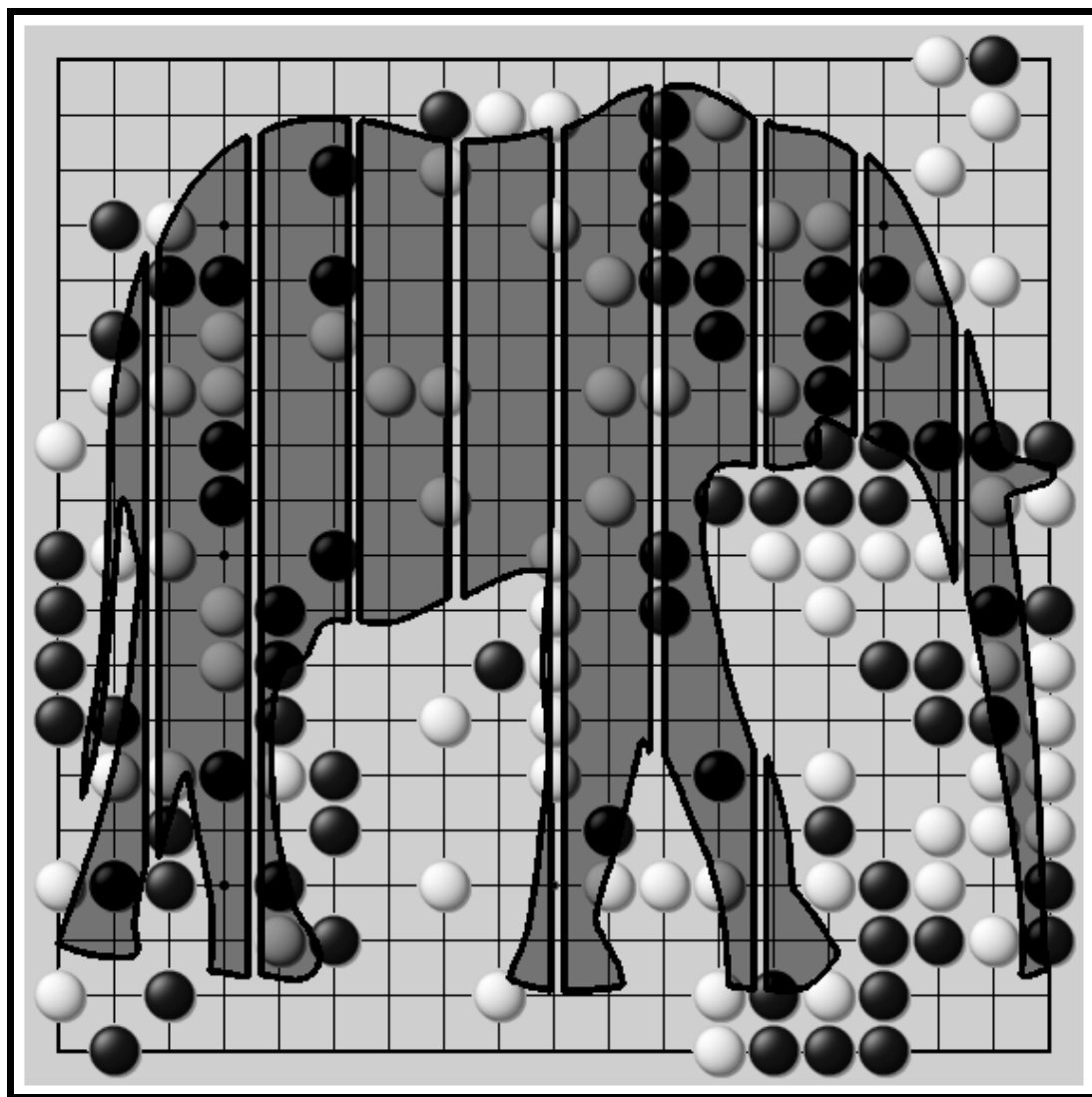






# Igo Hatsuyôron 120

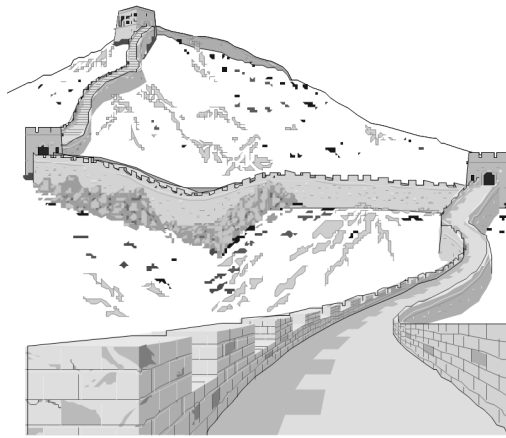


## An Elephant in Slices

A novel approach to the most difficult problem ever

Thomas Redecker  
Joachim Meinhardt & Harry Fearnley

*Great works are  
performed, not  
by strength, but  
by perseverance;  
yonder palace  
was raised by  
single stones,  
yet you see its  
height and  
spaciousness.*



*He that shall walk  
with vigour three  
hours a day, will  
pass in seven years  
a space equal to  
the circumference  
of the globe.*

Samuel Johnson, 1709 - 1784

According to Japanese customs and the usual order in East Asia with names of persons, we will always list the family name before the given name.

First Edition; February 2015

© 2015, Thomas Redecker, Berlin. All rights reserved.

This book or any portion thereof may not be reproduced or used in any manner whatsoever without the express written permission of the publisher except for the use of brief quotations in a book review or scholarly journal.

Email: [igohatsuyoron120@gmail.com](mailto:igohatsuyoron120@gmail.com)

The board graphic for the book cover was created using Multigo®:

<http://ruijang.com/multigo/>

The diagrams in this book were created with SmartGo®: <http://www.smartgo.com>

# The Menu.

## How Do You Eat an Elephant?

Introduction.	7
From the “Simple” Seki to the “Classic” Hanezeki.	9
From the “Classic” Hanezeki to the Main Theme of Igo Hatsuyôron 120.	27
The Road to Perfection.	61
The Growth of the Hanezeki’s Tail.	93
The Nakade on the Left Side.	97
Endgame in the Upper Right Corner.	105
The Keystone.	121
Endgame in the Lower Left Corner.	129
Endgame in the Upper Left Corner.	137
The FINAL Problems.	143
Some Side Dishes.	
– Black’s final move in the Crosscut Sequence.	163
– White’s Tenuki After Black’s Guzumi.	180
– Joachim’s Ko-Semeai.	185
– Joachim’s Ko-Semeai (II).	201
– The Missing Black Stone.	217

## The Eaten Elephant.

One Mystery Remains.	221
Some More Recommended Restaurants.	233
Some Notes About the Master Chefs and Other Kitchen Staff.	234
Some Notes About the Main Ingredients.	235

## Summaries.

Warming Up	25
Warming Up (II)	56
Before the Start of the Road to Perfection	58
The Road to Perfection – Start	61
The Road to Perfection – Checkpoint Alpha	90
The Road to Perfection – Checkpoint Bravo	94
The Road to Perfection – Checkpoint Charlie	99
The Road to Perfection – Checkpoint Delta	101
Counter-Intuitive Features	104
The Road to Perfection – Checkpoint Echo	119
Counter-Intuitive Features (II)	128

## Excursus.

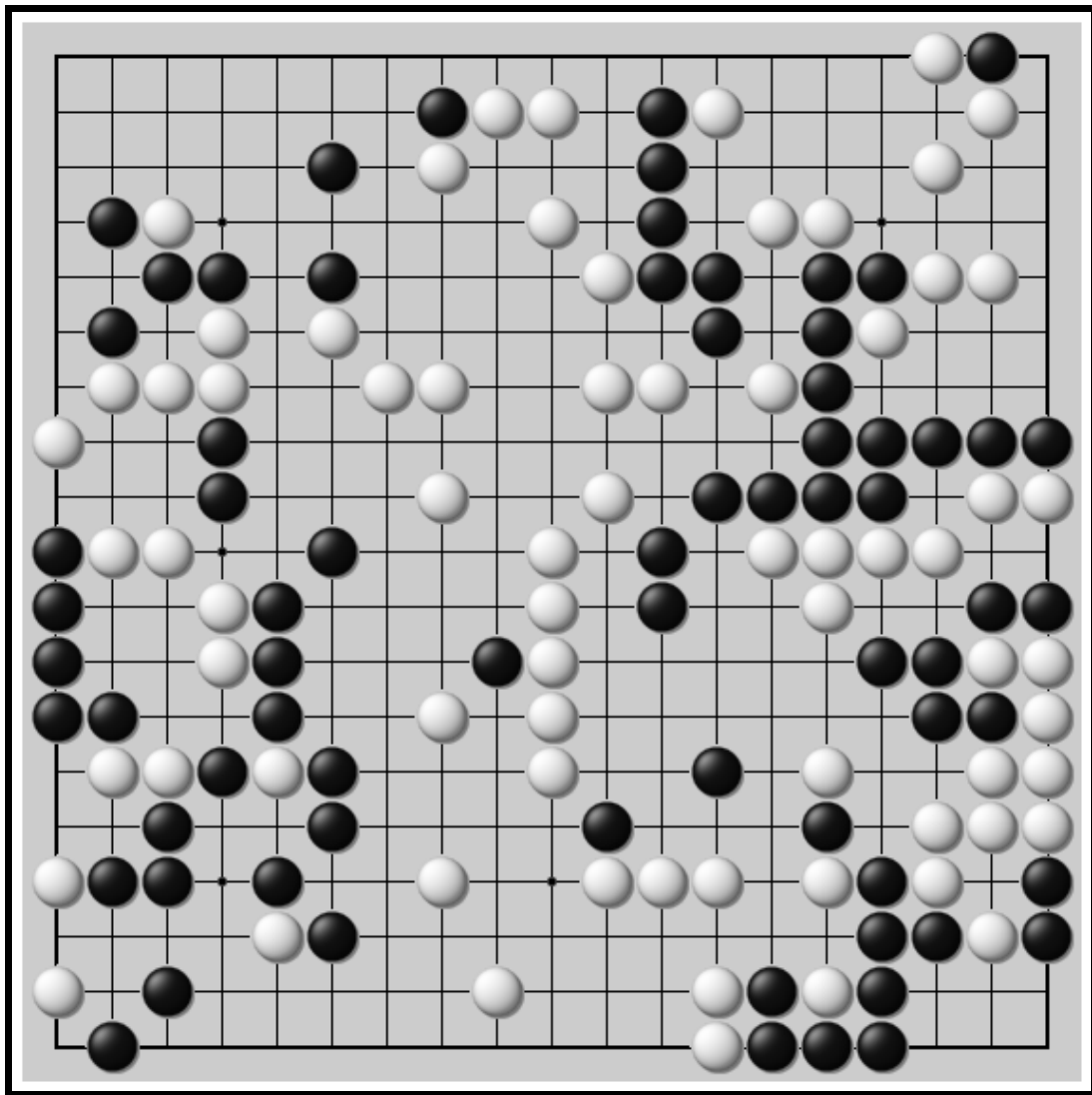
Excursus I – The World of Tsume-Go.	14
Excursus II – Diamond and Diamonds.	27
Excursus III – Reverse Engineering.	65
Excursus IV – Approach-Move Liberties.	113
Excursus V – Dosetsu’s Genius.	221



# How Do You Eat an Elephant? – Introduction.

When we ask a management consult how to manage a project that is much too large to be treated as a single entity, they may say that this is similar to asking the question “**How do you eat an elephant?**”.

The simple, common sense, answer is “**In (small) pieces!**”, or “**In slices!**”, dependent on the dinner preferences of the management consultant asked. The advice given tells you to cut your tasks down in size.



Igo Hatsuyōron 120 is the most difficult Go problem ever created (by Inoue Dosetsu Inseki, 1646 - 1719), and even professional Go players must invest a large amount of time to really understand it. The first professional attempt to solve the problem known to us was published by Fujisawa Hideyuki 9p in 1982. Since then, especially Cheng Xiaoliu 6p worked on the problem, but none of these attempts could withstand determined questioning.

We have published a few books so far that deeply analysed, and described, the whole picture, starting from the problem's set-up. However, due to the various inter-dependencies in the problem, and the largely delayed onset of effect of several moves, understanding may be very difficult for the usual reader (i.e. an amateur player). This seems to be true, despite our various attempts to provide a lot of different, and extended, explanations of the main crucial points of the problem.

Recently, Harry Fearnley came up with the idea to present the problem, as well as the problem's solution, as a kind of a "jigsaw puzzle". He asked, whether it might be possible to extract, present, and explain, many small aspects of **Igo Hatsuyōron 120** as (more or less simple) individual problems. Thus making the reader able to put together the entire puzzle on his own (to be honest: with some assistance, of course) in the very end, i.e. solving the most difficult problem ever.

Ideally, the puzzle would be so designed to have exactly 120 pieces.

Here comes the result of our efforts, and we hope that you will enjoy it!

During the course of the book, we will also present our idea of the (fictive, as a matter of course) chain of thoughts that might have motivated Inoue Dosetsu Inseki while creating his masterpiece.

Please be prepared for the fact that – in this context – some of the single problems presented might be trivial for you, and much below your level, especially in the very beginning of the book. Readers who are familiar with what a *Hanezeki* is might consider starting around problem 025. However, in our opinion, even these seemingly too simple problems in the very beginning of the book are needed to create a self-contained presentation of the whole story.

If you have any questions, or suggestions, please do not hesitate to e-mail us via [igohatsuyoron120@gmail.com](mailto:igohatsuyoron120@gmail.com)

Berlin, February 2015  
Thomas Redecker



# How to Eat an Elephant? – From the “Simple” Seki to the “Classic” Hanezeki.

“*Seki*” means “shared life”, or “mutual life”.

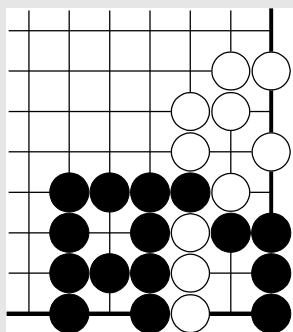
*Seki* is a special configuration that has fascinated Go players since ancient times.

In its “simple” form, with one group of each colour, the two empty points that secure life for each group are not forbidden to the opponent by the rules, but by practical considerations only. Neither side may occupy any of these empty points without being captured by the opponent thereafter.

In its more complex forms, with more than one group each, neither side may capture any of their opponent’s stones without losing more points than they gain.

In this section, we will retrace the path from the “simple” type of a *Seki* to a very special one that possesses a group, which is under permanent *Atari*, but must not be captured by the opponent, and which is the starting point for the creation of **Igo Hatsuyôron 120**.

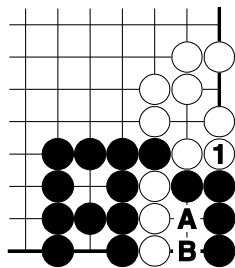
Readers, who are familiar with what a *Hanezeki* is, might consider skipping this chapter, and start around problem 025 (page 42).



## Problem 001

✱ White to play! ✱

## Answer to problem 001.



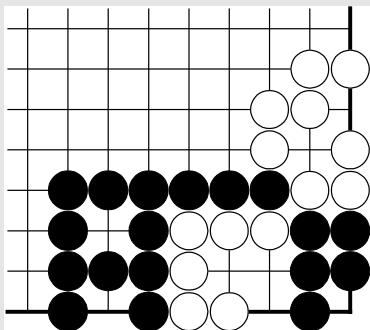
W **1** occupies an outside liberty of Black's group in the corner.

White's three, and Black's four, stones in the corner share two liberties, **A**, and **B**. Neither side is able to occupy either of these shared liberties.

A move at **A** – by either side – will be *Self-Atari*, so the opponent will capture at **B** with the next move. And vice versa.

The resulting shape – two groups with no eyes that share two liberties – is the basic case of a *Seki*.

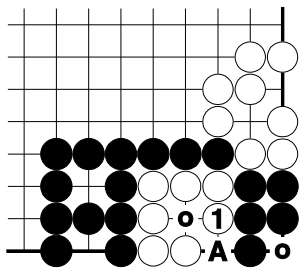
(We prefer to use the capitalized version of Go terms – e.g. “*Seki*” above – that are explained in the back of the book, from page 235 on.)



## Problem 002

✱ White to play! ✱

## Answer to problem 002.

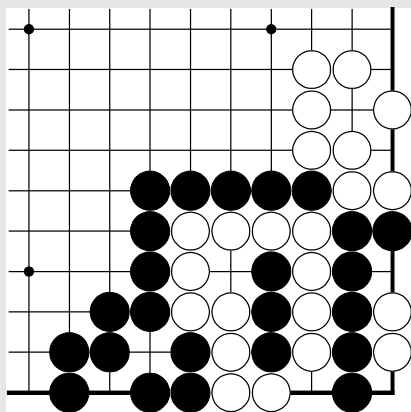


W **1** occupies a liberty of Black's group in the corner, and simultaneously secures an eye for White's own group.

Either side has an eye **o** of the minimum size; both groups in the corner share one liberty, **A**, and so have two liberties each.

Again, neither side will play the suicidal move of **A**.

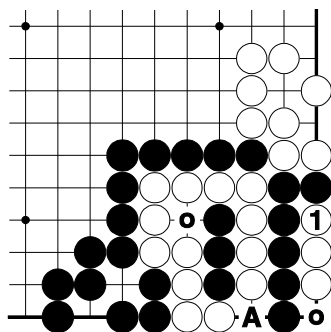
The resulting shape is the basic case of a *Seki* that has both sides with a one-point eye, combined with a shared liberty.



## Problem 003

✧ White to play! ✧

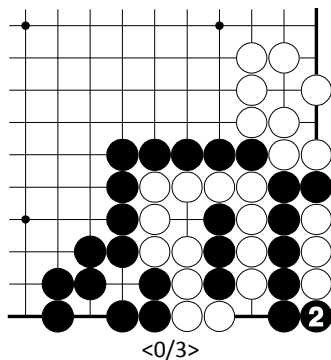
## Answer to problem 003.



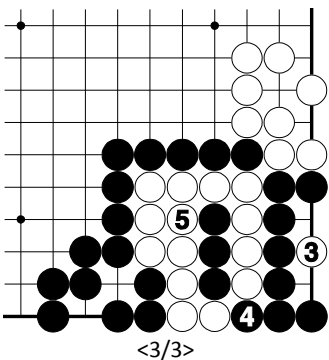
W **1** occupies a liberty of Black's group in the corner.

Both sides have an eye **o** of identical size – in this case, with a three-point *Nakade*. Neither side is able to play at **A**.

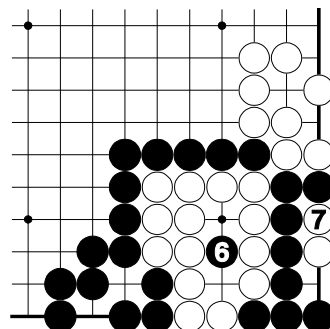
The resulting shape is a *Seki* with both sides having a larger eye of the same size – i.e. with the same number of internal liberties.



Capturing the *Nakade* will not benefit Black.

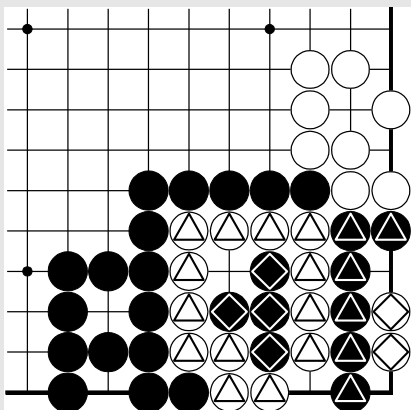


W **3** takes the vital point of Black's shape, so Black is forced to give *Atari* with **4**.



Black must pre-empt two eyes for White's group with a move at **6**, but W **7** gives *Atari*, and wins the *Semeai*.

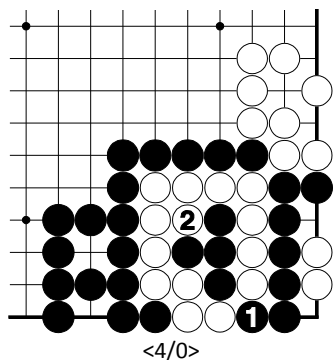
(We display the numbers of captured stones in a diagram's subscript. "<x/y>" means that – at the end of the sequence shown – there are x Black, and y White, prisoners.)



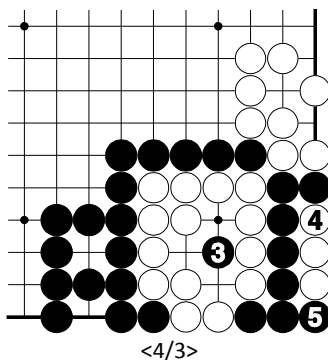
## Problem 004

✱ What is the status of the corner groups? ✱

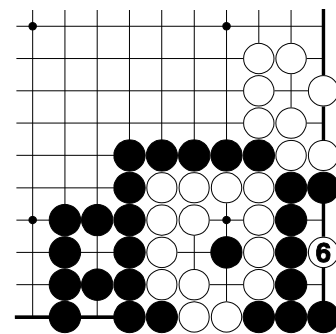
## Answer to problem 004.



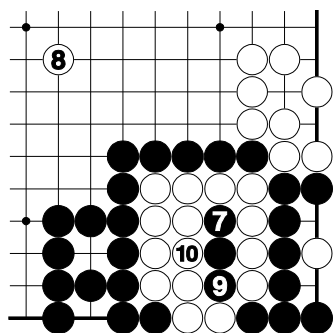
Black's only option is the *Atari* of **1**.



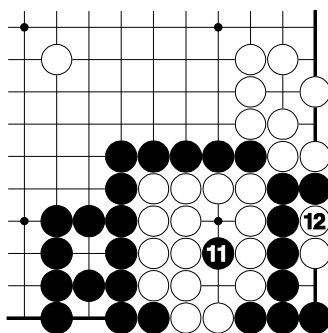
The *Oki* of **3** reduces White to only one eye, so White further occupies Black liberties with **4**.



White plays *Oki*, too. It is evident now that White has more liberties than Black.

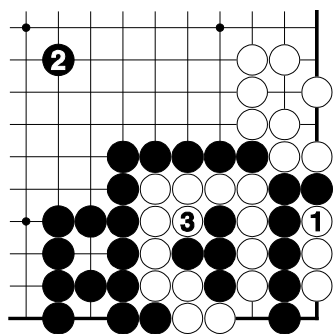


Even if Black occupies a further liberty of White's group, White is able to play *Tenuki* with **8**.

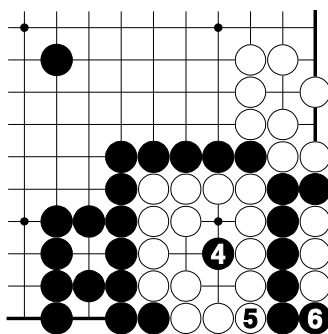


Even with an extra move, Black is one step too late here. White wins the *Semeai*.

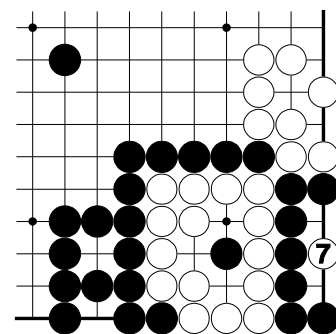
(We display *Tenuki* moves, like W **8** in the diagram at left, in an unaffected area of the board, instead of mentioning it in the diagram's subscript.)



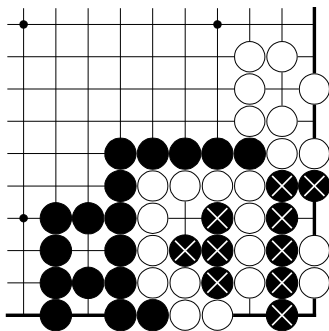
White will start the *Semeai* with the liberty-occupying move of **1**. With **2**, Black can do nothing but *Tenuki*. Capturing in the corner, instead, results in a change in the order of moves.



The rest of the sequence is already known to us.

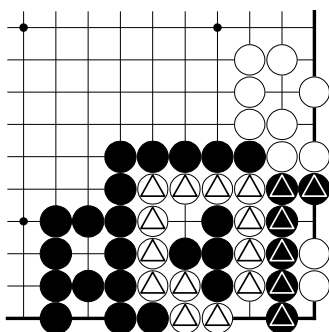


White will win the *Semeai*, easaily.



Resulting status of the corner:

Black's marked groups are dead.  
White's groups in the corner are alive.

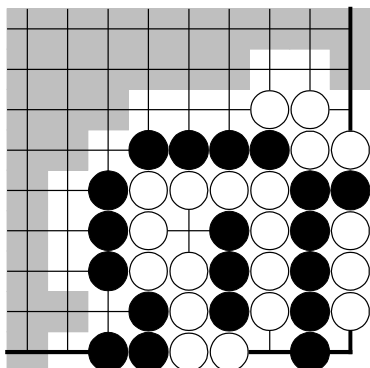


Conclusion:

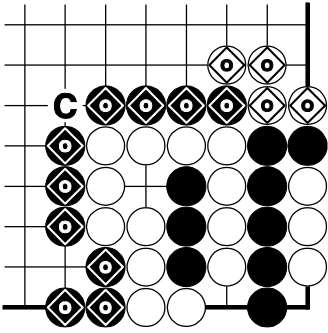
The “main” groups (▲/●) of a *Seki* must have the same amount of effective liberties to keep the *Seki* stable.

In the majority of cases, this is the same as saying that the two *Nakade* are the same size (assuming an equal number of liberties of the main groups).

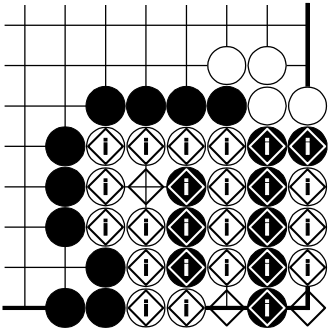
## Excursus 1 – The World of Tsume-Go.



In principle, the shadowed area does not matter in Tsume-Go that is related to the question of “Life & Death” in the corner.

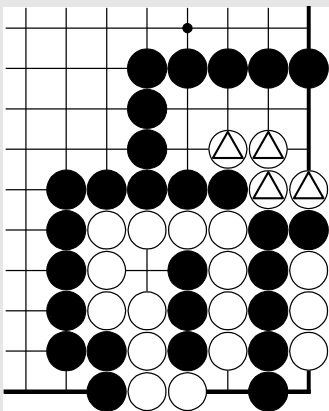


ALL groups on the “outside” are assumed to be alive.  
Usually, the task is neither to escape from the corner, nor to get life by capturing some surrounding stones of the opponent. However, an unprotected cutting point (like C) sometimes might be an indication for such an exceptional case.



The problem to be solved is assumed to be “inside” only.

These agreements mean that Tsume-Go problem set-ups can be simplified “simplified” / “reduced”. This allows the problem solver to focus on the really interesting points.



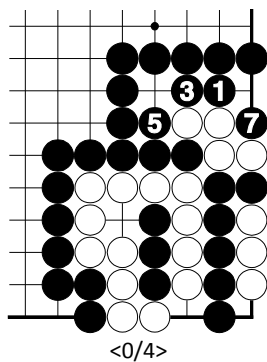
### Problem 005

Igo Hatsuyōron 120 is a whole board problem.  
So, what might happen in a “real” game?

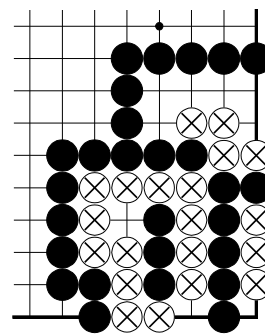
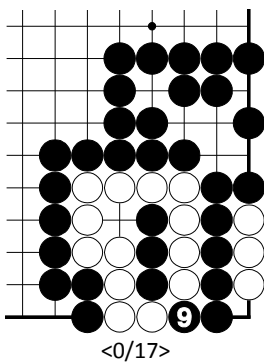
Case 1:  
White's outside group is vulnerable.

✱ What is the status of the corner? ✱

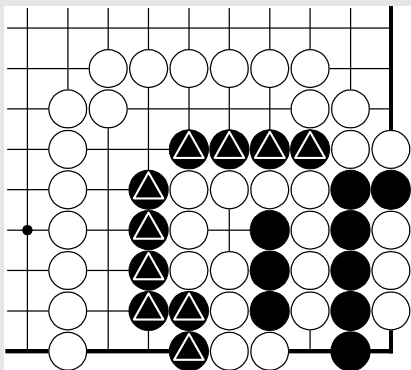
## Answer to problem 005.



The temporary *Seki* collapses in Black's favour.



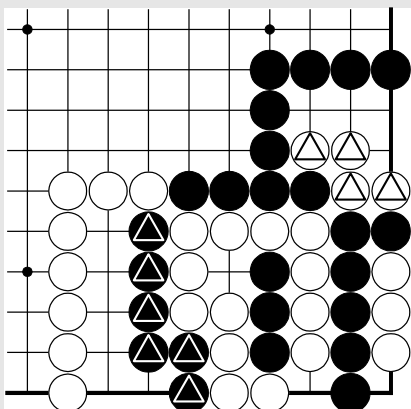
All of White's groups are dead. Please note that Black will not need to capture them before the end of a real game.



### Problem 006

Case 2:  
Black's outside group is vulnerable.

✱ What is the status of the corner? ✱

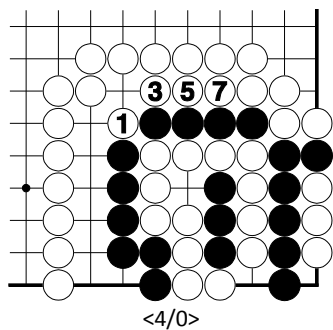


### Problem 007

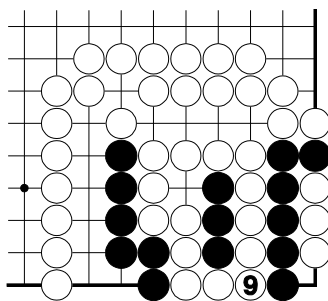
Case 3:  
Both outside groups are vulnerable, so careful analysis is needed.

✱ What is the status of the corner? ✱

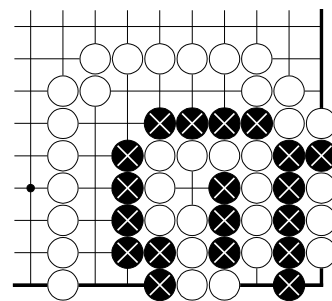
### Answer to problem 006.



The temporary *Seki* collapses in White's favour.

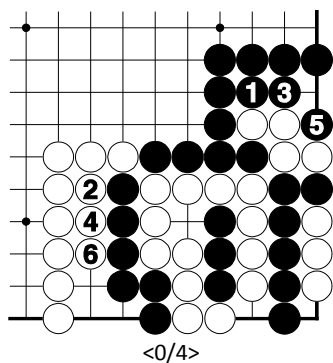


Please note that White will not need to play the sequence shown in a real game.

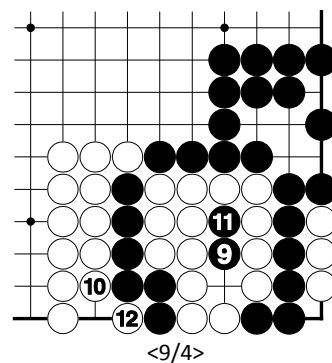
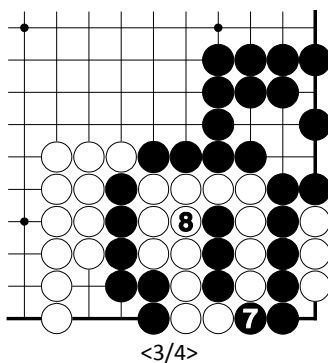


All of Black's groups are dead.

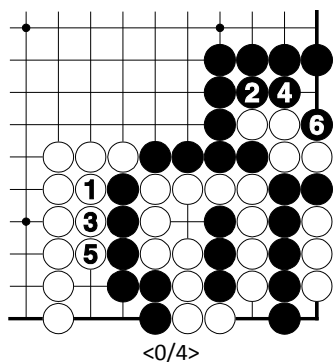
### Answer to problem 007.



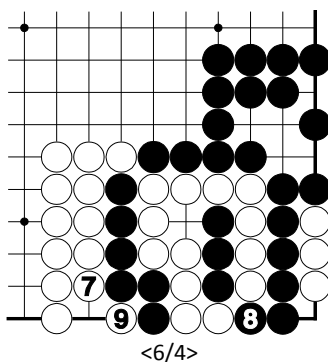
Black captures White's outside group, ...



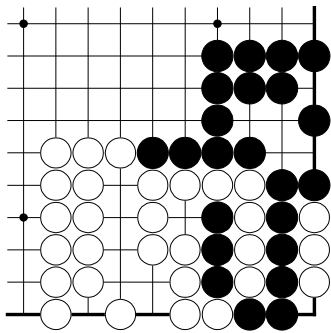
... but is unable to save his own group on the bottom.



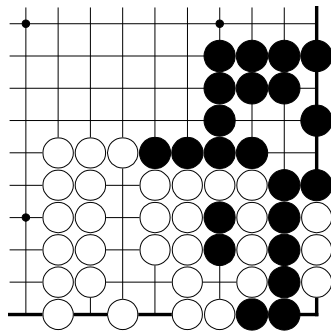
White cannot avoid losing her own group on the right edge, ...



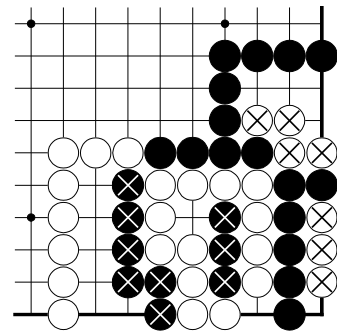
... but will capture Black's outside group on the bottom.



The final result after Black played first.



The final result after White played first.

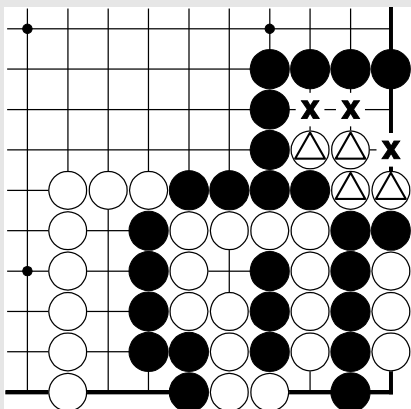


All marked stones are dead. All others live unconditionally.

White will capture more stones than Black, so she gains territorially in the forthcoming exchange that resolves the temporary *Seki*.

Conclusion:

**Surrounding groups must live to keep the *Seki* stable.**

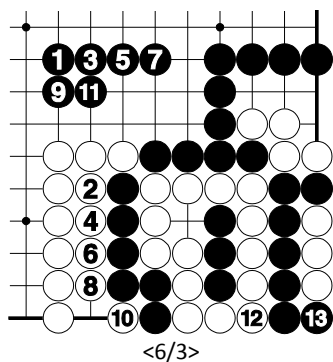


### Problem 008

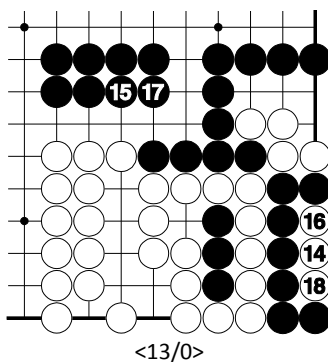
White wants to capture all of Black's stones in the corner.

✱ How many liberties (x) does White's marked group need to have if she is to succeed in any case (Black to play)? ✱

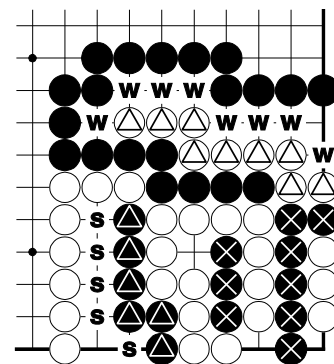
## Answer to problem 008.



The worst-case scenario for White is “Black to play”.

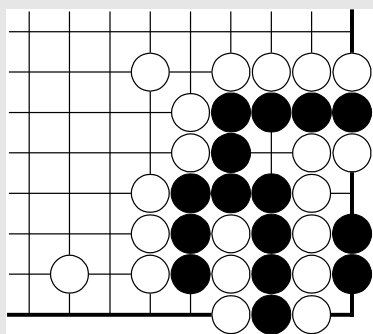


B **17** could be an *Atari* on White's group on the right edge.



**Eight liberties** for White's upper group (**w**) = **three liberties more** than for Black's left-hand group (**s**).

*(In answers to problems that are similar to this one – searching for a currently unknown configuration of a special group [△ here] – we display the opponent's moves, which are designed to occupy liberties of the special group in question, in an unaffected area of the board, in order to simplify the calculation of liberties.)*

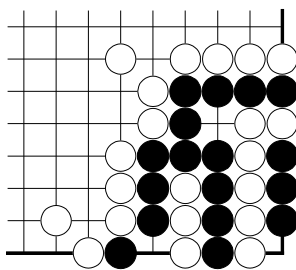
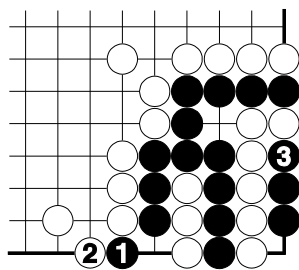


## Problem 009

This is **Gengen Gokyô's** (1349 Xuanxuan Qijing's) classic problem (with colours reversed); taken from Go Seigen's 1980 Japanese edition (*Heibonsha*; ISBN 4-582-80387-3).

✧ Black to play! ✧

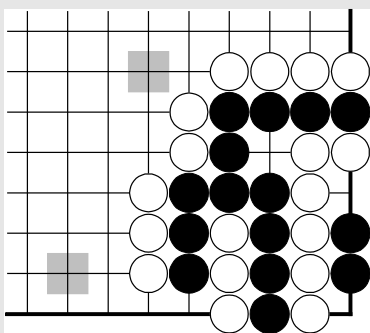
## Answer to problem 009.



Black ends in *Gote*.

The resulting shape is the “classic” *Hanezeki*, with Black’s *Hane* in permanent *Atari* (thus the name of the *Seki*), and with one shared liberty (x).

*We will investigate its features in later problems.*



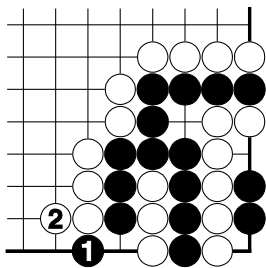
## Problem 010

This is **Gengen Gokyô’s** (1349 Xuanxuan Qijing’s) classic problem “Battle of Strength” (with colours reversed); taken from John Fairbairn’s 2012 “The Gateway to All Marvels” (*SmartGo® Books*; <http://gobooks.com/books.html>).

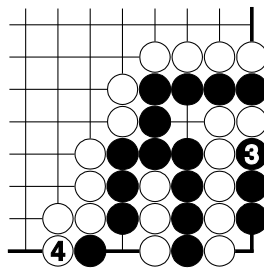
Please note that – compared to the previous problem – two White stones on the outside are not present here.

✱ Black to play! ✱

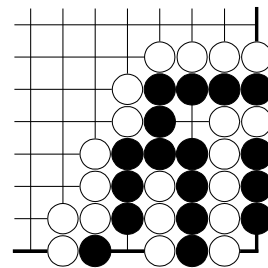
## Answer to problem 010.



White is forced to answer Black's *Hane* with the somewhat restrained move of 2.



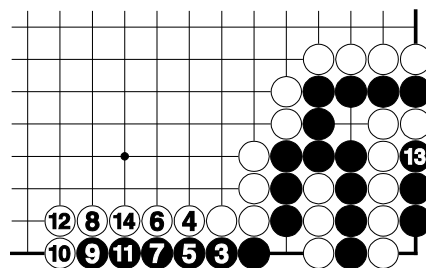
B 3 follows the book's solution, occupying an internal liberty of White's group in the corner. Black ends in *Sente*.



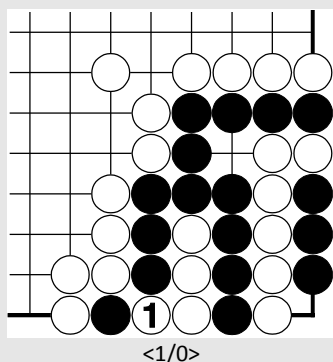
Again, the resulting shape is the "classic" *Hanezeki*, with Black's *Hane* in permanent *Atari*, and with one shared liberty.

Recently, Harry Fearnley discovered that White's missing stones on the outside (compared to problem 009) might be somewhat sub-optimal for the problem's set-up

The further sub-variations would reveal several important features of "*Hanezeki*" that were intended to be developed in the following dozen problems. Therefore, we will postpone the continuation of this solution until page 38.



Harry suggests the *Nobi* of 3 on the first line, instead, for Black. The story will continue with some kind of "*Nobi-ing*", and "*jumping*" on the first, and second, lines. Finally, B 13 establishes the *Hanezeki* in the corner, in *Sente*.

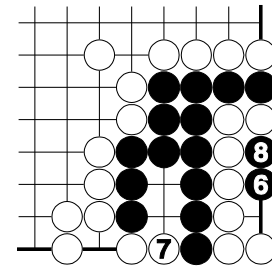
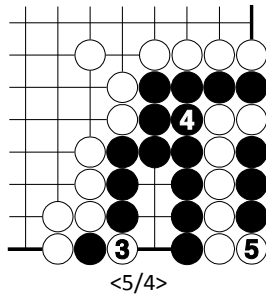
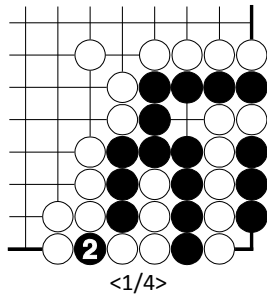


## Problem 011

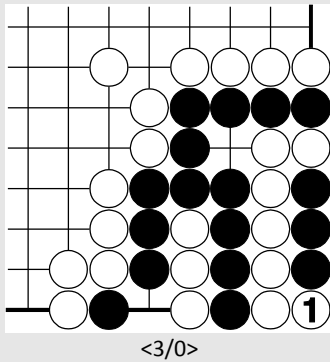
We can safely assume that Inoue Dosetsu Inseki, who lived from 1646 - 1719, knew this classic shape of a *Hanezeki* (the earliest Japanese version of Gengen Gokyô is known from the Kan'ei era, 1624 - 1643), so let us investigate the features of the final position.

✧ Is it feasible for White to capture Black's single stone? ✧

## Answer to problem 011.

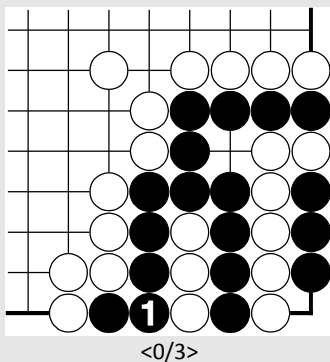


NO!



## Problem 012

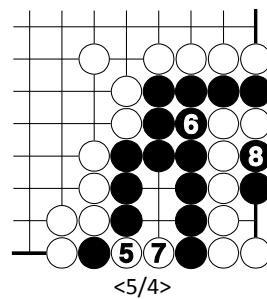
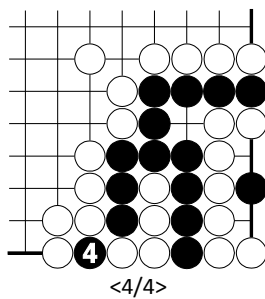
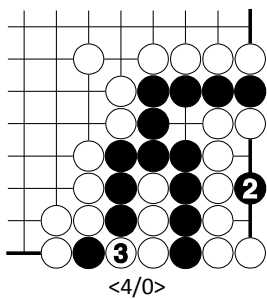
✱ Is it feasible for White to capture Black's group in the corner? ✱



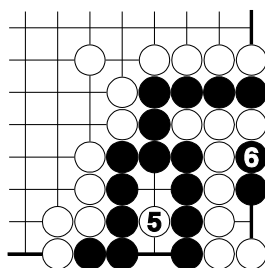
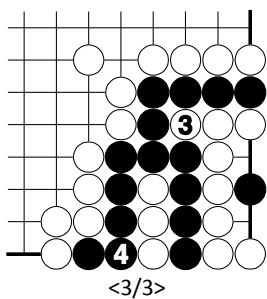
## Problem 013

✱ Is it feasible for Black to capture White's *Nakade*? ✱

### Answer to problem 012.



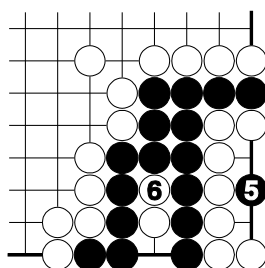
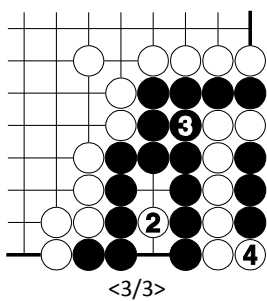
NO!



Another option for W 3.

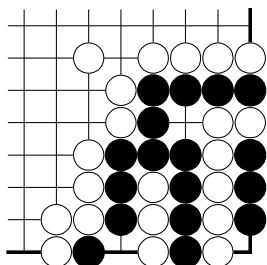
NO!

### Answer to problem 013.



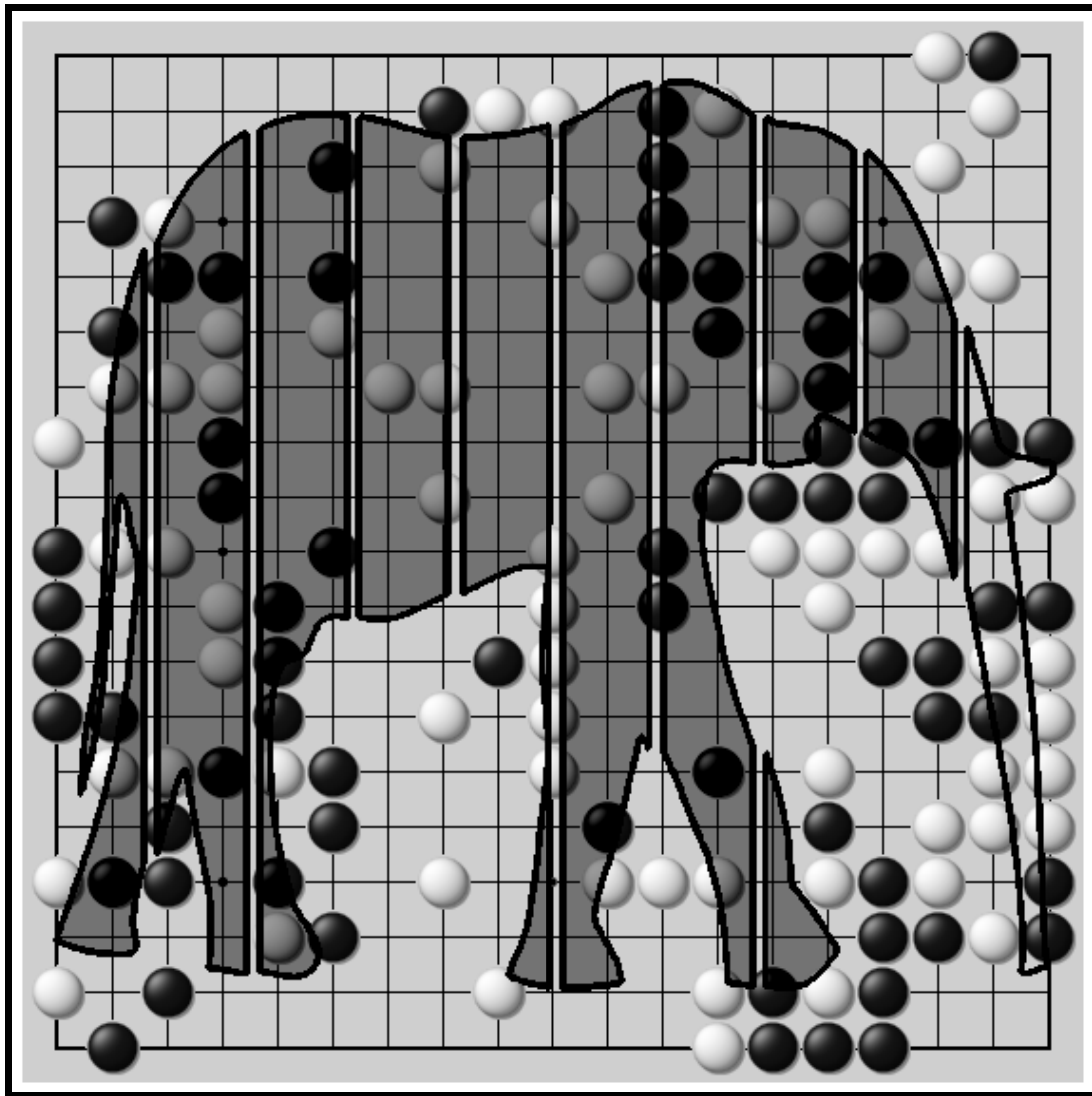
White has to play *Oki* with 2.

NO!



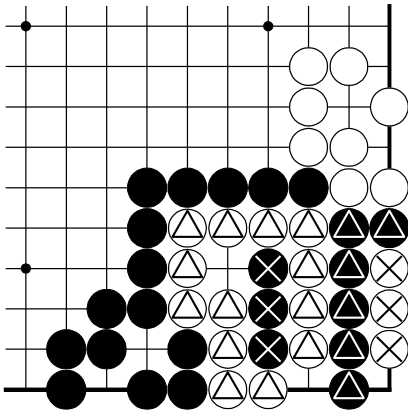
Conclusion:

The final position of the “classic” *Hanezeki* from Gengen Gokyô is a stable one.



## Warming Up

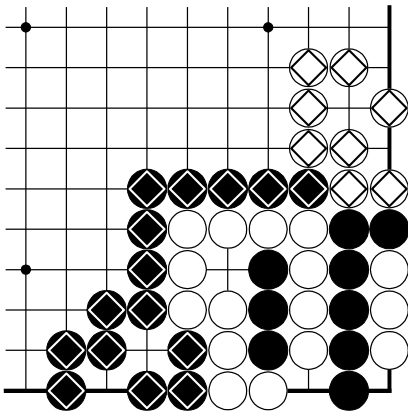
For your convenience, we will summarize here what we have learned in this chapter.



### Exercise 1:

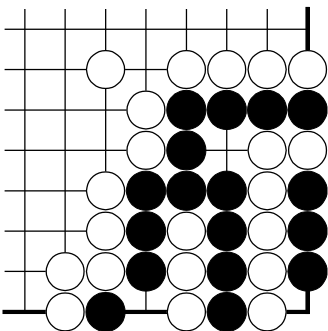
The “main” groups (● / ○) of a *Seki* must have the same amount of effective liberties to keep the *Seki* stable.

In the majority of cases, this is the same as saying that the two *Nakade* (⊗ / ⊗) are the same size (assuming an equal number of external liberties of the main groups).



### Exercise 2:

Surrounding groups (◆ / ◆) must live to keep the *Seki* stable.



### Exercise 3:

The final position of the “classic” *Hanezeki* from Gengen Gokyô is a stable one.

Exercises will continue on page 56.

