How to Use the Chinese Method of Counting in the Game of Go

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Preface

The purpose of this study is to provide a solid introduction to the Chinese method of counting to players who are familiar with the game of go, but who are familiar with the game from a Japanese perspective, including the way it is counted. While striving to be comprehensive and detailed, this study seeks to be compact and practical, and to focus its attention on a how-to approach.

The desire to write a study such as the one that is presented here has been one that I have been wanting to fulfill for a number of years. Although I have always had a general idea of the manner in which the Chinese method of counting is supposed to work, I was never sure about the exact procedure I would need to follow until I became involved in the preparation of this study. I must declare, in the interest of full disclosure and to be perfectly candid, that in the many years in which I have been playing go (over thirty), I have never had the occasion to use the Chinese method of counting in an actual game. The opportunity to use it simply never materialized; but even if it had materialized, I would not have known how to make it work. The most that I can say about my exposure to the Chinese method of counting is that on a few rare occasions I observed others use it to count their games.

My goal in writing this paper is to satisfy an unmet need. There seems to be very little that has been written on the way in which the Chinese method of counting is supposed to work; and there is certainly nothing that I know of that treats this topic as comprehensively as I think it deserves. At first, I had intended to write this study just for myself; and the scope of the project, in the beginning at least, was certainly not as ambitious as it has now become. But the more I got involved in the topic the more I discovered that there was more to say on the matter than I had first thought. So I decided to expand the sweep of the project and to do as good a job as I could in the belief that others will find this study as useful to them as I have found it useful to me.

A word about terminology: I adopted some terms, (e.g., *non-scoring point*, and Half Counting method), from the internet, specifically from the article entitled Chinese Counting, in Sensei's Library. I would have adopted more terms from this source if more had been available. I see no purpose in re-inventing the wheel or of adding to an excess of terms that may exist already. But other terms I invented out of need (e.g., Full Counting method, *total points*, *total possible points*, *half count of possible points, adjusted total points*). I italicized these terms throughout this study to remind readers that these words have very specific meanings.

I know there are two generic terms that are often used to refer to the types of counting methods that embody the Japanese and the Chinese views of what constitutes countable territory (i.e., *territory scoring,* which refers to the counting of vacant intersections only; and *area scoring,* which refers to the counting of both vacant intersections and stones). After careful consideration, I decided not use these terms in this study, not because I have any problems with them *per se*, but mostly because I can never seem to remember, at least, not right away, which is which. I suspect that I am not alone in this predicament.

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Acknowledgement

François Lorrain is a long-time go player from Montreal, who has taught mathematics at the *College Jean-de-Brébeuf*. He has always had an interest in the various counting methods used in go and in the Chinese method in particular, which he considers to be more rational than the Japanese method. He is the author of *Le Go, le grand jeu de l'Orient*, a book designed for beginners, and in which he promotes the Chinese method of counting. His several reviews of this study, along with the many comments these reviews have generated, have helped me greatly to maximize the usefulness of this paper. I am thankful for his support.

Finally, I too am from Montreal and I am also a long-time go player. My background is in technical writing. My interest in the Chinese method of counting and my motivation in writing this study both stem from my desire to properly understand how to use the other major counting method used in go.

Introduction

When the Japanese method of counting is used to score a game, there is only one procedure to follow:

- Remove all the dead stones from the board and place them, along with the prisoners that were captured during the game, into the vacant spaces surrounded by the stones of their own color.
- Reshape the vacant intersections into rectangular shapes in such a manner as to make these spaces easier to count.
- For each side, count the vacant intersections inside these spaces.
- Subtract the komi, if any, from Black's total points (or add it to White's total points).
- Determine the winner by identifying the side that has the larger number of total points.
- Subtract the loser's total points from the winner's total points to produce the margin of victory.

When the Chinese method of counting is used to score a game, however, there is more than one procedure from which to choose. In fact, there are at least three:

- The Full Counting method
- The Half Counting method
- The Key Numbers method

Among the three methods listed above, the Full Counting method is unique. It is unique in the sense that this method is the only one that determines the winner of a game by counting the *total points* (see Glossary, page 35) of both sides. Then, after comparing the values of each side's *total points*, the side with the greater number of points is declared the winner.

The other two methods—the Half Counting and the Key Numbers methods—are similar to each other in two significant respects: (1) unlike the Full Counting method, which relies on comparing the *total points* of both sides, these methods rely on using the *total points* of one side only (usually Black's) in order to determine the winner; and (2) unlike the Full Counting method, the other two methods determine the winner, not by comparing the *total points* of both sides, which they cannot do, but by comparing the value of one side's *total points* to the value of the *half count of possible points* (i.e., to half the points on a board).

Before this comparison can be made, however, the player who is busy scoring the game must perform a few adjustments to settle the effects that the following items will have on the final score of the game: the komi (or the tie-breaker), the number of handicap stones (if any), and the *non-scoring point* (if any). There are two ways in which these adjustments are made: (1) in the Full Counting and Half Counting methods, the adjustments are made to the *total points* of the side that is being counted (usually Black's) while the value of the *half count of possible points* is kept constant; and (2) in the Key Numbers method, the opposite is done: the adjustments are made to the *half count of possible points* while the value of the *total points* of the side that is being counted is kept constant. In brief, this is the Chinese method of counting. Admittedly, it all sounds a bit overwhelming, but it will all be made clear in the pages to come.

In presenting the material covered in this study, the first two methods—the Full Counting and Half Counting methods—are presented together (Section 1, page 5) because they share many similarities even though they are quite distinct. The Key Numbers method (Section 2, page 8), on the other hand, is very different in nature from the other two methods, and, consequently, requires its own distinct treatment.

To explain how the counting methods described in this study are actually used in real games, a few 9 × 9 games are provided (Section 3, page 12) that will fully illustrate how each counting method works.

Finally, because a number of issues that affect or involve the Chinese method of counting require a more in-depth discussion or analysis, this need is provided for in the last part of this study (Section 4, page 26).

Section 1
The Full Counting and Half Counting Methods

- **Full Counting Method:** This method identifies the winner by comparing Black's and White's *total points*. It is considered an inconvenient method to use because it requires more time to count a game using this method than it would require to count the same game using the Half Counting method. However, the Full Counting method is simpler to use than the Half Counting method, and it is far less likely to lead the players who use it into error. Furthermore, because this method requires that the territory of both sides be counted, it thus provides an excellent means of verifying the results that are obtained (for example, this method will detect whether an error occurred in the calculations of the *total points*, or whether there is a *non-scoring point* present in the game). If you are not in the habit of scoring a game Chinese-style on a regular basis, this is the method to use.
- **Half Counting Method:** This method, which is a shortcut version of the Full Counting method, identifies the winner of a game by determining the *total points*, not for both sides, but for one side only, usually Black's. Though faster than the Full Counting method, it is slightly more complicated to use (i.e., more error-prone). There is another version of this method, which is viewed as being slightly simpler and faster to use, called the Simplified Half Counting method (page 7).

Full Counting Method

1. At the end of the game, remove all the dead stones from the board and place them in their respective bowls. If you have prisoners, place them in your opponent's bowl, you won't need them.
2. Make rectangular shapes of the black and white territories on the board, and count the total number of vacant intersections in them. You may want to write these numbers down.

   To help you achieve this objective, you can remove stones from the board and place them in their respective bowls, or you can take stones from the bowls and place them on the board.
3. If there is a seki in the game, see How to Deal with Sekis, page 26.
4. Count the total number of black and white stones on the board by placing them in groups of ten's.
5. For both Black and White, add together the total number of vacant intersections with the total number of stones. This will produce the *total points* for each side.
6. Subtract the komi (or the tie-breaker), or the number of handicap stones (n), if any, from Black's *total points*. If you want, you can add these values to White's *total points*. This will produce the *adjusted total points*.

   Note: The subtraction of the value of the handicap begins when $n \geq 2$. Below $n = 2$ are (1) even games, in which only the value of the komi (6.5 or 7.5) is subtracted, and (2) no-komi games (sometimes called 1-stone handicap games), in which only the value of the tie-breaker (0.5) is subtracted. Of course, in handicap games of two stones or more, the tie-breaker (0.5) is required to prevent games from ending in a draw.
7. The player with the bigger number of *adjusted total points* is the winner.
8. To determine the margin of victory, subtract the lesser value from the greater one.

To see examples of games in which the Full Counting method is used, see Section 3, page 12.

Half Counting Method

1. At the end of the game, remove all the dead stones from the board and place them in their respective bowls. If you have prisoners, place them in your opponent's bowl, you won't need them.
2. Decide which side you will use to calculate the *total points*. (Black's side will be assumed here).
3. Make rectangular shapes of Black's territories on the board, and count the total number of vacant intersections in them. You may want to write this number down.

   To help you achieve this objective, you can remove black stones from the board and place them in Black's bowl, or you can take stones from Black's bowl and place them on the board.
4. If there is a seki in the game, see How to Deal with Sekis, page 26.
5. Count the total number of black stones on the board by placing them in groups of ten's.
6. Add together the total number of vacant intersections with the total number of stones. This will produce Black's *total points*.
7. Determine the *total possible points* of the board (19 × 19 = 361). (The assumption here is that a 19 × 19 board is being used.)
8. Determine the *half count of possible points* by dividing the *total possible points* by 2 (361 ÷ 2 = 180.5 points).
9. Divide the komi (or the tie-breaker) by 2; or divide the number of handicap stones (*n*), if any, also by 2; and then subtract these new values from Black's *total points*. If there is a *non-scoring point* (see How to Deal with Sekis, page 26), divide this value by 2 and add the new value to Black's *total points*. The resulting final value that emerges after performing these operations is called the *adjusted total points*. It is this value that determines the outcome of the game: if it is greater than the *half count of possible points* (180.5), then Black wins; if it is less than the *half count of possible points*, then Black loses.

   Note: The procedure that is outlined in the previous paragraph is the consequence of the decision taken in Step 2, which was to calculate Black's *total points*. If the decision had been made to calculate White's *total points* instead of Black's, then the procedure would have been different. It would have required you to add to White's *total points*, the komi (or the tie-breaker) divided by 2; or the handicap (*n*), if any, divided by 2; and finally the *non-scoring point*, if any, divided by 2.

   Note: The subtraction of the value of the handicap begins when $n \geq 2$. Below $n = 2$ are (1) even games, in which only the value of the komi (6.5 or 7.5), divided by 2, is subtracted; and (2) no-komi games (sometimes called 1-stone handicap games), in which only the value of the tie-breaker (0.5), divided by 2, is subtracted. Of course, in handicap games of two stones or more, the tie-breaker (0.5), divided by 2, is always required to prevent the games from ending in a draw.

   (The reason that the value of the *non-scoring point* is added to Black's *total points*, instead of being subtracted from the value of the *half count of possible points*, which many might consider as the more natural way to proceed, is because of the desire to keep the latter value as a constant.)

   (If you are using the Full Counting method in a game in which a *non-scoring point* occurs, this point will always be subtracted for you automatically. You do not need to do anything to achieve this adjustment. This can be verified by adding Black's and White's *total points*. The sum will always be equal to the *total possible points* minus the *non-scoring point* (361 − 1).

10. To determine the margin of victory, subtract the *half count of possible points* (180.5) from Black's *adjusted total points* and multiply the difference by 2. If this operation produces a negative value, then the result will be White's margin of victory.

To see examples of games in which the Half Counting method is used, see Section 3, page 12.

Simplified Half Counting Method

In this version of the Half Counting method, the only adjustment that is made is for the komi or the handicap. The tie-breaker and the *non-scoring point* are ignored in order to speed-up the calculations. If a tie occurs, White wins automatically (see Komi and the Use of the Tie-Breaker, page 30).

The Simplified Half Counting method produces an accurate result in terms of determining which side wins a game, but the value that is produced for the margin of victory will always be inaccurate by 0.5 points when non-even games are counted (see Margin of Victory, page 31). If you want to obtain an accurate value for the margin of victory, you must always include the tie-breaker in the calculations, which means subtracting 0.25 points (0.5 ÷ 2) from the value of the *total points* (if you are counting White's side, you must add 0.25 points (0.5 ÷ 2) to the *total points*).

If counting Black's side, the formula is as follows:

(Total Points – (Adjustment Points ÷ 2) – Half Count of Possible Points) × 2 = Margin of Victory

(If counting White's side, add, do not subtract, the Adjustment Points—i.e., the komi or the handicap.)

TABLE 1

Summary of the Simplified Half Counting Method

Counting Elements	Operations	Notes
Total Points (190 is used as example): Komi (6.5 ÷ 2) or Handicap (*n* ÷ 2): Adjusted Total Points: Half Count of Possible Points: *Margin of Victory: (*Except in even games, the MV is off by 0.5 points if the tie-breaker is excluded).	190 – 3.25 186.75 – 180.5 6.25 x 2 12.5	• This includes vacant territory and stones. • If the ATP is 181, Black wins by 1 point: (181 – 180.5) × 2 = 1. • If the ATP is 180, Black loses by 1 point: (180 – 180.5) × 2 = – 1. • If the margin of victory is negative, then this indicates that the other side wins by the same identical margin. • If dealing with a non-scoring point, subtract 0.5 (1 ÷ 2) from the HCPP (180.5 – 0.5 = 180). • If the ATP equals the HCPP, (180 = 180), (due to a non-scoring point), then White wins the tie.

Because of the close resemblance between the Half Counting and the Simplified Half Counting methods, see Comparing the Half Counting and the Simplified Half Counting Methods, page 26.

Note: Some of the elements presented here in connection with the Full Counting and the Half Counting methods were drawn from, or inspired by, the article (author unknown) on the Chinese Counting Methods found in Sensei's Library (on the Internet).

Section 2
The Key Numbers Method

When compared to the Japanese method of counting points, both the Full Counting and the Half Counting methods entail a fair amount of work. Fortunately, there is a variant of the Chinese method that can offer some degree of relief in this matter. As far as it can be determined, this variant has no formal name. For the sake of convenience, this variant will be called the Key Numbers method.

(Before proceeding any further, players using the Key Numbers method can continue to determine the value of each side's *total points* in the same way as when they use the other methods described in this study (see Section 3, page 12, especially the tables entitled "How to Determine the Total Points".)

If most of the games you play are even games, games in which the only adjustment you need to make is for the komi (6.5 or 7.5), then there is a quicker way to determine the winner then using the methods described so far. All that you will need to do is to remember some *key numbers*, in fact, one number alone would be sufficient.

In an even game, the player who wins is the one for whom the value of his *total points* is equal to, or more than, the value of his *key number*. In the case of an even game, the *key number* is made up of two parts: (1) the *half count of possible points*, which is a basic part of all *key numbers*; and (2) the value of the komi, divided by 2.

For example, in Table 2, at the komi level of 6.5 points, if it is Black's side that is being counted and if the value of Black's *total points* is equal to, or more than, the value of his *key number* (43.75, or, in effect, 44 or more), then Black wins; or, if it is White's side that is being counted and if the value of White's *total points* is equal to, or more than, the value of his *key number* (37.25, or, in effect, 38 or more), then White wins. The same principle applies to even games played on a 19 × 19 board (see Table 3): if Black gets 183.75 points or more (in effect, 184 or more), then he wins; or if White gets 177.25 points or more (in effect, 178 or more), then he wins.

TABLE 2

Key Numbers in an Even Game (9 × 9)

Komi	W H I T E			Half Count of Possible Points	B L A C K		
	In Effect or >	Key Number	Komi ÷ 2		Komi ÷ 2	Key Number	In Effect or >
6.5	38	= 37.25	– 3.25	40.5	+ 3.25	= 43.75	44
7.5	37	= 36.75	– 3.75	40.5	+ 3.75	= 44.25	45

TABLE 3

Key Numbers in an Even Game (19 × 19)

Komi	W H I T E			Half Count of Possible Points	B L A C K		
	In Effect or >	Key Number	Komi ÷ 2		Komi ÷ 2	Key Number	In Effect or >
6.5	178	= 177.25	– 3.25	180.5	+ 3.25	= 183.75	184
7.5	177	= 176.75	– 3.75	180.5	+ 3.75	= 184.25	185

In a handicap game, however, the *key numbers* will always change slightly in relation to the changes in the level of the handicap. Determining the new *key numbers* that result from such changes is not as difficult as it might appear to be at first glance. You only need to perform a few mental calculations. For example, in a game involving an eight-stone handicap, Black would need to add 4 points (8 ÷ 2) to the *half count of possible points* to get his new *key number* of 184.5 (180.5 + 4); and White would need to subtract 4 points from the *half count of possible points* to get his new *key number* of 176.5 (180.5 – 4).

Of course, in a handicap game, to prevent the possibility of *jigo*, a tie-breaker of 0.5 points would need to be set. This means that the new *key number* for each player would be affected by 0.25 points (0.5 ÷ 2). Black's new *key number* would be 184.75 (184.5 + 0.25); and White's new *key number* would be 176.25 (176.5 – 0.25).

Note: If the game that is being counted is a no-komi game (sometimes called a 1-stone handicap game), this means that only the value of the tie-breaker (0.5 ÷ 2) can be used to determine the values of the two *key numbers* for this game: for Black, his *key number* would be 180.75 (180.5 + (0.5 ÷ 2)) or, in effect, 181. For White, his *key number* would be 180.25 (180.5 – (0.5 ÷ 2)) or, in effect, 181. In other words, the number (*n*) of stones in the handicap can only start to have an impact on determining the value of a *key number* when $n \geq 2$.

If a seki appears in a game that you are scoring using the Key Numbers method and produces a *non-scoring point*, you will need to adjust the *half count of possible points* by subtracting 0.5 points (1 ÷ 2) from it for each *non-scoring point* found in the game (see Non-Scoring Point, page 27).

Knowing the *key numbers* involved in your games will allow you to determine not only the winner of each game, but also the winner's margin of victory. This is accomplished by subtracting a player's *key number* from his *total points* and then multiplying the difference by 2. For example, let's say Black is playing a 3-stone handicap game, on a 9 × 9 board, with a tie-breaker of 0.5 points, his *key number* for that game would be 42.25 (40.5 + (3 ÷ 2) + (0.5 ÷ 2)). If he gets, say, a total of 46 points, then his margin of victory would be 7.5 points ((46 – 42.25) × 2). If the margin of victory produced by this operation is a negative value, then the value would indicate the margin of victory for the other side, in this case, White.

Table 4 summarizes the different factors that explain how the *key numbers* are determined for the two kinds of game types: even games and handicap games. After selecting the appropriate game type and entering the appropriate values for the komi (or the tie-breaker), or for the handicap (*n*), if any, you can then determine the *key numbers* for either Black or White, or for both. At the end of the game, once you know the *total points*, you can then use this information to determine the values to enter in the Difference and Margin of Victory rows. The side with the positive result is the winner.

TABLE 4

Determining Key Numbers and Margins of Victory

(Model Table)

Counting Elements	W H I T E		B L A C K	
	Even Game	Handicap Game	Even Game	Handicap Game
Total Points (TP)	Vacant Terr. & Stones	Vacant Terr. & Stones	Vacant Terr. & Stones	Vacant Terr. & Stones
Half Count of Possible Points	HCPP*	HCPP*	HCPP*	HCPP*
Komi 6.5 (7.5) (or tie-breaker)	– 3.25 (– 3.75)	– (0.5 ÷ 2)	+ 3.25 (+ 3.75)	+ (0.5 ÷ 2)
Handicap (for $n \geq 2$)		– (*n* ÷ 2)		+ (*n* ÷ 2)
Key Numbers (KN)	(–) sum above 3 rows	(–) sum above 3 rows	(–) sum above 3 rows	(–) sum above 3 rows
Difference (TP – KN)	TP – KN	TP – KN	TP – KN	TP – KN
Margin of Victory (Diff. × 2)	Difference × 2	Difference × 2	Difference × 2	Difference × 2

*For each non-scoring point that occurs in a game, subtract 0.5 points (1 ÷ 2) from the half count of possible points (HCPP).

The values found in the Key Numbers row are the total of the values found in the three rows immediately above it: Half Count of Possible Points, Komi (or tie-breaker), and Handicap, if any.

In the Key Numbers row, the use of parentheses around the minus signs is meant to indicate, not that the values in this row could be negative values, but rather that they are meant to be subtracted from the values found in the Total Points row, at the top of the column. The resulting values are then entered in the Difference row.

The values in the Margin of Victory row are the product of the values found in the Difference row multiplied by 2.

Tables 5 to 7 use the examples given in Section 3 to illustrate the way in which the Key Numbers method can be used.

TABLE 5

Determining Key Numbers and Margins of Victory

(Even Game, Table 10, page 15)

Counting Elements	W H I T E		B L A C K	
	Even Game	Handicap Game	Even Game	Handicap Game
Total Points (TP)	28		53	
Half Count of Possible Points	40.5		40.5	
Komi 6.5 (7.5) (or tie-breaker)	– 3.25		+ 3.25	
Handicap (for $n \geq 2$)				
Key Numbers (KN)	(–) 37.25		(–) 43.75	
Difference (TP – KN)	– 9.25		9.25	
Margin of Victory (Diff. × 2)	– 18.5		18.5	

TABLE 6

Determining Key Numbers and Margins of Victory

(3-Stone Handicap Game, Table 12, page18)

Counting Elements	W H I T E		B L A C K	
	Even Game	Handicap Game	Even Game	Handicap Game
Total Point (TP)		42		39
Half Count of Possible Points		40.5		40.5
Komi 6.5 (7.5) (or tie-breaker)		– 0.25		+ 0.25
Handicap (for $n \geq 2$)		– 1.5		+ 1.5
Key Numbers (KN)		(–) 38.75		(–) 42.25
Difference (TP – KN)		3.25		– 3.25
Margin of Victory (Diff. × 2)		6.5		– 6.5

TABLE 7

Determining Key Numbers and Margins of Victory

(Game with Seki, Table 14, page 21)

Counting Elements	W H I T E		B L A C K	
	Even Game	Handicap Game	Even Game	Handicap Game
Total Points (TP)	41		39	
Half Count of Possible Points	40.0*		40.0*	
Komi 6.5 (7.5) (or tie-breaker)	– 3.25		+ 3.25	
Handicap (for $n \geq 2$)				
Key Numbers (KN)	(–) 36.75		(–) 43.25	
Difference (TP – KN)	4.25		– 4.25	
Margin of Victory (Diff. × 2)	8.5		– 8.5	

*For each non-scoring point that occurs in a game, subtract 0.5 points (1 ÷ 2) from the half count of possible points (HCPP).

Note: The *half count of possible points* in Table 7 is adjusted to 40.0 because the seki in the game produced a *non-scoring point*. This adjustment is required when using the Key Numbers method.

Table 8 provides a summary list of all the possible *key numbers* (Column 6, which represents the sum of the values found in Columns 3, 4, and 5) for each possible type of game (Column 1) along with the minimum number of *total points* (Column 7) that the player whose side is being counted (Column 2) must obtain in order to win.

TABLE 8

Minimum Total Points Needed to Win by Game Type

Game Type (Handicap or Other)	Player (Side being counted)	HCPP*	Handicap (*n* ÷ 2) Komi 6.5 ÷ 2 (7.5 ÷ 2)	Tie-Breaker (0.5 ÷ 2)	Key Number (Sum of Columns 3 to 5)	Minimum Total Points Needed
(1)	(2)	(3)	(4)	(5)	(6)	(7)
9 Stones	Black	180.5	+ 4.5	+ 0.25	= 185.25	186
	White	180.5	– 4.5	– 0.25	= 175.75	176
8 Stones	Black	180.5	+ 4	+ 0.25	= 184.75	185
	White	180.5	– 4	– 0.25	= 176.25	177
7 Stones	Black	180.5	+ 3.5	+ 0.25	= 184.25	185
	White	180.5	– 3.5	– 0.25	= 176.75	177
6 Stones	Black	180.5	+ 3	+ 0.25	= 183.75	184
	White	180.5	– 3	– 0.25	= 177.25	178
5 Stones	Black	180.5	+ 2.5	+ 0.25	= 183.25	184
	White	180.5	– 2.5	– 0.25	= 177.75	178
4 Stones	Black	180.5	+ 2	+ 0.25	= 182.75	183
	White	180.5	– 2	– 0.25	= 178.25	179
3 Stones	Black	180.5	+ 1.5	+ 0.25	= 182.25	183
	White	180.5	– 1.5	– 0.25	= 178.75	179
2 Stones	Black	180.5	+ 1	+ 0.25	= 181.75	182
	White	180.5	– 1	– 0.25	= 179.25	180
No-Komi	Black	180.5		+ 0.25	= 180.75	181
	White	180.5		– 0.25	= 180.25	181
Even	Black	180.5	+ 3.25 (+ 3.75)		= 183.75 (= 184.25)	184 (185)
	White	180.5	– 3.25 (– 3.75)		= 177.25 (= 176.75)	178 (177)

*For each non-scoring point that occurs in a game, subtract 0.5 points (1 ÷ 2) from the half count of possible points (HCPP).

For example, in a 9-stone handicap game, if it is Black's side that is being counted, and if his *total points* equals 186, or more, then Black wins. The reason Black wins is because the value of 186 is bigger than his *key number*, 185.25 (Column 6). However, if it is White's side that is being counted, and if his *total points* equals 176, or more, then White wins The reason White wins is because 176 is bigger than his *key number*, 175.75.

The reason Black has to win when the value of his *total points* is 186, or more, is because at 186, White necessarily has to have a value of 175 *total points* (361 – 186), a value that is smaller than White's *key number*, 175.75 (Column 6). Consequently, White has to lose.

To determine the margin of victory, subtract the *key number* (Column 6) from the value of the *total points*, and then multiply the result by 2. For example, in the case of the 9-stone handicap game mentioned above, if the value of Black's *total points* was exactly 186, though it could be more, his margin of victory would be 1.5 points ((186 – 185.25) × 2), or ((Total Points – Key Number) × 2). Naturally, if this calculation produces a negative value, then the other side (in this case White) would be declared the winner by the same value as the one that was produced in the calculation.

Section 3
Examples of Games Using the Chinese Methods of Counting

This section contains three games on 9 × 9 boards. Each game shows how the four methods of counting under study in this paper—the Full Counting, the Half Counting, the Simplified Half Counting, and the Key Numbers methods—are used to score the games that are presented. The three games that were selected for this demonstration were chosen because they represent the three types of games that would highlight some aspect of the calculations used by the Chinese counting methods: an even game, a handicap game, and a game with a seki.

When scoring a game Chinese-style, the counting part of the game consists of two phases:

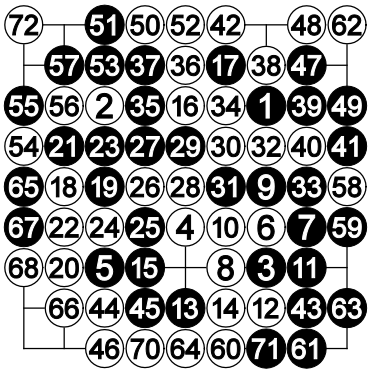
- **Phase 1, Determining the Total Points:** This phase deals with the first step in the counting process: the need to determine the *total points* (vacant territory and stones) acquired during the game by both Black and White.
- **Phase 2, Determining the Margin of Victory:** This phase deals with the second step in the counting process: the use of the information collected in Phase 1, the *total points*, and to use these values in the calculations to determine which side has won the game and by how many points (margin of victory).

Each game presented in this section is scored according to these two phases. Phase 1 is represented by the tables entitled "How to Determine the Total Points" and Phase 2 is represented by the tables entitled "How to Determine the Margin of Victory".

This section also contains a board situation (Game 4: A Seki with Multiple Shared Liberties, page 22) whose purpose is to explain as clearly as possible how to fill-in the shared liberties in a seki at the end of a game.

Finally, the last game in this section (Game 5: A Game Comparing the Chinese and Japanese Counting Methods, page 23) shows how the rules by the American Go Association can preserve the identicalness of the results of each game when using the Japanese and the Chinese counting methods.

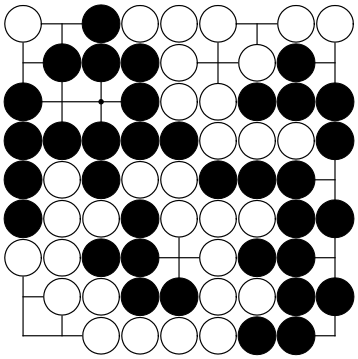
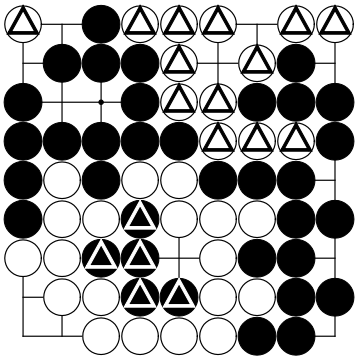
Example No. 1: An Even Game

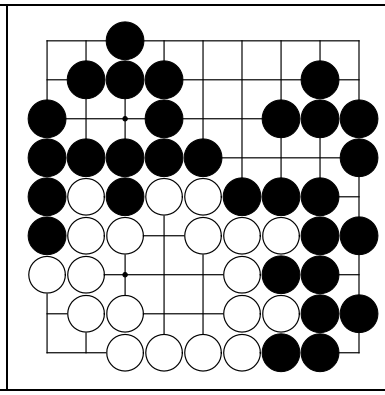
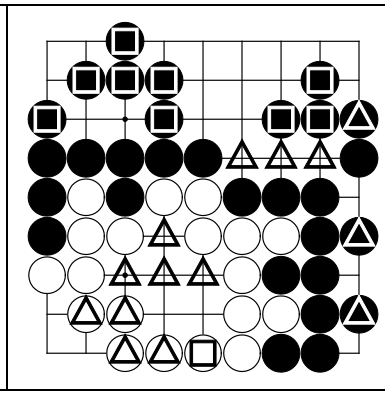
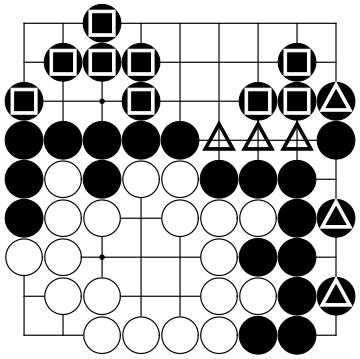
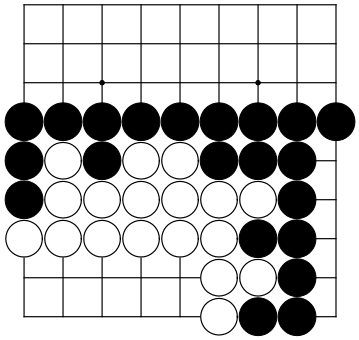
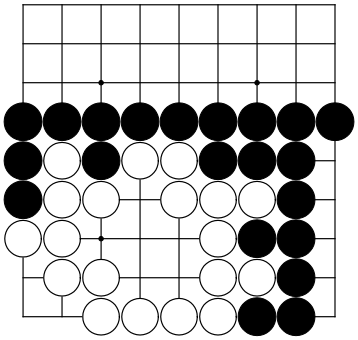
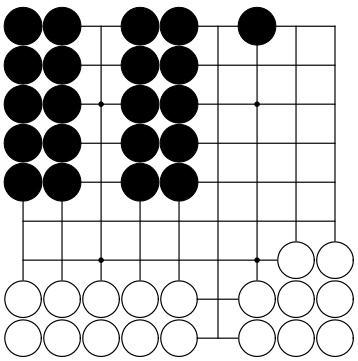
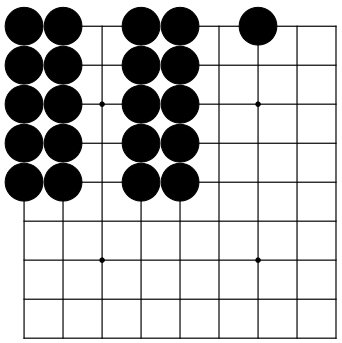


(1-72) 69 at 54

TABLE 9

How to Determine the Total Points

Step	Full Counting Method		Half Counting Method	
	Diagram	Description	Diagram	Description
1		This is how the board appears at the end of the game.		See description on the left.
2		All the dead stones (identified by the use of triangles) are removed from the board and are placed in their respective bowls.		See description on the left.

3		This is how the board appears once all the dead stones have been removed.		See description on the left.
4		The remaining stones are rearranged to form territories. The stones with triangles are moved to the intersections with triangles. The stones with squares are placed in their respective bowls.		The black stones are rearranged to form territories. The stones with triangles are moved to the intersections with triangles. The stones with squares are placed in their bowl.
5		This is how the board appears once the territories have been formed. Black's territory consists of 32 points. And White's territory consists of 10 points.		This is how the board appears once Black's territory has been formed. It consists of 32 points.
6		The stones for both sides are counted by rearranging them into groups of ten's. Black has 21 stones while White has 18 stones.		The Black stones are rearranged into groups of ten's. Black has 21 stones. (To make room, the white stones were cleared away.)

Summary (even game):

- Black's total points: 53 (vacant territory, 32; stones, 21)
- White's total points: 28 (vacant territory, 10; stones, 18)

TABLE 10

How to Determine the Margin of Victory

(Even Game)

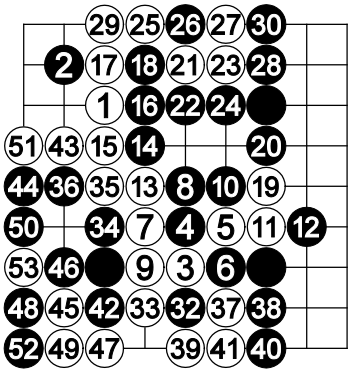
Full Counting Method		
Counting Elements	Black	White
Vacant Territory:	32	10
Stones:	+21	+18
Total Points*:	53	28
Komi (or tie-breaker):	-6.5 **	+0.0 **
Handicap (*n*):	-0 **	+0 **
Adjusted Total Points:	46.5	28
Margin of Victory: (46.5 – 28)	18.5	
(*If the sum of the total points does not equal the total possible points, a non-scoring point exists.)		
(**The komi, handicap can be subtracted from Black or added to White.)		

Half Counting Method		
Counting Elements		Black
Vacant Territory:		32
Stones:		+21
Total Points:		53
Komi (or tie-breaker):	(6.5 ÷ 2)	-3.25 *
Handicap (*n*):	(0 ÷ 2)	-0.0 *
Non-Scoring Point:	(0 ÷ 2)	+0.0
Adjusted Total Points:		49.75
Half Count of Possible Points:		(–) 40.5
Difference:	(ATP – HCPP)	9.25
		x 2
Margin of Victory: (If the value is negative, then the other side wins by the identical margin of victory.)		18.5
(*If counting for White, these values must be added, not subtracted.)		

Key Numbers Method		
Counting Elements		Black
Vacant Territory:		32
Stones:		+21
Total Points:		53
Half Count of Possible Points:		40.5 **
Komi (or tie-breaker):	(6.5 ÷ 2)	+3.25 *
Handicap (*n*):	(0 ÷ 2)	+0.0 *
Key Number		(–) 43.75
Difference: (Total Points – Key Number)		9.25
		x 2
Margin of Victory: (If the value is negative, then the other side wins by the identical margin of victory.)		18.5
(*If counting for White, these values must be subtracted, not added.)		
(**Subtract 0.5 for each non-scoring point.)		

Simplified Half Counting Method		
Counting Elements		Black
Vacant Territory:		32
Stones:		+21
Total Points:		53
Komi (or tie-breaker):	(6.5 ÷ 2)	-3.25 *
Handicap (*n*):	(0 ÷ 2)	-0.0 *
Adjusted Total Points:		49.75
Half Count of Possible Points:		(–) 40.5 **
Difference:	(ATP – HCPP)	9.25
		x 2
Margin of Victory: (If the value is negative, then the other side wins by the identical margin of victory.)		18.5
(*If counting for White, these values must be added, not subtracted.)		
(**Subtract 0.5 for each non-scoring point.)		

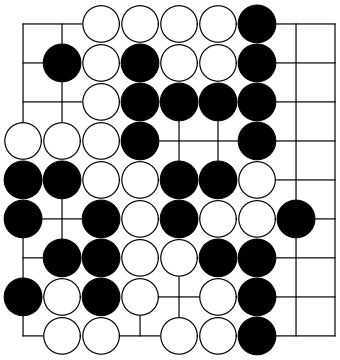
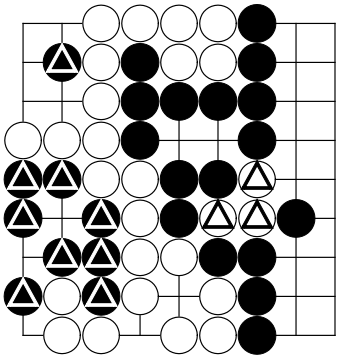
Example No. 2: A Handicap Game

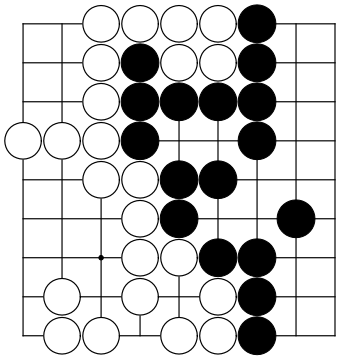
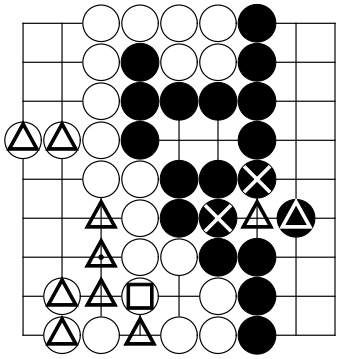
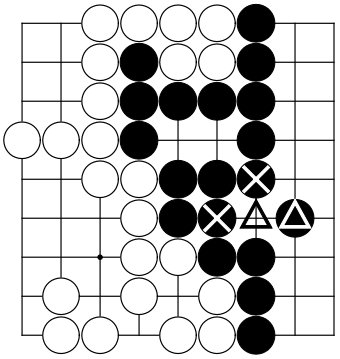
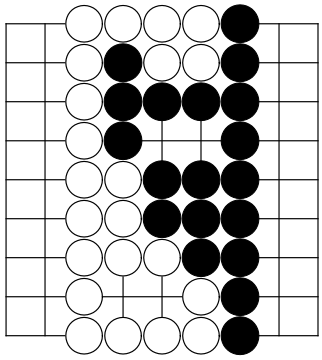
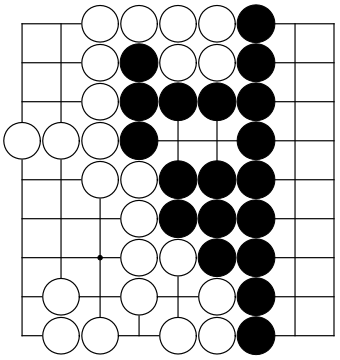
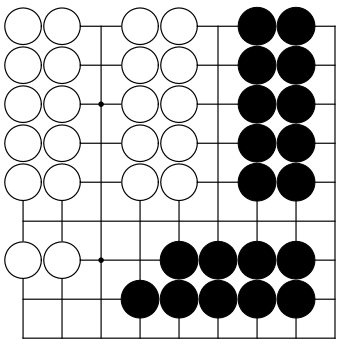
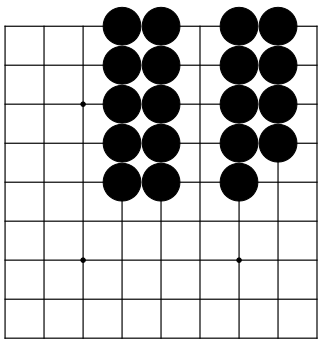


(1-54) 31 at 26; 54 at 48

TABLE 11

How to Determine the Total Points

Step	Full Counting Method		Half Counting Method	
	Diagram	Description	Diagram	Description
1		This is how the board appears at the end of the game.		See description on the left.
2		All the dead stones (identified by the use of triangles) are removed from the board and are placed in their respective bowls.		See description on the left.

3		This is how the board appears once all the dead stones have been removed.		See description on the left.
4		The remaining stones are rearranged to form territories. The stones with triangles are moved to the intersections with triangles. The white stone with the square is placed in the bowl. The stones with crosses are taken from the bowl.		The black stones are rearranged to form territories. The stone with a triangle is moved to the intersection with a triangle. The stones with crosses are taken from their bowl.
5		This is how the board appears once the territories have been formed. The territory for each side consists of 20 points.		This is how the board appears once Black's territory has been formed. It consists of 20 points.
6		The stones for both sides are counted by rearranging them into groups of ten's. Black has 19 stones while White has 22 stones.		The Black stones are rearranged into groups of ten's. Black has 19 stones. (To make room, the white stones were cleared away.)

Summary (handicap game):

- Black's total points: 39 (vacant territory, 20; stones, 19)
- White's total points: 42 (vacant territory, 20; stones, 22)

TABLE 12

How to Determine the Margin of Victory

(3-Stone Handicap Game)

Full Counting Method		
Counting Elements	Black	White
Vacant Territory:	20	20
Stones:	+19	+22
Total Points*:	39	42
Komi (or tie-breaker):	-0.5 **	+0.0 **
Handicap (*n*):	-3 **	+0 **
Adjusted Total Points:	35.5	42
Margin of Victory: (42 – 35.5)		6.5
(*If the sum of the total points does not equal the total possible points, a non-scoring point exists.)		
(**The komi, handicap can be subtracted from Black or added to White.)		

Half Counting Method		
Counting Elements		Black
Vacant Territory:		20
Stones:		+19
Total Points:		39
Komi (or tie-breaker):	(0.5 ÷ 2)	-0.25 *
Handicap (*n*):	(3 ÷ 2)	-1.5 *
Non-Scoring Point:	(0 ÷ 2)	+0.0
Adjusted Total Points:		37.25
Half Count of Possible Points:		(–) 40.5
Difference :	(ATP – HCPP)	-3.25
		x 2
Margin of Victory (If the value is negative, then the other side wins by the identical margin of victory.)		-6.5
(*If counting for White, these values must be added, not subtracted.)		

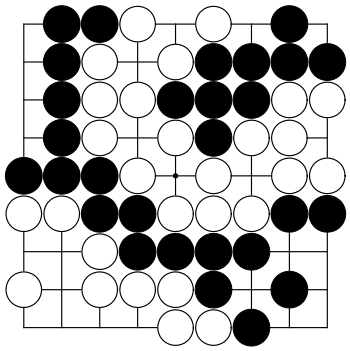
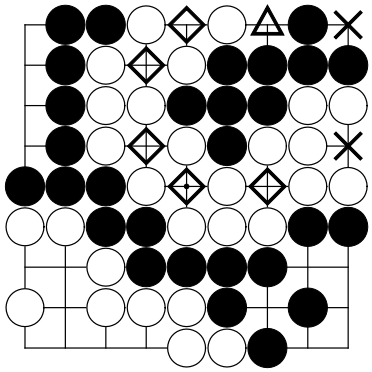
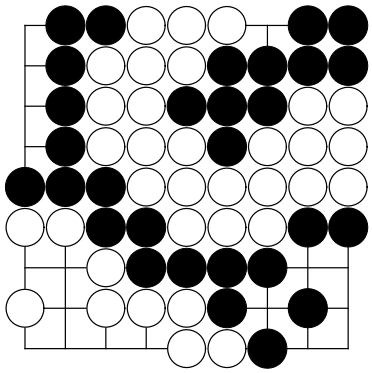
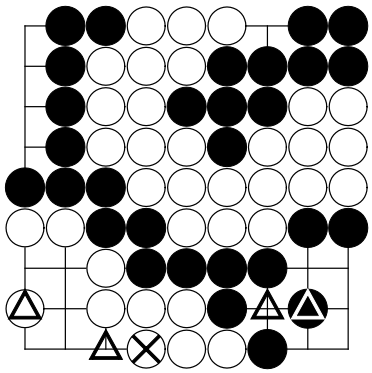
Key Numbers Method		
Counting Elements		Black
Vacant Territory:		20
Stones:		+19
Total Points:		39
Half Count of Possible Points:		40.5 **
Komi (or tie-breaker):	(0.5 ÷ 2)	+0.25 *
Handicap (*n*):	(3 ÷ 2)	+1.5 *
Key Number:		(–) 42.25
Difference: (Total Points – Key Number)		-3.25
		x 2
Margin of Victory: (If the value is negative, then the other side wins by the identical margin of victory.)		-6.5
(*If counting for White, these values must be subtracted, not added.)		
(**Subtract 0.5 for each non-scoring point.)		

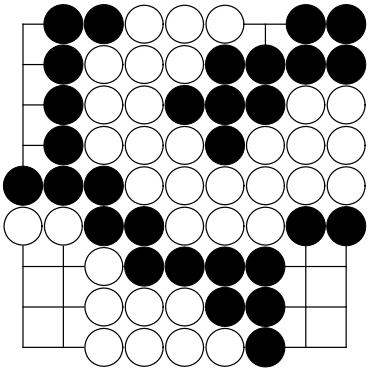
Simplified Half Counting Method		
Counting Elements		Black
Vacant Territory:		20
Stones:		+19
Total Points:		39
Komi (or tie-breaker):	(0.5 ÷ 2)	-0.25 *
Handicap (*n*):	(3 ÷ 2)	-1.5 *
Adjusted Total Points:		37.25
Half Count of Possible Points:		(–) 40.5 **
Difference:	(ATP – HCPP)	-3.25
		x 2
Margin of Victory: (If the value is negative, then the other side wins by the identical margin of victory.)		-6.5
(*If counting for White, these values must be added, not subtracted.)		
(**Subtract 0.5 for each non-scoring point.)		

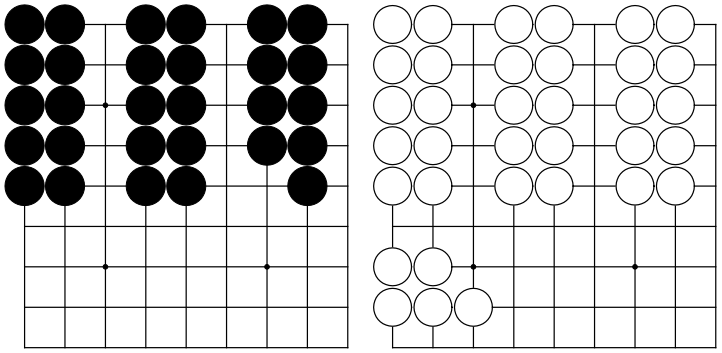
Example No. 3: A Game with a Seki

TABLE 13

How to Determine the Total Points

Step	Diagram	Description
1		If a game ends with a seki, such as the game on the left, the same procedure for counting points applies in this case as it does in those cases when there is no seki in the game.
2		First, take note of the following characteristics of this seki: a). Both White and Black have one eye each (crosses), which are filled in by using, in this case, stones from the bowl (though stones from the board could also have been used). b). White has valid points in the five false eyes (diamonds), which are also filled in by using, in this case, stones from the bowl (though stones from the board could also have been used). c). Both sides have one shared liberty (triangle). Because neither side can occupy it at the same time, it becomes a non-scoring point and is left vacant.
3		This is how the board appears after the points in seki described above have been filled in.
4		Black's and White's stones are rearranged to form territories of vacant points. The stones with triangles are moved to the intersections with triangles, the white stone with a cross is taken from the bowl. (Of course, if you are using the Half Counting Method, you don't need to spend time rearranging White's territory).

5		This is how the board appears once the territories have been formed. Black has 10 points of territory and White has 6 points. There is one shared liberty (a non-scoring point).

6		The stones of each side are rearranged to form groups of ten's. Black has 29 stones, and White has 35 stones.

Summary (game with seki):

- Black's total points: 39 (vacant territory, 10; stones, 29)
- White's total points: 41 (vacant territory, 6; stones, 35)

TABLE 14

How to Determine the Margin of Victory

(Game with Seki)

Full Counting Method		
Counting Elements	Black	White
Vacant Territory:	10	6
Stones:	+29	+35
Total Points*:	39	41
Komi (or tie-breaker):	-6.5**	+0.0 **
Handicap (*n*):	-0 **	+0 **
Adjusted Total Points:	32.5	41
Margin of Victory: (41 – 32.5)		8.5
(*Note that 39 + 41 = 80 not 81. The missing point is the non-scoring point.)		
(**The komi, handicap can be subtracted from Black or added to White.)		

Half Counting Method	
Counting Elements	Black
Vacant Territory:	10
Stones:	+29
Total Points:	39
Komi (or tie-breaker): (6.5 ÷ 2)	-3.25 *
Handicap (*n*): (0 ÷ 2)	-0.0 *
Non-Scoring Point : (1 ÷ 2)	+0.5
Adjusted Total Points:	36.25
Half Count of Possible Points:	(–) 40.5
Difference: (ATP – HCPP)	-4.25
	x 2
Margin of Victory (If the value is negative, then the other side wins by the identical margin of victory.)	-8.5
(*If counting for White, these values must be added, not subtracted.)	

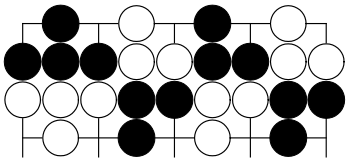
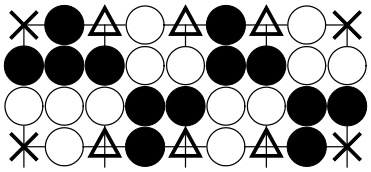
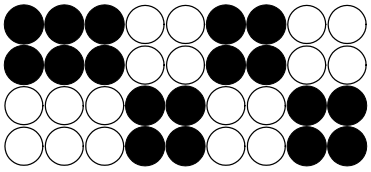
Key Numbers Method	
Counting Elements	Black
Vacant Territory:	10
Stones:	+29
Total Points:	39
Half Count of Possible Points:	40.0 **
Komi (or tie-breaker): (6.5 ÷ 2)	+3.25 *
Handicap (*n*): (0 ÷ 2)	+0.0 *
Key Number:	(–) 43.25
Difference: (Total Points – Key Number)	-4.25
	x 2
Margin of Victory: (If the value is negative, then the other side wins by the identical margin of victory.)	-8.5
(*If counting for White, these values must be subtracted, not added.)	
(**Subtract 0.5 for each non-scoring point.)	

Simplified Half Counting Method	
Counting Elements	Black
Vacant Territory:	10
Stones:	+29
Total Points:	39
Komi (or tie-breaker): (6.5 ÷ 2)	-3.25 *
Handicap (*n*): (0 ÷ 2)	-0.0 *
Adjusted Total Points:	35.75
Half Count of Possible Points:	(–) 40.0 **
Difference: (ATP – HCPP)	-4.25
	x 2
Margin of Victory: (If the value is negative, then the other side wins by the identical margin of victory.)	-8.5
(*If counting for White, these values must be added, not subtracted.)	
(**Subtract 0.5 for each non-scoring point.)	

Example No. 4: A Seki with Multiple Shared Liberties

TABLE 15

How to Determine the Total Points

Step	Diagram	Description
1		Though clearly artificial, the example of the board situation on the left, depicting a seki on an irregularly sized, 4 × 9 board, was selected to make it as clear as possible how the liberties of a seki with multiple shared liberties are filled evenly.
2		First, take note of the following characteristics of this seki: a). Both White and Black have two eyes each (crosses), which are filled in by using stones from the bowl (the only choice here). b). Both sides, together, have six shared liberties (triangles), which are also filled in, evenly, two at a time—one Black, one White—by using stones from the bowl (the only choice here). c). Because the number of shared liberties is even, this means that a non-scoring point will not appear in this situation. If the number of shared liberties had been uneven, then the last shared liberty—the non-scoring point—would have been left vacant and would not have been included in the territory of either side.
3		This is how the board appears after the eyes and the shared liberties have been filled in. Black and White would each have 18 points of territory.

Example No. 5: A Game Comparing the Chinese and Japanese Counting Methods

Below is a board situation (hereafter referred to as a game) which was created on 7 × 7 board and which is about to be scored using the Japanese and the Chinese methods of counting. This example was selected because it illustrates in a dramatic way how the two major counting methods can score the same game and yet produce different results. But in this particular example, the difference is startling: if the Japanese method of counting is used, Black wins by one point; but if the Chinese method is used, White wins by one point.

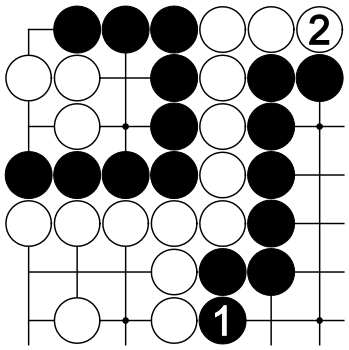
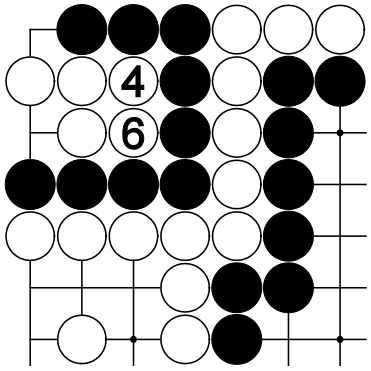
This example also illustrates how the reforms embodied in the rules of the American Go Association would preserve the identicalness of the results between a Chinese counting method (in this example, the Full Counting method is used) and a Japanese-style counting method (in this case, the AGA rules). In Table 17, if you compare the results obtained using the Full Counting method and the AGA rules, you will find that they are identical.

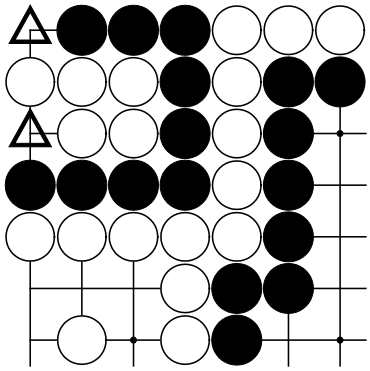
For an overview of the issue of preserving identical results, see Achieving Identical Results with Japanese and Chinese Counting Methods, page 29.

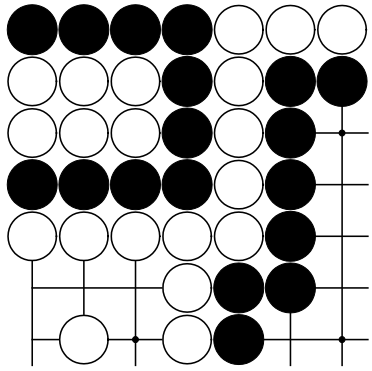
The example of the game presented here is taken from the Go Player's Almanac (1992), page 228, in Chapter 13, "The Rules of Go" by James Davies.

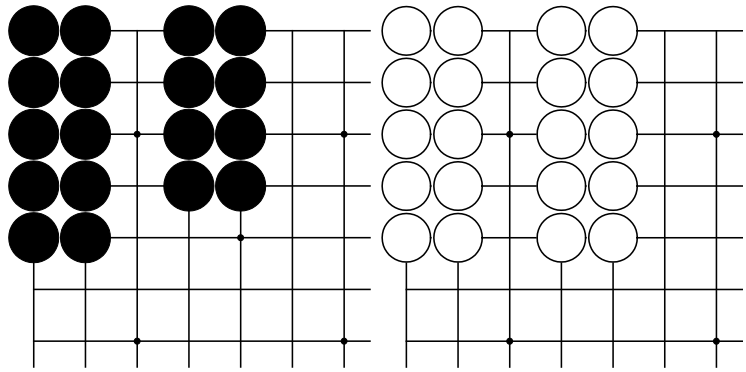
TABLE 16

How to Determine the Total Points

Step	Diagram	Description
1		At this stage in the game, after Black plays at 1, which is the last worthwhile place to play on the board, White then plays a dame at 2. Under the Japanese rules, the game is over (though not yet officially). White can always play at 4 and 6 (see Step 2) in the seki (though Black cannot), but under the Japanese rules, these points are dames, that is, of no value. At this stage, both sides have played 17 stones each. In the source where this example is taken, no mention is made whether a komi is involved, and no mention is made of prisoners. Consequently, neither one is assumed to be involved in the calculations.
2		White plays at 4 and 6, but Black cannot play anywhere, so he must pass, which he does with 3 and 5. Under the Japanese rules, Black simply says that he passes, he does not need to surrender any stones. After White 6, Black passes again with 7, then finally, White passes with 8 (7 and 8 are verbal passes, no stones are surrendered). The game is now officially over, and the two players enter the counting phase. Under the AGA rules, Black passed three times and would have been obliged to surrender three stones to White (after White 2, 4, and 6). White would have been obliged to surrender only one stone, after Black 7, to end the game.

3		In the counting phase of the game, the two triangles show the two shared liberties in the seki. Using stones from the bowls, Black fills in one and White fills in the other.

4		This is how the board appears after the shared liberties in the seki have been filled in. There are no dead stones to remove and no prisoners have been declared. However, under the AGA rules, Black passed three times, thus surrendering three stones (now prisoners) to White, and White surrendered one stone to Black. Black has 6 points of territory and White has 5 points of territory.

5		The stones of each side are rearranged to form groups of ten's. Black has 18 stones, and White has 20 stones.

Summary (game comparing Chinese and Japanese counting methods):

- Black's total points: 24 (vacant territory, 6; stones, 18)
- White's total points: 25 (vacant territory, 5; stones, 20)

TABLE 17

How to Determine the Margin of Victory

(Game Comparing Chinese and Japanese Counting Methods)

Full Counting Method			Japanese Method		
Counting Elements	Black	White	Counting Elements	Black	White
Vacant Territory:	6	5	Vacant Territory:	6	5
Stones:	+18	+20	Prisoners:	-0	-0
Total Points*:	24	25	Captured Stones:	-0	-0
			Total Points:	6	5
Komi (or tie-breaker):	-0.0 **	+0.0 **	Komi (or tie-breaker):	-0.0 **	+0.0 **
Handicap (*n*):	-0 **	+0 **	Handicap (*n*):	-0 **	+0 **
Adjusted total Points:	24	25	Adjusted Total Points:	6	5
Margin of Victory: (25 – 24)		1	Margin of Victory: (6 – 5)	1	
(*Note that 24 + 25 = 49, which corresponds to the total possible points of a 7 × 7 board)			(**The komi or handicap can be subtracted from Black or added to White.)		
(**The komi or handicap can be subtracted from Black or added to White.)					

		American Go Association Rules		
		Counting Elements	Black	White
		Vacant Territory:	6	5
		Prisoners*:	-3	-1
		Captured Stones:	-0	-0
		Total Points:	3	4
		Komi (or tie-breaker):	-0.0 **	+0.0 **
		Handicap (*n* – 1):	-0 **	+0 **
		Adjusted Total Points:	3	4
		Margin of Victory: (4 – 3)		1
		(*All passed stones)		
		(**The komi or the handicap can be subtracted from Black or added to White.)		

Section 4
Comments on Issues Affecting or Involving the Chinese Methods of Counting

Comparing the Half Counting and the Simplified Half Counting Methods

Even a cursory examination of the Half Counting and the Simplified Half Counting methods will inform the reader that these two methods are very similar to each other. In fact, they are so similar that one is justified in asking the question whether each one deserves a separate existence. The only way in which they differ from each other in any significant manner is the way in which each one handles a *non-scoring point* (for more information on the *non-scoring point*, see Non-Scoring Point, page 27).

In the Half Counting method, the *non-scoring point* is handled by making it part of the adjustment phase. This is the phase in which the *total points* of the side that is being counted is adjusted to take into account the komi (or the tie-breaker), or the handicap, if any. In the case of the *non-scoring point*, its value of 0.5 points (1 ÷ 2) is added to the *total points* of the side that is being counted (it is always added, regardless of which side is being counted).

In the Simplified Half Counting method, the *non-scoring point* is handled by subtracting the value of 0.5 points (1 ÷ 2) from the *half count of possible points* (it is always subtracted, regardless of which side is being counted).

The decision to adjust the *non-scoring point* in the way it is done in the Half Counting method was made entirely for the sake of making sure that all the adjustments that had to be made would be made in one place only (i.e., in the section that produces the *adjusted total points*). This was entirely arbitrary.

Other than the way in which these two methods handle the *non-scoring point*, the only other distinction between the two is that the Half Counting method is presented as being more formal than the Simplified Half Counting method, while the latter is presented as the one that is ideal for obtaining fast results.

At several times in the development of this study, serious consideration was given to the elimination of one of these two methods, especially the Simplified Half Counting method; but in the end, this option was rejected in favor of letting the player (reader) decide which method he would prefer to use, if either one.

How to Deal with Sekis

Unlike the Japanese rules, the Chinese rules allow each side to count its respective points in a seki. If there is a seki in the game you are counting, do the following:

1. Fill each eye, or internal point, with the appropriate black or white stone. A false eye, which is another form of an internal point, is treated in the same way as an eye, and its internal point is also filled.
2. Fill in the shared liberties, but do so evenly for both sides.

   If there are an uneven number of shared liberties in the seki, then the last remaining shared liberty becomes a *non-scoring point* and is left vacant. It is left vacant because this single point cannot be occupied by both sides at the same time. The existence of a *non-scoring point* requires an adjustment in the calculations in order to score the game accurately (see Non-Scoring Point below).

   If there are two sekis in the same game, each one producing a *non-scoring point*, the best practice is for each side to take turns filing in the last vacant point in each seki. This way the players can forgo the need of making an adjustment in the calculations.

See Example No. 3: A Game with a Seki, page 19.
See Example No. 4: A Seki with Multiple Shared Liberties, page 22.

Non-Scoring Point

A *non-scoring point* is an empty intersection that cannot be occupied or claimed as a point of territory by either side because neither side has a rightful claim to that point. As a consequence, such a point is usually left vacant.

The existence of a *non-scoring point* usually becomes evident during the counting phase of a game. Such a point may emerge in a seki, as a result of an odd number of shared liberties; or it may emerge elsewhere on the board, as a result of a forgotten dame that was left unfilled at the end of the game. In any event, when a *non-scoring point* does emerge, the calculations that are used to score the game must be adjusted to take the *non-scoring point* into account and thus preserve the accuracy of the results (see details below).

The occurrence of a *non-scoring point* is a relatively rare event. Even more rare is the occurrence of two *non-scoring points* in the same game. But if two such points were to occur, the easiest way of dealing with them would be for each side to fill in the vacant intersection of one of the two *non-scoring points*. If the players do decide to handle the occurrence of the two *non-scoring points* in this way, then no adjustment would need to be made in the calculations because there would no longer be any empty intersections left on the board. Of course, this solution is entirely optional; the players can always opt for the approach described below, which involves making the required adjustment in the calculations.

If the adjustment that is required to be made is not carried through, then the omission of this adjustment will affect the accuracy of the margin of victory by one point: whichever side is being counted will win or lose by one point less than would be the case if the adjustment had been made. The need to make an adjustment if a *non-scoring point* occurs in a game is required by each counting method except for one: the Full Counting method (the reason for this exception is explained further down).

The consequence of having a *non-scoring point* in a game is that the sum of Black's and White's *total points* will not equal the *total possible points* (361, assuming a 19 × 19 board) of the board on which the game was played; instead, the sum will be equal to the *total possible points* minus the *non-scoring point* (360). This means that using the value of the *half count of possible points* (180.5, assuming a 19 × 19 board) in the calculations without adjusting it for the presence of the *non-scoring point* (by subtracting 0.5 (1 ÷ 2) from it) will affect the margin of victory by one point.

Given the information provided from above, the information below does two things: (1) it identifies which counting methods are affected by the presence of a *non-scoring point*, and (2) it explains the adjustment that must be made in each counting method so that an accurate margin of victory is always produced.

- **Full Counting Method:** Use as described, no adjustment needed. The *non-scoring point* is not an issue in this method because this method does not need to use the *half count of possible points* in its calculations. Instead, it uses Black's and White's *total points*. In determining each side's *total points*, the Full Counting method automatically excludes the empty intersection of the *non-scoring point* from the sum of each side's *total points*; hence, there is nothing to adjust.
- **Half Counting Method:** Use as described, no adjustment needed other than adding, regardless of the side that is being counted, the value of the *non-scoring point*, 0.5 (1 ÷ 2), in the calculation that produces the *adjusted total points* (see the tables entitled "How to Determine the Margin of Victory" in Section 3, page 12).

  In the unlikely event you must deal with two empty intersections due to two *non-scoring points* in the same game, you must add 1 point (2 ÷ 2) in the calculation of the *adjusted total points*.
- **Key Numbers and the Simplified Half Counting Methods:** Use as described. In both methods, the *half count of possible points* must be adjusted by subtracting 0.5 points (1 ÷ 2) from it, regardless of the side that is being counted.

  In the unlikely event you must deal with two empty intersections due to two *non-scoring points* in the same game, you must subtract 1 point (2 ÷ 2) from the *half count of possible points*.

What Is the Value of a Handicap: *n* or *n* – 1?

In the Chinese method of counting, each intersection that is occupied by a stone counts as one point of territory. This means that when a weaker player is given a handicap, not only does he benefit from the handicap itself, but he also benefits from the acquisition of one point of territory for each handicap stone he places on the board.

The acquisition of these extra points (the points gained by simply placing handicap stones on the board) is not allowed in the Chinese rules. Consequently, the Chinese method of counting requires Black to deduct the value of the handicap from his *total points* when the time comes to score the game. But what exactly is the value of the handicap that Black must deduct: is it *n* (the full handicap), or is it *n* – 1 (the full handicap minus one)? According to the Chinese rules, Black must deduct the full handicap (*n*). As such, *n* is used throughout this study to represent the value of the full handicap.

The expression *n* – 1 embodies the point of view that the last handicap stone Black plays on the board is not, as it is normally viewed, the last handicap stone, but rather, as it should be viewed, the first move of the game.

To elaborate: When Black is given a handicap of, say, four stones, he will, at the beginning of the game, immediately place all four stones on the board, and this action is naturally regarded as constituting one move. But what is really taking place, however, is that after Black plays the first handicap stone, White passes, even though he does not actually say "I pass"; and when Black plays the second handicap stone, White passes again. But when, finally, Black plays the fourth handicap stone, he is in reality playing the first move of the game, which is then followed by White's first move. As such, the expression *n* – 1 makes the point that the value of the handicap corresponds to the number of stones that is played prior to Black's first move, which, in this case, is 3 stones (4 – 1 = 3), not 4.

The introduction here of the idea of *n* – 1 is part of a larger discussion in a program of reform whose ultimate purpose is to ensure that all counting methods produce identical results (i.e., identical margins of victory). At the heart of the reform, and the key to making it work, is the idea that both sides must always play an equal number of stones in each game. From this central idea flow all the other necessary reform elements: (1) no passing without compensation; (2) White must always play last; and (3) *n* – 1 is used to determine the proper number of points to deduct from Black's *total points* in his handicap games (see Achieving Identical Results with Japanese and Chinese Counting Methods below).

In a sense, the effect of *n* – 1 can be viewed as something akin to a sleight of hand. When Black plays the fourth handicap stone in the game mentioned above, he is, in effect, playing a stone that embodies two distinct roles at the same time: it is both a handicap stone and the first move in the game. The sleight of hand succeeds when White loses the full compensation to which he would normally be entitled; this success is due entirely to *n* – 1 and to the confusion created by a single stone with a double nature.

Even though White is subject to a slight disadvantage in games where the handicap is *n* – 1, which is reflected in a smaller margin of victory, this outcome is a small price to pay in view of the clear benefit of achieving identical results. Of course, this point of view presupposes that one accepts the aim of achieving identical results as a desirable goal (see Example No. 5: A Game Comparing the Chinese and Japanese Counting Methods, page 23).

At the moment, given that the realization of this goal is still a work in progress, the two great families of counting methods—the Chinese and the Japanese—do produce identical results about half the time. If the conditions are right (i.e., if both sides play the same number of stones, and if there is no seki, or, at least, no seki in which one side has more internal points than the other) then the results will be identical.

Achieving Identical Results with Japanese and Chinese Counting Methods

The world of go is divided into two large camps in which two great traditions of counting exist side by side. The Japanese method of counting, basically, is a shortcut version of the Chinese method. It was realized long ago that if both sides play the same number of stones, then why bother counting the stones, why not focus solely on counting the vacant intersections instead. And the Chinese tradition, for which the cornerstone of the counting process is the incorporation of the two component parts of all territory: vacant intersections and stones. This ancient approach to the concept of territory allows it to escape the major drawback of the Japanese method: its reliance on special rulings, such as the one regarding the bent four in the corner, to overcome what the Chinese rules and counting methods are able to deal with so naturally.

Although this is stating the obvious, it is well to remember that the outcome of each game in go is controlled by two component parts: (1) the rules of the game, which are very formal and which are codified by national associations; and (2) the counting methods, which are based on tradition and are not codified.

Ideally, the Japanese and Chinese methods of counting should always produce identical results (i.e., the same margins of victory). However, at the moment, they do not always achieve this result because of the following reasons:

- One side plays more stones than the other.

  This inequality can come about because of the following possibilities:

  - One side passes more often than the other: Solution—compel the player who wants to pass to play on the board or to give his opponent a stone as a prisoner. This has the added advantage of giving players an incentive to play to the very end of the game, and to fill every dame.
  - Black plays the last move: Solution—compel White to play last either by placing a stone on the board or by giving a stone to his opponent.
  - Black has a handicap, which means he has played $n - 1$ more stones than his opponent: Solution—in those cases where the two players have agreed to use the Chinese method of counting, compel Black to compensate White for the points occupied by the handicap stones by subtracting $n - 1$ points from Black's *total points*. See the discussion on $n - 1$ in What is the Value of a Handicap: n or $n - 1$?, page 28.

  The solutions suggested in the above possibilities are part of the official rules of the American Go Association, which were designed in large part, if not specifically, to allow for the use of either the Japanese or the Chinese methods of counting and still achieve identical results. The AGA rules have been adopted officially by the British Go Association and the *Fédération française de go*.

- A seki has an uneven number of internal points (eyes and false eyes, see How to Deal with Sekis, p. 26).

  If a seki occurs in which there is an uneven number of internal points between the black and white groups involved in the seki, then the difference in the score between the two counting methods, everything else being equal, will be the same as the difference in the number of black and white internal points in the seki. If, however, the seki is composed of shared liberties only, then the seki will not affect the identicalness of the scores between the two counting methods.

  The solution to this issue would be to convince the Japanese Go Association and the Korean Go Association to drop their rules regarding the prohibition of counting points in seki. After all, the current rule prohibiting the counting of points seems arbitrary. However, the likelihood of achieving this level of reform seems unlikely. The door is open to national associations to act on their own, which is what the American Go Association has done by recognizing the existence of points in a seki in its rules.

See Example No. 5: A Game Comparing the Chinese and Japanese Counting Methods, page 23.

Komi and the Use of the Tie-Breaker

The word *komi* is a misnomer because it embodies two distinct components: (1) the komi itself, which is the compensation given to White to offset the advantage that Black obtains when he plays first; and (2) the tie-breaker, the fractional value (0.5) whose only purpose is to prevent a game from ending in a draw. Very often, though, this term—komi—seems to be used as though it embodies just one concept—compensation.

During the years in which the komi generated the greatest amount of controversy (the 1920s, '30s, and '40s), the idea of compensation was quite novel. Not only was the idea novel, but so too were the attending issues that emerged in the wake of this idea: what constitutes fair compensation, how to determine if that compensation is fair (issues that still resonate to this day). At about the same time, the idea of the tie-breaker also appeared—another controversial novelty; imagine, declaring a win when none was achieved. Because the idea of the tie-breaker was soon bundled with the idea of compensation, it, the tie-breaker, was easily perceived as part of the compensation, as an extra element that was thrown in for good measure.

Today, the komi is now accepted in all go-playing countries. But the practice of using it only applies to even games. But this makes sense, for it is only in even games that White clearly needs to be compensated in a significant way for Black's undisputed advantage in playing first. This is the whole idea behind the komi (the compensation part). It is all about compensating White for Black's first move, in even games.

In non-even games, however, White does not need to be compensated, even though Black still plays first and, what is more, now enjoys *x* number of handicap stones. To even consider compensation is a nonsense and would defeat the whole idea of the handicap, the role of which is not to place White at a disadvantage, as he is when Black plays first in even games, but rather to put Black on the same playing level as White so that the two players may face each other in a game that will be challenging to both of them.

This leaves the other component of the komi—the tie-breaker—still deserving of attention in non-even games. The view that White should obtain some kind of special consideration when facing a tie—call it, if you will, the equivalent of giving White the "benefit of the doubt"—is not unreasonable, especially in view of the support Black is now getting from his handicap stones, whose effect is all the more ponderous if the players are using the rules of the American Go Association, according to which White is compensated for $n - 1$ stones, not n. Finally, in the last point to be made on this matter, it seems to be inconsistent, at the very least, if not clearly unfair, that White is entitled to benefit from a tie-breaker in all even games (because of the komi) but be denied the same entitlement in all the other, non-even, games.

Of course, there is always the ultimate argument in favor of the tie-breaker: all games will end decisively. The only exceptions are those games that are true exceptions (e.g., repeated whole-board positions). (As an aside, it is fortunate that go is the kind of game that can benefit from such a useful device as the komi, which conveniently settles two basic issues found in many board games: the first-move advantage and ties).

Professional go associations, which are in a position to offer some degree of leadership in such matters as the issue of the tie-breaker, are primarily concerned, above all, with those issues that affect their professional players, who only play even games. This is where amateur associations can play an important role, such as the American Go Association, which sanctions the use of the tie-breaker in non-even games.

In this study, White benefits from the use of the tie-breaker in all non-even games (i.e., no-komi, and all handicap games); and the term *tie-breaker* replaces the term *komi* in any context outside of komi games. If you want to score a game in the same way as it is done in China, where tied games are allowed (except for komi games, of course), then remember not to include the tie-breaker in your calculations.

Although the tie-breaker is part of all the counting methods presented in this study, the decision to ignore it in order to simplify a calculation (as in the Simplified Half Counting method) will affect the accuracy of one measure only: the margin of victory. However, in the important matter of determining which side wins, you can safely ignore the tie-breaker if you can remember this one simple rule: White wins all ties.

Margin of Victory

The reason for counting the points of territory at the end of a game is to find out, of course, which side has won. But there is another reason for counting, and that reason is to measure the margin of victory.

One of the features that distinguishes go from many popular board games, such as chess, checkers, and others, is that in go, victory, or defeat, is relative, not absolute. In go, a player can measure the degree of his victory, or his loss. With this one measure, he can convey in a meaningful way to his fellow players how easy or tough a particular game was. In terms of meaningful communication, there is a world of difference between a player who says he lost, and a player who says he lost by half a point.

The Full Counting and the Half Counting methods are excellent tools for producing the margin of victory of any game. These two methods perform this calculation automatically as part of their normal operations, and they can be relied upon to produce accurate values for this useful measure each time they are used.

The Key Numbers method is also an excellent tool for producing the margin of victory of any game even though this result is not produced in the same way as the other methods. The purpose of the Key Numbers method is to enable a player to find his *key number*, which he can then use, like a benchmark, to determine the minimum number of points he must obtain in order to win. But once he knows the value of his *total points*, he can then figure out his margin of victory by subtracting his *key number* from his *total points*, and then multiplying the result by two. This approach also produces accurate results each time it is used.

The status of the Simplified Half Counting method, however, is problematic. This method of counting, which is widely used in China, and which is well known for its simplicity and speed of operation, always produces an accurate value for the margin of victory: Why? Because in China a tie is accepted as a legitimate outcome of a game (but not for even games).

In the context of this study, however, where tied games are rejected in favor of the principle that White wins all ties (see Komi and the Use of the Tie-Breaker, page 30), the Simplified Half Counting method will never produce accurate values for the margin of victory (except, of course, for even games) unless the value of the tie-breaker is incorporated into the calculations. Of course, if the tie-breaker is incorporated into the calculations, then the Simplified Half Counting method losses part, albeit a small part, of its valued simplicity.

In practice, when players are involved in non-even games, even in tournaments, they never seem to be especially concerned about the tie-breaker unless they happen to be playing a game that is facing a tie; otherwise, they seem quite satisfied to leave out the half-point value of the tie-breaker in the calculations they perform (Japanese-style) to determine the margin of victory.

In the light of this practice, perhaps the player can decide for himself which quality he values the most: accuracy or speed. If he values accuracy over speed, then he should always incorporate the tie-breaker in the calculations he performs when using the Simplified Half Counting method. If, however, he values speed over accuracy, then he must always remember the following two points: (1) the margin of victory will always be inaccurate, by half a point, when the tie-breaker is not part of the calculations, and (2) White wins all ties. Of course, the winner can always add 0.5 points to his margin of victory.

In any event, regardless of whether or not the tie-breaker is incorporated into the calculations, the Simplified Half Counting method will always identify the winner of a game correctly.

For information on the effect of a *non-scoring point* on the margin of victory, see Non-Scoring Point, page 27.

Useful Information When Using the Chinese Rules and Counting Methods

Most go players in the West, unless they are of Chinese descent, and even this is no firm guarantee, are used to playing go under Japanese rules and to scoring their games under the Japanese method of counting. This means that they may or may not be aware of certain matters that could affect their games when they decide to play according to the Chinese rules and to score their games according to the Chinese method of counting.

The following items of information may be useful to such players:

- **Dames Count for Points:** Because dames count for points, make sure to play out each game to the very end, until every dame is occupied, including those that may exist in a seki.
- **Unfilled Dame Discovered:** If you discover an unfilled dame at the end of a game, after both sides have passed, then it becomes a *non-scoring point*. Such a point must remain vacant, and it cannot be counted as a point of territory for either side. If a *non-scoring point* should occur in a game, then you will need to make an adjustment in the calculations used by the counting method you intend to use when the time comes to score the game. For more information, see Non-Scoring Point, page 27.
- **Points in Sekis:** The Chinese rules allow players to count points in a seki. Therefore, it is to your advantage to play inside a seki and to occupy as many dames as you can before the game is over. Then, once the game is over, there is a procedure to follow, which is part of the counting phase of the game, that will finalize the acquisition of any additional points, sometimes called *internal points*, that may still exist in a seki (eyes, false eyes, shared liberties). For more information, see How to Deal with Sekis, page 26.
- **Returning Prisoners:** There is no purpose served in keeping the stones you capture during a game as prisoners. Placing these stones inside your opponent's territory as the end of the game has no effect, for it does not subtract any points from your opponent's total score. Consequently, the normal practice is simply to return captured stones to your opponent's bowl immediately upon their capture.
- **Deducting Handicap Stones:** Because the intersections occupied by stones count as points of territory, this means that the number of handicap stones given to Black at the beginning of a game also gives him the same number of extra points. In the Chinese method of counting, these extra points are deducted from Black's *total score* (or added to White's *total points*) during the counting phase at the end of the game.
- **Special Rulings:** During a game, if you come across a situation which, under Japanese rules, would be settled by the invocation of a special ruling, such as the one that applies to the situation known as the bent four in the corner, you can now resolve these kinds of situations by playing them out.

  Under the Chinese rules, playing inside your territory does not cost you any points because the intersections you occupy with your stones also count as points of territory. This means that in the case of the bent four in the corner, you can go ahead and play inside your territories, to remove your opponent's ko threats, before you initiate the sequence in the corner that leads to the ko, which your opponent cannot win because he has no ko threats, and then to the capture of your opponent's group.

  Of course, in the interest saving time, you may want to ask your opponent, before you begin to remove his ko threats, whether or not he concedes that his group in the corner is dead.

Comparing the Chinese and Japanese Methods of Counting

Generally, the remark that is heard most often from players after they have been introduced to the Chinese method of counting (that is, from players who do not use this method on a regular basis) is that they find the procedure associated with each individual method more complicated to use than the one associated with the Japanese method of counting. They often cite one or more of the observations found below in support of this point of view:

- **Two Kinds of Points to Count:** To score a game Chinese-style, the players must always count the points from two different sources: (1) the vacant intersections, and (2) the stones on the board. When using the Japanese method, however, the players only need to count the points from one source—the vacant intersections. This means they save time by not having to count the stones played on the board.
- **More Items to Adjust:** In the Chinese method of counting, the players must always make adjustments to the *total points* of the side that is being counted for three specific items: (1) the komi (or tie-breaker), (2) the handicap, if any, and (3) the *non-scoring point*, if any. When using the Japanese method, however, the players only need to make an adjustment for one item only: the komi (or tie-breaker). They can forget about the need to make any adjustment for the handicap or the *non-scoring point*, which, of course, has no corresponding equivalence in the Japanese rules or in its method of counting.
- **Divide and then Multiply by Two:** In the Chinese methods (except for the Full Counting method), each side must always remember to divide by two the value of each item they are adjusting; and then, to obtain the margin of victory, they must always remember to multiply by two the difference between the *adjusted total points* and the *half count of possible points*. When using the Japanese method, the players need not be concerned to make these kinds of calculations.
- **Subtract or Add the Adjustment Points:** When counting Chinese-style, the players must always remember (1) that they must either subtract (when Black's side is being counted) or add (when White's side is being counted) the *adjustment points*; and (2) when a *non-scoring point* emerges in a game, they must always remember either to always add this value (to the *total points*, in the Half Counting method) or to always subtract this value (from the *half count of possible points*, in the Simplified Half Counting method). When using the Japanese method, the players need not be concerned by any of these.
- **Points Are Not Verifiable:** When using the Chinese method of counting, the players cannot verify the number of points that was obtained from the vacant territories. The reason for this is that after the empty intersections in the vacant territories have been counted, the stones that once marked the boundaries of these territories are removed and then rearranged into groups of ten's for the purpose of counting. When using the Japanese method, the players can always verify the sum of their points.

Although the issues raised in the above remarks regarding some of the drawbacks associated with the Chinese method of counting are certainly true, there is a great deal to be said about the almost limitless capacity of people to assimilate the workings of any procedure. It does not take long before a procedure, any procedure, even a complicated one, can become so well known that using it becomes second nature to those who need to apply it. This may help to explain the widespread use of the Chinese method of counting in the world to this day. Tradition and habit are powerful forces.

Despite the several negative points associated with the Chinese method of counting, it does possess one clear advantage over the Japanese method: the freedom from the need to make special rulings regarding the status of groups found in special situations, such as the bent four in the corner. When the players know that they will be counting Chinese-style, they can play out these situations to their ultimate ends.

Can There Be a Fourth Method of Counting Chinese-Style?

When scoring a game Chinese-style, you must always deal with three blocks of points:

- The *total points*.
- The *adjustment points* (komi, tie-breaker, and handicap).
- The *half count of possible points*.

The two blocks of points that count the most in determining the outcome of a game are, naturally enough, the *total points* and the *half count of possible points*. In both the Half Counting and the Key Numbers methods, the value of the *half count of possible points* is always subtracted from the *total points*, regardless which side is being counted. This approach is what embodies the essence of the Chinese method of counting: which side crosses over the half-way point (i.e., who wins), and by how much (i.e., the margin of victory).

What varies between the two methods is the manner in which the *adjustment points* are treated as a block. In the Half Counting method, the value of the *adjustment points* is subtracted from the *total points* (and the result is called the *adjusted total points*), whereas in the Key Numbers method, the value of the *adjustment points* is added to the *half count of possible points* (and the result is called the *key number*). (It is assumed here that Black's side is being counted. If it is not Black's side that is being counted, but White's, then reverse the use of the words "subtracted" and "added" in this paragraph).

Is it possible to conclude that the Half Counting and the Key Numbers methods are the only two possible methods that can be used when you want to score a game Chinese-style? Of course, there is always the Full Counting method. It naturally counts as a legitimate method. So, the question is posed: Can there be a fourth method? (The Simplified Half Counting method resembles the Half Counting method far too much to qualify as a distinctive method.)

Mathematical Formulas for the Half Counting and the Key Numbers Methods

As a convenience, here are the formulas for the Half Counting and the Key Numbers methods (**TP**, Total Points; **AP**, Adjustment Points; **HCPP**, Half Count of Possible Points; **ATP**, Adjusted Total Points; **KN**, Key Number; **MV**, Margin of Victory).

• **Half Counting Method**	Formulas with ATP or KN (Formulas are the same for both Black's side and White's side)	Conditions (For both ATP and KN)
• If Black's side is being counted: (TP – (AP ÷ 2) – HCPP) × 2 = MV	• (ATP – HCPP) × 2 = MV	• where ATP = (TP – (AP ÷ 2))
• If White's side is being counted: (TP + (AP ÷ 2) – HCPP) × 2 = MV		or • where ATP = (TP + (AP ÷ 2))
• **Key Numbers Method**		
• If Black's side is being counted: 1(TP – (HCPP – (AP ÷ 2))) × 2 = MV		• where KN = (HCPP + (AP ÷ 2))
• If White's side is being counted: (TP – (HCPP + (AP ÷ 2))) × 2 = MV	• (TP – KN) × 2 = MV	or • where KN = (HCPP – (AP ÷ 2))

Note: These formulas do not take into account the possible occurrence of a *non-scoring point*. To apply the same solution to all cases, the simplest approach is to subtract 0.5 points (1 ÷ 2) from the *half count of possible points* for each *non-scoring point* that appears in the game you are scoring.

Appendix A
Overview Summary

This section provides a brief, one-page summary, designed to serve as an *aide-mémoire* on how to use two of the counting methods discussed in this study: the Half Counting and the Key Numbers methods. These two methods are the ones that are most likely to be used the most often.

When scoring a game Chinese-style, the process is divided into two phases:

- **Phase 1, Determining the Total Points:** This phase deals with the need to determine the *total points* (vacant territory and stones) acquired during the game by both Black and White.
- **Phase 2, Determining the Margin of Victory:** This phase deals with the calculations that must be made to determine which side has won the game and by how many points (margin of victory).

To Determine the Total Points (Phase 1):

1. Remove all the dead stones from the board.
2. Decide which side to count.
3. If there is a seki, fill in the eyes; then fill in the shared liberties, evenly.
4. Reshape the vacant territory into rectangular shapes and count the vacant points in them.
5. Rearrange the stones on the board into groups of ten's and count them.

To Determine the Margin of Victory (Phase 2): (even game, 9 × 9 board)

Half Counting Method		Key Numbers Method	
Counting Elements	Black	Counting Elements	Black
Vacant Territory:	32	Vacant Territory:	32
Stones:	+21	Stones:	+21
Total Points:	53	Total Points:	53
Komi (or tie-breaker): (6.5 ÷ 2)	-3.25 *	Half Count of Possible Points:	40.5 **
Handicap:(*n*) (0 ÷ 2)	-0.0 *	Komi (or tie-breaker): (6.5 ÷ 2)	+3.25 *
Non-Scoring Point: (0 ÷ 2)	+0.0	Handicap (*n*): (0 ÷ 2)	+0.0 *
Adjusted Total Points:	49.75	Key Number:	(–) 43.75
Half Count of Possible Points:	(–) 40.5	Difference: (Total Points – Key Number)	9.25
Difference: (ATP – HCPP)	9.25		x 2
	x 2	Margin of Victory:	18.5
Margin of Victory:	18.5	(If the value is negative, then the other side wins by the identical margin of victory.)	
(If the value is negative, then the other side wins by the identical margin of victory.)		(*If counting for White, these values must be subtracted, not added.)	
(*If counting for White, these values must be added, not subtracted.)		(**Subtract 0.5 for each non-scoring point.)	

Appendix B
Glossary

Below you will find the definition of a few terms that are used throughout this study.

Term	Definition
Adjusted Total Points	The value of the *adjusted total points* is the value of the *total points* after the latter has been adjusted by the presence of one or more of the following *adjustment points*: komi, tie-breaker, or handicap, if any. In the Half Counting method, the *non-scoring point*, if any, is also included. In the Half Counting method, subtracting the *half count of possible points* from the *adjusted total points* and multiplying the result by 2 gives the margin of victory.
Adjustment Points	This term refers to the block of points that includes the komi, the tie-breaker, and the handicap. Exceptionally, in the Half Counting method, it also includes the *non-scoring point*.
Half Count of Possible Points	The *half count of possible points* is the *total possible points* divided by two. The *half count of possible points* of a 9 × 9 board is 40.5 points, and for that of a 19 × 19 board, it is 180.5 points. Each instance of a *non-scoring point* will reduce the value of *the total possible points* by one point and will reduce the *half count of possible points* by half a point (1 ÷ 2).
Key Number	The term *key number* refers to the sum of two blocks of points: the *half count of possible points* and the *adjustment points* (komi, tie-breaker, and handicap). The value of the *key number* is used as a benchmark figure during the counting process. If the *total points* of the side that is being counted is equal to, or more than, that side's *key number*, than that side wins. In the Key Numbers method, subtracting the *key number* from the *total points* and multiplying the result by 2 gives the margin of victory.
Margin of Victory	In the Full Counting method, the margin of victory is the difference between the larger and the smaller values of each side's *adjusted total points*. In the Half Counting and Simplified Half Counting methods, the margin of victory is the difference (multiplied by 2) between the *adjusted total points* and the *half count of possible points*. In the Key Numbers method, the margin of victory is the difference (multiplied by 2) between the *total points* and the *key number*.
Non-Scoring Point	A *non-scoring point* refers to an empty intersection, left on the board after the game is over, and which neither side can occupy or claim as a point of territory. Such points are found in sekis; specifically, in those sekis composed of an uneven number of shared liberties. After the shared liberties in these sekis are filled by both sides, evenly, the last remaining shared liberty, which must remain vacant, is the *non scoring point*. Another kind of *non-scoring point* is an unfilled dame. This occurs when a game ends and a dame was left unfilled. Each instance of a *non-scoring point* reduces the *total possible points* by one point and the *half count of possible points* by half a point.

Total Points	The term *total points* refers to the collection of points, one set belonging to Black and the other set to White, each one of which is composed of two components: (1) vacant territory, and (2) stones (see lower down). The sum of both sides' *total points* will always equal the *total possible points* of the board on which the game is played. If the sum of both sides' *total points* does not equal the *total possible points* of the board on which the game is played, then a *non-scoring point* is present in the game. Vacant Territory: The empty intersections, surrounded by either black or white stones, found at the end of the game, during the counting process, and which belong to the side whose stones surround the territories in question. Stones: The intersections occupied by black and white stones, left on the board, at the end of the game, during the counting process.
Total Possible Points	The term *total possible points* refers to the total number of points that is available on the board and that can be occupied or surrounded by either player. Basically, this is a reference to the size of the board on which a game is being played. A 9 × 9 board has a total of 81 possible points. A 19 × 19 board has a total of 361 possible points. Each instance of a *non-scoring point* will reduce the value of the *total possible points* by one point and will reduce the *half count of possible points* by half a point (1 ÷ 2).