Riichi Book I

A Mahjong Strategy Primer

for European Players

Daina Chiba

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Version 八萬

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The original form of this book is LaTeX source code. Compiling this LaTeX source has the effect of generating a device-independent representation of a manuscript. The LaTeX source for this book is available from http://riichi.dynaman.net/.

About the Author

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Preface

When I moved to England in 2013, I was pleasantly surprised to learn that riichi mahjong (modern Japanese mahjong) is quite popular in Europe. In the past two years, I have had the pleasure of playing riichi in London, Guildford, Kent, Oxford, Aachen, Copenhagen, Prague, and Vienna, along with players from Austria, China, Czech Republic, Denmark, Estonia, Finland, France, Germany, Italy, Japan, the Netherlands, Poland, Russia, Slovakia, Sweden, the UK, and the United States.

European players have been remarkably successful in organizing tournaments open to anyone who plays the game. These tournaments — held at least once a month somewhere in Europe — are run by local mahjong players in each country under the auspices of the European Mahjong Association (EMA).[1] Founded in 2005, EMA has been doing a fantastic job in maintaining common rule sets,[2] keeping a player ranking system, and doing many other useful things to promote the playing of mahjong across Europe.

Although I have come across a few good players in Europe, I came to realize that a lot of players here are not very well-versed in the basic principles of competitive mahjong strategies. Of course, playing competitively is not the only way to enjoy the game. I am also

[1] http://mahjong-europe.org/

[2] EMA's official rule book for riichi mahjong is available online at http://mahjong-europe.org/portal/images/docs/Riichi-rules-2016-EN.pdf (last revised in 2016). At the time of writing this book, EMA is in the process of revising the rule book. Explanations of EMA rules in this book are based on the revised rules. New rules will come into effect from April, 2016.

not claiming that I know the magic formula to win because there is no such thing. Nevertheless, there is a set of basic principles worth learning for any aspiring players. I believe the level of sophistication among European players could be much improved if these principles are more widely shared. Unfortunately, however, learning resources currently available for non-Japanese audience are somewhat limited.[3]

I have thus decided to write a book on riichi mahjong strategies for European players, primarily with beginners and intermediate players in mind. I then ended up splitting the book into two volumes; Book I is intended for beginners and intermediate players (Tenhou rank of 四段 or below), while Book II is meant for more advanced players. The two books are *not* intended for complete novices who do not know how to play riichi mahjong.[4] The target reader is anyone who has played riichi mahjong before and wants to improve their skills further.

I have three main goals in preparing these books. First, I will introduce a set of English terminology of riichi mahjong. "In beginning was Word," scripture tells us. Knowing the names of particular tile combinations, situations, and strategies will allow us to be conscious of them and to be able to talk about them with our fellow players after the game.

My second goal is to introduce the principles of tile efficiency. Book I and Book II both cover tile efficiency, but at different levels.

[3] There are already a few English books for beginners. There are also several excellent blog posts on technical details about mahjong strategies. However, there appears to be a huge gap between these two sets of resources. Introductory books do not cover strategies extensively, whereas blog posts tend to be too advanced even for intermediate players.

[4] If you want to learn how to play riichi, I'd recommend Barr (2009).

Book I offers an introduction to tile efficiency, covering very basic mechanisms only. I plan to cover more advanced materials in Book II. My third goal is to introduce a set of simple strategies regarding critical judgements such as whether or not to call `riichi`, whether to push or to fold, and whether or not to meld.

A lot of the materials covered in the books were introduced to me through the writings of a notable Japanese mahjong player and manga author, Masayuki Katayama. Mr. Katayama is an accomplished riichi player and arguably the best mahjong manga author in the world. Some of the strategies introduced here are unabashedly stolen from Mr. Katayama's masterpiece manga storybook *Utahime Obakamiiko* (『打姫オバカミーコ』). I strongly encourage you to read it yourself if you read Japanese, although I realize that you would not be reading my book if you understood Japanese.

Another Japanese author whose work has been influential in the writing of Book I is Makoto Fukuchi. Mr. Fukuchi is also a distinguished riichi player and the best-selling author of mahjong strategy books. A part of the exposition of the five-block method in Chapter 4 is based on Mr. Fukuchi's skillful explanation in his books.

I am also indebted to a lot of friends I have become acquainted with through mahjong in Europe. Philipp Martin has read an early draft of the book and provided me with valuable comments and encouragement. I am also grateful to Gemma Sakamoto, who has been hosting a monthly mahjong get-together in London. Finally, my thanks go to Ian Fraser, one of the founders of the UK Mahjong Association. Without the efforts of Ian and his team, I would not have been able to get to know so many fellow players in the UK and in Europe.

The cover photo (© Katarína Mózová) is from the 2015 Bratislava Riichi Open Tournament. I thank Katarína and Riichi Mahjong Slovakia (especially Matej Labaš) for giving me their permission to use it.

After I made the book publicly available in January 2016, a lot of people have given me feedback on various aspects of the book. Based on their feedback, I corrected some terminology inconsistencies and typos. In particular, I thank David Clarke, Aaron Ebejer, Nicolas Giaconia, Grant Mahoney, Ting, Chris Rowe, Mike Liang, and Max Lu for their valuable inputs.

Daina Chiba
London, UK
10 January, 2016
(updated on 8 January, 2019)

Plan of the book

To improve your mahjong skills, you need not only to learn the theories but also to practice what you learn by playing lots of games, preferably with players who are stronger than yourself. Before the advent of online mahjong platforms, however, doing so was not very easy if you live outside of Japan.

Thanks to the recent development of online mahjong platforms, it is now feasible for you to play hundreds or thousands of games with serious opponents while living outside of Japan. On these websites, you can easily find fellow players to play with 24/7. Most platforms keep the record of all the games players have played, and a replay function would allow you to reflect on your past plays. You can also take a look at player statistics data, which gives you important clues as to what skills you need to work on.

I thus recommend you practice mahjong skills by playing online while you study the strategy principles with this book. You do not need to wait until you finish reading everything covered in the book before you start playing. Go ahead and play games first, then come back to the book and study the relevant parts of the book.

This book is divided into four parts. Part I provides an introduction to an online mahjong platform called `Tenhou` (天鳳). The website is in Japanese, but I will walk you through the account registration process and show you how to play games in Chapter 1. There already exist several excellent online resources that explain how to play `Tenhou`, including:

- Arcturus's Tenhou Documentation
  http://arcturus.su/tenhou/

- Complete Beginner's Guide to Online Mahjong (Osamuko)
  https://bit.ly/2CXAKoM
- Playing Online: Tenhou (Reach Mahjong of New York)

  https://bit.ly/2sdOtU4

If you have already read either of the three before, you can skip Chapter 1 of this book, for there is not much new information there for you. Chapter 2 explains some advanced features of `Tenhou`, which you can also skip when you read this book for the first time.

Parts II and III are the "meat" of the book. Part II covers basic tile efficiency theories that allow you to maximize the speed and/or hand value of your hand. After introducing basic terminology in Chapter 3, I discuss the five-block method in Chapter 4 and provide some tips on how to pursue several `yaku` in Chapter 5. Part III covers strategy principles, including score calculation methods (Chapter 6), riichi judgement (Chapter 7), defense judgement (Chapter 8), melding judgement (Chapter 9), and so called "grand strategies" to win a game (Chapter 10). Finally, Appendices include a chapter on etiquettes for offline playing (Chapter A) and another chapter on further readings (Chapter B).

Numbers and letters shown in this color as well as each entry in the Contents section below are hyperlinked; clicking on one will take you to the pertinent page.

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Part I

Playing Riichi Online

Chapter 1

Introduction to Tenhou (天鳳)

1.1 Why play online?

Playing mahjong online is an excellent way to practice your mahjong skills. You don't need any mahjong equipment to play; you don't need to coordinate with your mahjong friends to find the time and place that work for all four of you. You can simply open your computer and access one of many online mahjong platforms. As long as you have an internet connection, you can play mahjong any time, anywhere, and for any length of time.

Another advantage of online playing is that you can easily keep the record of your playing history and obtain detailed statistics from all the games you play. Analyzing these statistics will help you identify what skill sets you need to work on. You can also show your game record to your friends and ask for their opinions about particular choices you've made in a game.

天鳳 (Tenhou) is arguably the most popular online mahjong platform in the world. As of December, 2015, there are over three hundred thousands active players on Tenhou.[1] A lot of professional mahjong players from Japan now play Tenhou. There are also some Tenhou players who have later become professional after practicing their skills on Tenhou. It has become a common

[1] To be exact, it has 304,534 active players and 3,566,353 registered players as of 20 December, 2015.

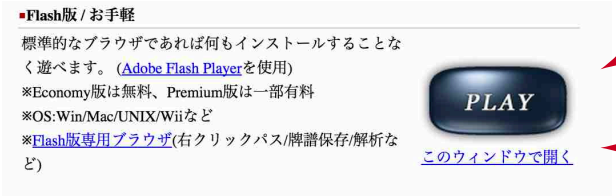
understanding among players in Japan that your rank and rating on Tenhou are one of the most reliable indicators of your mahjong skill levels. To get you started, this chapter explains how to set up an account on Tenhou and provides a basic operation manual.

1.2 Setting up an account

One of the challenges for European players in setting up an account on Tenhou would be that almost everything is written in Japanese. However, you will only need a minimal level of Japanese to get by, and this chapter will walk you through the process.

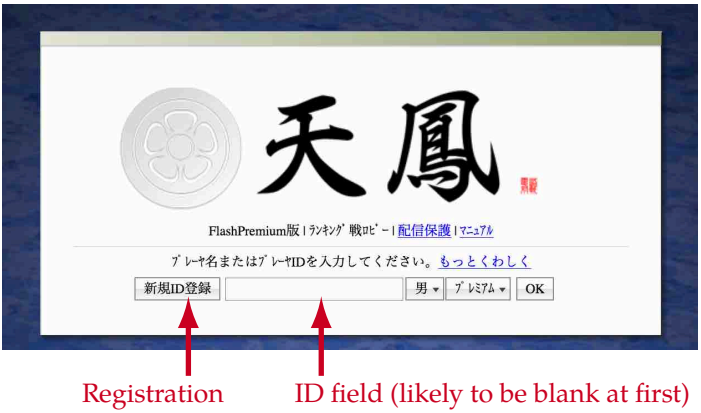
First, go to the Tenhou webpage (http://tenhou.net/).

Scroll down and click either the PLAY button (to play in a pop-up window) or a link just below the button (to play in the current window) that reads このウィンドウで開く.

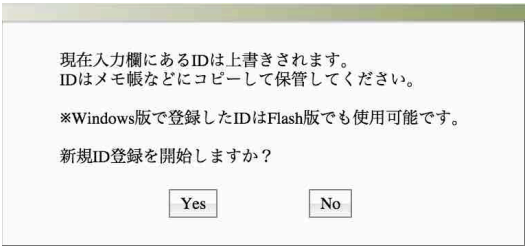


Then, on the next page (either in a pop-up window or in the current window), you'll see something like the following:

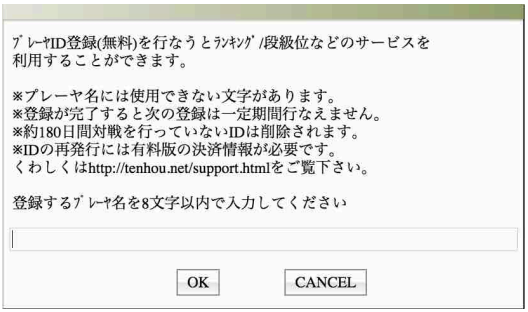
The bottom line will initially read LOADING... / 再読み込み, but in a few seconds it will change into »Flash 版サーバに接続 | Web 版 β サーバに接続. Then, click on the Flash サーバに接続 link if you are accessing from a flash-capable device such as your PC; alternatively, click on the Web 版 β サーバに接続 link if you are accessing from a smart phone or tablet. If it doesn't change into »Flash 版サーバに接続 | Web 版 β サーバに接続 within 10 seconds or so, you may want to click on the 再読み込み link right next to LOADING, which will prompt the browser to reload the page. Clicking on either of the Flash/Web サーバに接続 links will take you to the log-in entrance of `Tenhou`. Explanations below are based on the Flash version.



When you first visit this page, the ID field right next to the 新規 ID 登録 button is likely to be blank, as shown in the picture above. This is because you haven't registered an account. In order to create an account, click on the 新規 ID 登録 (New ID Registration) button on the left.



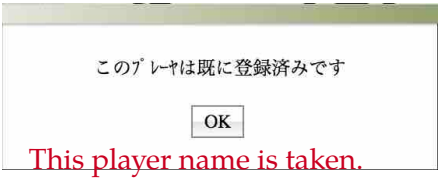
A pop-up message will show up, warning you that whatever ID that is currently shown in the ID field (if any) will be overwritten with a new ID and that you may want to copy and paste the current ID (if any) into some text file or similar. Do so if you do see an old ID in the ID field, just to be safe. If the ID field is blank, just click the Yes button, which will open yet another pop-up message.



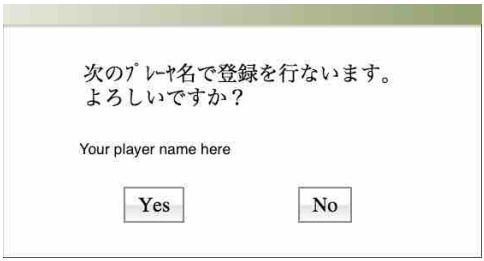
It is telling you the following:

- You can create a player ID for free, and doing so is necessary if you want to earn a rank (`kyuu / dan`) and rating.
- Some characters or character combinations are not allowed in player names.
- Once you register, you cannot register another account for a given period (7 days).
- If you don't play for 180 days, your ID may be deleted.
- A player name must have 1-8 characters.

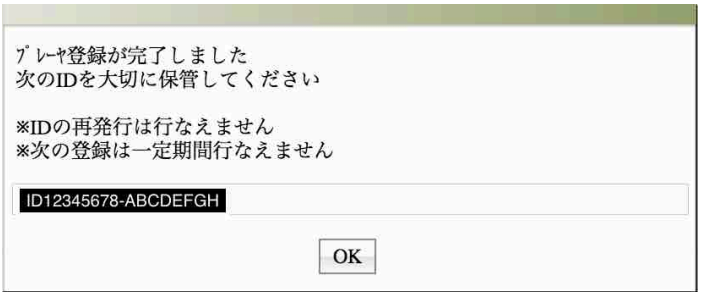
Type in a player name you'd like to have (8 characters or fewer) into the blank field at the bottom and click OK. You cannot change your player name later, so choose wisely. If the player name you type in is already taken by another player, it gives you an error message, as follows:



Click OK, and type in another name. If successful, you'll see a new message asking you to confirm that you want to register an account with the player name provided.

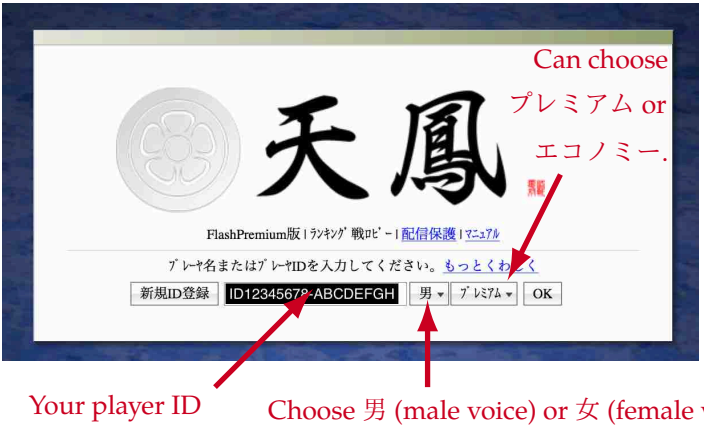


Click Yes and you'll see another message as follows:



The 19-digit alpha-numeric code that starts with "ID" (shown in white on a black background) is your unique player ID (it is ID12345678-ABCDEFGH in the picture above). I suggest you save your ID in a text file or something so that you don't lose it. They cannot re-issue your player ID (unless you have a paid membership and hold a rank of 七段 or higher).

Clicking OK will take you back to the log-in entrance page, but this time you should see your player ID in the ID field.



You can make several choices before entering the main page. First, you can choose male or female voice (for `pon` / `chii` / riichi, etc.) by clicking on the button right next to the ID field. You can choose a different gender each time you log in to the main lobby. Second, you can choose プレミアム (premium) or エコノミー (economy) version. The premium version has better graphics, so I suggest you choose the premium version.

If you are happy with your choices, you can enter the main page by clicking on the OK button on the right.

1.3 The main page

Here is what the Tenhou main page looks like when you first log on in. The right half of the main page shows your statistics (currently all the fields are blank because you haven't played any games), and the left half shows the games you can play and some other features.

In the second line of the left hand side, you see three numbers. In the example above, they are 1857, 915, and 118 (the numbers will be different on your screen). These numbers show that 1857 players are currently online, 915 players are waiting, and 118 players are about to finish their games.

Below these three numbers, there are six main tabs, which read 段位戦, 雀荘 β, 技能 β, 観戦, 牌譜, and ヘルプ. The 段位戦 tab is the main lobby where we play games (段位戦 reads `dan-i-sen` in Japanese; it means ranking matches). Under the 段位戦 tab, there are four sub-tabs, which read 一般, 上級, 特上, and 鳳凰, corresponding to four

different rooms. At first you can only play at tables in the 一般 room. Let's first go to the 段位戦 tab, and choose the 一般 sub-tab.

Making reservations

In each of the four rooms (i.e., 一般, 上級, 特上, and 鳳凰), there are 12 different variants of riichi mahjong games you can choose from.

Games in the left column (under 東風戦 `tonpusen`) are East-only games,[2] and games in the right column (under 東南戦 `tonnansen`) are more standard East-South games that have both East and South rounds.[3]

Games in the first row (喰断ナシ `kuitan nashi`) are unusual games where open `tanyao` (All Simples) is not allowed; you have to have a concealed hand to claim `tanyao`.[4] There is no red five in these games, either. Open `tanyao` is allowed in all the other games. Games in the

[2] In a special circumstance where no player gets 30000 or more points by the end of East-4, the game continues into the South round.

[3] Just like East-only games, when there is no player who has 30000 or more points by the end of South-4, the game continues into the West round.

[4] `kuitan` means "open `tanyao`" and `kuitan nashi` means "without `kuitan`" in Japanese.

second row are more standard games with open tanyao, but they do not have red fives. Games in the third row have three red fives. This is arguably the most standard type of riichi mahjong game played in Japan as of now. Games in the fourth row have the same rule as those in the third, but the time limit on each action is more strict. Games in the fifth and sixth rows are three-player games, where open tanyao and red fives are both allowed.

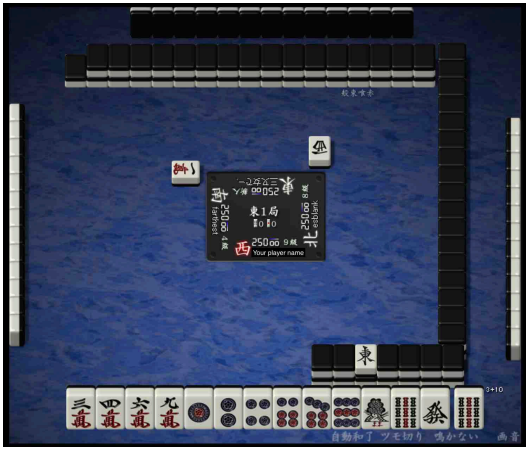
The set of numbers delimited by a colon in each cell represent the numbers of players currently waiting and playing the game, respectively. For example, the first row in the left column shows 3:24, which means that 3 players are waiting in queue after signing up for a game, and 24 players are currently playing East-only, closed tanyao games. As it happens, East-South games with red fives are usually the most popular on Tenhou, followed by East-only, fast games.

To sign up for a game, click on the 予約 (reservation) button in the corresponding cell. You can make as many reservations as you want; you will be given a seat at a table that first becomes available. If you make multiple reservations, other reservations will be automatically canceled when you start playing at another table. To cancel all the reservations at once, click on the キャンセル (Cancel) button at the bottom right of the left-hand side of the main page. The cancel button becomes active (clickable) only after you make a reservation.

1.4 Playing a game

Once a slot becomes available for you, you will be taken to a game table along with three other players. A black pop-up screen (see right) will appear. The game will start in 10 seconds (if all the four players click on the OK button, the game will start immediately). Each player is randomly assigned to East, West, South, or North. In the example below, my initial seat wind is North (北).

The `Tenhou` interface is quite intuitive so you won't need much instruction. Once a hand begins, tiles are dealt automatically. You also automatically draw a tile when your turn comes. In each turn, click on the tile you want to discard.



Each action is timed. At a standard (non fast) table, you have 5 seconds to discard a tile. In addition, you are given a total allowance of 10 seconds in each hand. That is, even when you use up the 5

seconds allocated to you in a particular turn, you will be given the maximum of additional 10 seconds (minus the seconds you have already used up in previous turns in the hand). For example, when you use 5 + 4 seconds in the first turn, the remaining allowance reduces to $10 - 4 = 6$ seconds in this hand. Therefore, the next time you use up the first 5 seconds, you will be given only 6 more seconds. The allowance will increase by 1 second (up to 10 seconds) each time you make your discard choice in less than 1 second. The allowance will revert to 10 seconds when the next hand begins. At fast tables, each action must be done in 3 seconds, with a total allowance of 5 seconds.

1.4.1 Calling / melding

When a call becomes available, a box with a call name will show up to prompt your reaction. The call prompts are written in Japanese. The good news is that they are relatively simple and easy to guess from the context. It would be enough to memorize the following eight mahjong words in Japanese.

1. リーチ *riichi* [ríːtʃ]

You can call riichi when you have (1) a closed ready hand, (2) at least 1000 points left, and (3) at least one turn left to draw. When all of the three conditions are met, a translucent box that reads リーチ in white letters will pop up in your turn.

If you want to riichi, you must click on the リーチ box first, then click on the tile you want to discard. Once you click on the リーチ box, you cannot call it off. Clicking on the リーチ box also makes it impossible to discard a tile that does not make the hand ready. In the above ex-

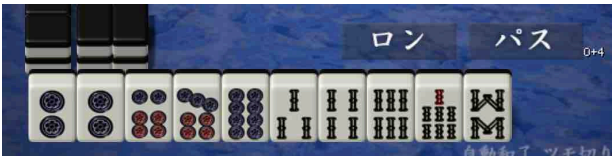
ample, tiles other than  will become unclickable once you click on the リーチ box. If you do not want to call riichi, just click on the tile you want to discard.

2. ロン `ron` [róŋ]

A ロン box will pop up whenever you can legitimately declare `ron` on an opponent's discard. In other words, `chombo` is made impossible on `Tenhou`. For example, when you are `furiten`, a ロン box will not pop up because you cannot legally `ron` with a `furiten` hand. Whenever your hand is in a `furiten` status, it is indicated with a フリテン (`furiten`) sign in small translucent letters below your hand that looks like:  . If you don't click on the ロン box in time (i.e., in 5 or 3 seconds + allowance), it is assumed that you pass.

3. パス *Pass (do nothing)*

Whenever a ロン box pops up, another box that reads パス (pass) will accompany it.



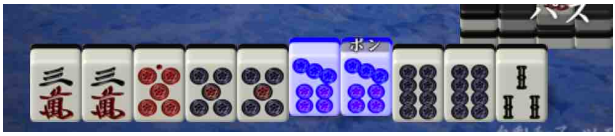
Click on the パス box immediately if you don't want to declare `ron` on a discard. You would not want to pause for too long because that can look suspicious. A パス box will also pop up when other calling actions become available.

4. ツモ `tsumo` [tsúmo]

A ツモ box will pop up when you can legitimately declare `tsumo` with your draw.

5. ポン pon [pɔ́ŋ]

When calling pon becomes available, a ポン box will pop up right above the tiles in your hand with which to call pon. A パス box will also pop up. If you want to call pon, mouseover the tiles in your hand with which to call pon. Then the candidate tiles will stick out, as follows:



Click on them to call pon. If you click on the パス box or don't do anything in time, it is assumed that you pass.

6. チー chii [tʃíː]

Chii calls are done in a similar way. When it becomes available, a small sign that reads チー will pop up right above the tiles in your hand with which to call chii.

When you have multiple sets of tiles with which to chii, as is the case in the above picture, mouseover the candidate tiles to choose. In the picture above, the left player discarded a 🀙 and you can chii it with either 🀘🀚 or 🀛🀝. If you want to chii it with 🀘🀚, mouseover the 🀘 then the 🀚 and a 🀙 will stick out so you can click on them. If you want to chii it with 🀙🀛, mouseover the 🀛 then a 🀙 and the 🀝 will stick out so you can click on them.

7. カン `kan` [kʌ́ŋ]

Calling `kan` on a discard is similar to calling `pon`. To build a melded `kan` by extending a melded `pon`, you need to mouseover the melded `pon` until a small sign that reads カン appears below the `pon`. To call a concealed `kan`, mouseover the four tiles you want to `kan` then the tiles will stick out, accompanied by a small sign that reads カン below them. Click on them to call `kan`.

8. 九種九牌 `Kyuushu Kyuuhai`

When you have nine different terminals and honors after the first draw in an uninterrupted first set of turns, you can declare an abortive draw. When this becomes available, a box that reads 九種九牌 will pop up. Click on it if you want to declare an abortive draw. If you wish to continue with the hand, just click on the tile you want to discard.

Multiple boxes

Sometimes you have multiple choices as to what to do with a given discard of your opponent. In the following example, you have a ready hand waiting for 二萬-伍萬, and the left player discarded a 伍萬. You will be given the following three choices:

- Call `ron`
- Call `chii`
- Pass (do nothing)

To call ron on the discarded  , click on the ロン (ron) box that pops up above your hand. If you want to do nothing, click on the パス (pass) box right next to the ロン box. Alternatively, if you want to call chii, mouseover the two tiles you want to chii with (in this case ) and click on them.

1.4.2 Buttons

The buttons at the bottom right corner allow you to toggle on/off some calling-related features. Each feature is turned off at the beginning of a new hand.

自動和了 *(Auto call win)*

If you turn this on, you will automatically win a hand when possible without clicking on ロン or ツモ boxes. In other words, the option of passing is unavailable when this is turned on. Keep in mind that this can be problematic at times when you intend not to win your hand from a particular opponent or on a particular tile. When this is turned on, the word 自動和了 is shown in white; when it is turned off, it is translucent. In the picture above, it is turned on.

ツモ切り *(Auto discard draw)*

If you turn this on, you will automatically discard whatever tile you draw. Turn this on when you have to go to toilet or somewhere but don't want to quit the game entirely. When you riichi, this feature is automatically (and implicitly) turned on. In the picture above, it is turned off.

鳴かない *(No call)*

If you turn this on, you will not be prompted to call `chii`, `pon`, or `kan`. This feature is useful for hiding information about your hand's tile composition from your opponents. If you pause every time someone discards a certain tile you can call, your opponents might be able to guess what pairs of tiles you have and don't have. Drawing a deduction from such time lags constitutes an important skill in `Tenhou`. However, in order not to disadvantage players waiting to call `chii` / `pon` too much, time lags will also occur randomly (i.e., even when no one can call `pon` / `chii` on the discarded tile).

画 *(Picture) and* 音 *(Sound effect)*

You can change the appearance of the tiles and/or mat or resize the window with the Picture button. You can turn on/off the sound effect (for riichi, `chii`, `pon`, etc.) with the Sound button.

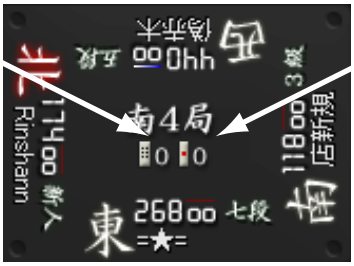
1.4.3 Scoring

When a player wins a hand, the score will be calculated automatically. A scoring board will pop up that shows the hand, `dora` (and `ura dora` if riichi was declared), `yaku` names and the associated number of `han`, minipoints, and the total hand value.

In the example above, the left player dealt into my hand that is worth 60 符 (`fu`; minipoints) 13 飜 (`han`) = 32000 点 (points). `Yaku` names will be shown in Japanese along with `han` counts. Table 1.2 at the end of this chapter lists all the `yaku` names `Tenhou` recognizes.

1.4.4 Indicators

The black rectangular board in the middle of the screen provides information about the proceeding of the game.



We can see that this is South-4, there is 0 counter and 0 riichi bet, and it is the North player's turn. The West player is leading (44000 points), followed by the East player (26800), the North player (17400), and the South player (11800). Each player's rank (`kyuu / dan`) is shown right next to their points.

If you mouseover the middle board, you will see the current point differences between you and each of your opponents. In the present example, the West player has $44000 - 26800 = +17200$ more points than I do. If you are leading against another player, the point difference will be negative. For example, the South player has 11800 so the point difference is $11800 - 26800 = -15000$.

It is important to pay a close attention to these point differences, especially in the South round or when one of your opponents is at the risk of bankruptcy. In the current example, if the East player wins a 12000 hand from the South player, South will go bankrupt and the game is terminated. Notice that East is currently ranked second, having 17200 points fewer than West. In this case, winning a 12000 from South is not ideal for East because East will still be ranked second and the game is over.[5]

You can also see the type of game you are currently playing on the board. Just below the wall opposite to you is an indicator that looks like this:  .

- The first letter indicates the room: 般 for 一般 (ippan), 上 for 上級 (joukyuu), 特 for 特上 (tokujou), 鳳 for 鳳凰 (houou). See Chapter 2 for explanations of these.
- The second letter indicates if it is an East-only game (東) or an East–South (南) game.
- The third letter indicates if open tanyao is allowed: 喰 (with open tanyao) or 無 (without open tanyao)
- A fourth letter (赤) is added if there are red fives.
- A fifth letter (速) is added if it is a fast game.

[5] As we will see later, avoiding the fourth place is more important in Tenhou rules than it is in other rules. However, this does not mean that it is your only priority; you would still want to improve your placement in a game when doing so is a realistic possibility.

1.4.5 Ending of a game

A game can end in several different ways.

- One or more player goes bankrupt (below 0 points).
- South-4 (East-4 in East-only games) ends and at least one player has 30000 or more points.
- West-4 (South-4 in East-only games) ends.
- At any point in the West round (South round in East-only games), at least one player has 30000 or more points.

When a game ends, final scores are calculated as follows.

- In cases of a tie, the player sitting closer to the first dealer wins.
- `Oka` (winning premium) is 20000. That is, although every player is allocated 25000 points at the beginning of a game, they have to return 30000 at the end of the game, meaning that 30000 will be subtracted from the final raw scores. The residual points of $20000 = (30000 - 25000) \times 4$ are awarded to the winner of the game.
- `Uma` (placement bonus) is 10-20. That is, 1st player gets $+20000$, 2nd player gets $+10000$, 3rd player gets -10000, and 4th player gets -20000.
- Each score is then scaled by dividing it by 1000 and rounding it off.

It appears that European players are not very familiar with the `oka` system (possibly because there is no `oka` in EMA rules), so let me explain this with an example. Suppose that players A, B, C, and

Table 1.1: Final score calculation on Tenhou

Player	Raw score	Before uma	After uma	After oka
A	39000	9000	29000	49000
B	25100	−4900	5100	5100
C	22900	−7100	−17100	−17100
D	13000	−17000	−37000	−37000

D hold the following raw points at the end of a game; 39000, 25100, 22900, and 13000, as shown in Table 1.1 below.

The first numerical column shows the raw scores. Then, 30000 is subtracted from each of the raw scores (second column). Then, we add uma to each score based on placements (third column). Finally, we add oka to the winner's score to obtain the final scores (fourth column).

The final scores after adding uma and oka and scaling will be displayed along with the placements and raw scores. In the example to the right of this text, I (私 means "me") came in 1st, earning 50100 points (60.0 with uma and oka), 2nd player (C さん, which reads Mr. C) earns 46000 points (+ 26.0 with uma), 3rd player earns 6700 points (−33.0 with uma), and 4th player went bankrupt (−2800 points, −53.0 with uma).

Notes on placement

It is important to keep in mind that your rank and rating on Tenhou depend solely on the placement in a game and not on how many points you earn in a game, before or after adding uma and oka. In other words, there is *absolutely* no difference between getting 1st place with 30000 points and getting 1st place with, say, 80000 points in terms of their contributions to your rank and rating.[a]

This feature adds an interesting strategic element to the game. That is, it makes it clearer that the goal of mahjong is *not* to win a hand *per se* but to have a better placement at the end of a game. Winning a hand is just one of several means to securing a good placement. On occasion, you may find it beneficial to assist one of your opponents instead of trying to win a hand yourself. Intentionally dealing into an opponent's hand can sometimes be a good tactic when it serves the purpose of securing your own placement.

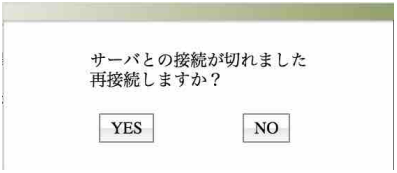
In my impression, many European players are lacking the appreciation of this aspect of mahjong. I hope you will learn to appreciate it through playing lots of games on Tenhou.

[a] You might wonder why they still calculate the final scores with uma and oka in Tenhou if they are irrelevant; I honestly have no idea.

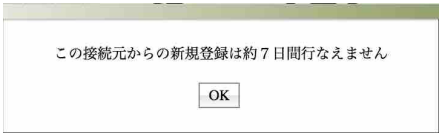
1.5 Troubleshooting

At times, you may get disconnected from the Tenhou server (possibly because of poor internet connection on your end or problems on the server).[6] When a player gets disconnected from the server during a game, the game still continues. The "auto discard draw" will be turned on for the disconnected player, so they will be simply discarding anything they draw until they return. The player name will turn into dark red once a player is disconnected.

When you get disconnected, you may get a warning message shown above, asking you if you would like to get connected again. Click Yes if you want to. However, a warning message does not always show up when you get disconnected. When a screen freezes during a game for more than 15 seconds, you should suspect that you are disconnected. You may want to hit the refresh button on your browser to get connected to the server again.



You can create more than one accounts on Tenhou, but you will have to wait for 7 days unless your IP address changes. If you attempt to create a second account from the same IP address within 7 days, you will get an error message shown below, telling you that you cannot create a new account from your IP address in 7 days.



[6] You will notice that players sometimes get disconnected on purpose to quit playing, especially when they are losing badly.

1.6 Rules

Here is a summary of the rules on Tenhou.

- Three red fives (one in each suit) in games with red fives.
- No kuikae (swap-calling). That is, you cannot discard an identical tile after pon or chii. You cannot discard the tile from other end of the run, either.
- "Sudden death" rule when no player has 30000 or more points after South-4 (East-4 in East-only games).
- A game is terminated when a player goes bankrupt.
- Automatic agariyame rule (i.e., the game is automatically terminated if the dealer is leading after the end of South-4, even if he won a hand in South-4).
- One-han minimum all the time (i.e., no two-han minimum even after five counters).
- Abortive draw in the following situations
  - 九種九牌 (nine terminals / honors)
  - 四家立直 (four riichi's)
  - 三家和了 (three players call ron on a discard)
  - 四風子連打 (four players discard the same wind)
  - 四槓散了 (four kan by different players)
- 流し満貫 (nagashi mangan) is allowed. You can declare it even when you have called pon / chii. You cannot declare it if one or more of your discards has been called by others.

- Up to two players can win on a discard. riichi bets and counter bonus go to the player sitting closer to the player who discarded the winning tile. The dealership remains if the dealer is one of the winners.

- The following are recognized as yakuman: 天和 (Tenhou; Blessing of Heaven) / 地和 (chihou; Blessing of Earth) / 大三元 (daisangen; Big Three Dragons) / 四暗刻 (su anko; Four Concealed Pungs) / 四暗刻単騎 (su anko tanki; Single-Wait Four Concealed Pungs) / 字一色 (tsuiisou; All Honors) / 緑一色 (ryuiisou; All Green) / 清老頭 (chinroutou; All Terminals) / 国士無双 (kokushi muso; Thirteen Orphans) / 国士無双 13 面 (Thirteen-wait Thirteen Orphans) / 大四喜 (daisushi; Big Four Winds) / 小四喜 (shosushi; Little Four Winds) / 四槓子 (su kantsu; Four Kongs) / 九蓮宝燈 (churenpoutou; Nine Gates) / 純正九蓮宝燈 (junsei churenpoutou; Nine-wait Nine Gates).

- Yakuman can be combined. For example, 大三元 (Big Three Dragons) can be combined with 字一色 (All Honors), 四暗刻 (Four Concealed Pungs), and either of 四槓子 (Four Kongs), 天和 (Blessing of Heaven) or 地和 (Blessing of Earth), producing a quadruple yakuman (128000 points).

- There is no double yakuman unless different yakuman are combined. For example, 国士無双 (Thirteen Orphans) and 国士無双 13 面 (Thirteen-wait Thirteen Orphans) are both single yakuman.

- You cannot call pon / chii / kan on the last discard in a hand.

- Sekinin barai: a player who feeds the third Dragon pon / kan to an opponent with two melded Dragon pon / kan must pay the full value of the hand in case Big Three Dragons is made on a self-draw. In case another player deals into it, the two share

the payment equally. The same rule applies to Big Four Winds, but not to `rinshan kaihou` (After a Kong).

Table 1.2: List of `yaku` names

`Yaku`	Pronunciation	EMA name	`Han` (open)
門前清自摸和	`(menzen-) tsumo`	Fully Concealed Hand	1 (NA)
立直	riichi	Riichi	1 (NA)
一発	`ippatsu`	Ippatsu	1 (NA)
槍槓	`chankan`	Robbing the Kong	1
嶺上開花	`rinshan kaiho`	After a Kong	1
海底摸月	`haitei (-moyue)`	Under the Sea	1
河底撈魚	`houtei (-raoyui)`	Under the River	1
自風	`jikaze`	Seat Wind	1
場風	`bakaze`	Prevailing Wind	1
役牌	`yakuhai / fanpai`	Dragon Pung	1
断幺九	`tanyao`	All Simples	1
一盃口	`iipeiko`	Pure Double Chow	1 (NA)
平和	`pinfu`	Pinfu	1 (NA)
混全帯幺九	`chanta`	Outside Hand	2 (1)
一気通貫	`ittsu`	Pure Straight	2 (1)
三色同順	`sanshoku (-doujun)`	Mixed Triple Chow	2 (1)
三色同刻	`sanshoku doukou`	Mixed Triple Pungs	2
両立直	double riichi	Double Riichi	2 (NA)
三槓子	`san kantsu`	Three Kongs	2
対々和	`toitoi`	All Pungs	2
三暗刻	`san anko`	Three Concealed Pungs	2
小三元	`shousangen`	Little Three Dragons	2
混老頭	`honroutou`	All Terminals and Honors	2
七対子	`chiitoitsu`	Seven Pairs	2 (NA)
純全帯幺九	`junchan`	Terminals in All Sets	3 (2)
混一色	`honitsu`	Half Flush	3 (2)
二盃口	`ryanpeiko`	Twice Pure Double Chow	3 (NA)
清一色	`chinitsu`	Full Flush	6 (5)
流し満貫	`nagashi mangan`	–	`mangan`
ドラ	`dora`	Dora	
赤ドラ	`aka dora`	Red five	
裏ドラ	`ura dora`	Ura dora	

Chapter 2

Advanced features of Tenhou

2.1 Rank and rating

Tenhou has two different player rating systems — rank (kyu / dan) and R (rate). The kyu / dan ranking system is similar to the one commonly used in Japanese arts, games, and martial arts. The kyu (級) ranks are shown in arabic numbers, going from 9 級 to 1 級 in descending order. After passing 1 級, you enter the dan (段) ranks, shown in kanji numbers, going from 初段 (一段; first dan) to 十段 (tenth dan) in ascending order. Everyone starts with 新人 (newbie; no rank), and if you pass the 十段 rank, you are awarded the highest rank called 天鳳位 (Tenhoui). Since the inception of Tenhou in 2006, there have been only nine players who have achieved 天鳳位 at the time of writing this book. Table 2.1 shows the distribution of active players holding each rank as of 20 December, 2015.

Rank	N	Rank	N
天鳳位	9		
十段	15	1 級	7780
九段	130	2 級	5849
八段	592	3 級	6481
七段	1830	4 級	6383
六段	3140	5 級	6971
五段	5968	6 級	9964
四段	9957	7 級	16606
三段	14436	8 級	14509
二段	18174	9 級	28283
初段	15046	新人	132411

Table 2.1: Player distribution

2.1.1 kyu / dan rank

To advance your kyu / dan rank, you need to earn points (called "pt" or "段位 pt" on Tenhou). For example, to proceed from the 新人 (newbie) status to the 9 級 (kyu) rank, you need to earn 30 points. Required amount of points for promotion gets greater and greater as

you move further up. For example, to proceed from 六段 (sixth dan) to 七段 (seventh dan), you need to earn as many as 1200 points.

To find out how many more points you need to earn to advance to the next rank from the current rank, see the top right part of the main page.

In this example, the player currently holds the rank of 7 級. The part that reads "30 / 60 pt" means that he has earned 30 points since he became 7 級 and that he needs 60 points in total to be promoted to 6 級.

When you rise or fall in rank, your points will be reset to a default value. For kyu rank players, the default value is 0 points. For dan rank players, the default value is different depending on ranks. For example, the default points for 六段 players are 1200 points. When they get 1200 more points and reach 2400 points, they get promoted to 七段. When they lose all the initial 1200 points and reach 0 points, they get demoted to 五段.

The amount of points you earn or lose in each game depends on your placement (but *not* scores with uma and oka), the type of game (East-only or East–South), the room in which the game is played (一般, 上級, 特上, or 鳳凰), and your current rank.[1] You gain positive points only if you come in first or second place. If you come in first place, you will gain the following points regardless of your rank.

[1] Points you earn or lose in East-only games are two-thirds of those in East–South games.

- 45 points in the 一般 (ippan) room
- 60 points in the 上級 (joukyu) room
- 75 points in the 特上 (tokujou) room
- 90 points in the 鳳凰 (houou) room

If you come in second place, you will gain the following points regardless of your rank.

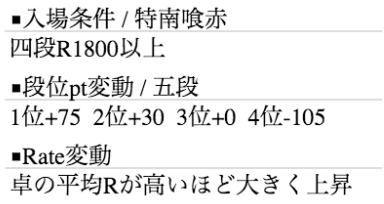
- 0 points in the 一般 room
- 15 points in the 上級 room
- 30 points in the 特上 room
- 45 points in the 鳳凰 room

You don't gain or lose points if you come in third place. The points you lose when coming in fourth place depend on your rank but not on the room. When your rank is 3 級 or below, you lose 0 point. However, each time your rank rises above 3 級, the points you lose get bigger by 15 points. That is, 2 級 players lose 15 points if they come in fourth place; 1 級 players lose $15 \times 2 = 30$ points; 初段 players lose $15 \times 3 = 45$ points, ... , and 十段 players lose as many as 180 points if they come in fourth place.

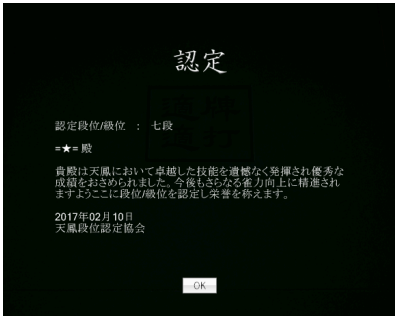
Notice how severe the punishment is for coming in fourth, and it gets severer and severer as your rank goes up. This is one of the distinctive features of Tenhou. Avoiding the fourth place tends to be players' top priority in Tenhou games. This is in contrast to standard mahjong games, where the reward for coming in first usually outweighs the cost of coming in fourth, thanks to the oka system.[2]

[2] Recall that, although Tenhou does adopt the oka system, it is the placement, not the scores, that determines the points you earn or lose. In this sense, EMA games are actually more similar to Tenhou games than to standard games. Since there is no oka in EMA games, the reward for coming in first is much smaller than that in standard games.

To easily find out how many points you earn / lose for each place in a given type of game for your rank, mouseover the 予約 button in each cell on the left-hand side of the main page. Then, you will see something like the picture above on the right-hand side of the main page. Under the second bullet point, we see that, for this player's rank (五段), the point reward is: +75 for first place, +30 for second place, 0 points for third place, and -105 for fourth place.



When you earn enough points for promotion in a game, a new rank is awarded after the game. A certificate message like the picture to the right of this text will pop up after the game.



Since you never get negative points in games until you reach 2 級 and there is no demotion until you reach 初段 (first `dan`), it should be relatively easy to reach 初段. In fact, even without studying the contents of this book, you can perhaps reach as high as 四段 (fourth `dan`) if you play a few hundred games or so. However, moving further up will probably require that you study basic strategies and tile efficiency theories.

2.1.2 Rate (R)

In addition to the `kyu / dan` rank, `Tenhou` gives each player another rating called R. The initial value of R is 1500, and higher-rank players tend to have a higher R. For example, the average R among

the 天鳳位 players is 2248.

While `kyu / dan` rank remains relatively stable, R can change after each game. R is calculated based on your placement in a game, but it also depends on the average R of the players you play with. A change in R after a game, ΔR, is calculated with the following formula:

$$\Delta R = (P + \bar{R}) \times G$$

where

- P is based on your placement in the game: + 30 for first, +10 for second, -10 for third, and -30 for fourth;
- $\bar{R}$ is an adjustment that reflects how strong your opponents are, calculated as (Average R in the game $-$ your R) / 40; and
- G is an adjustment based on n, the number of games you have played before. If $n \leq 400$, G is equal to $1 - 0.002 \times n$. If $n > 400$, G is set equal to 0.2.

R initially fluctuates a lot, as the scaling factor G is very close to 1 until you play many games. R may go up or down by 30 or so for each of the first 100 games or so. As you play more games, however, the fluctuation gets smaller and smaller as G approaches to 0.2.

Notice what the adjustment $\bar{R}$ does. This factor is positive when you play against players who are "stronger" than you (i.e., have a higher R than you) while it is negative when you play against players who are "weaker" than you. Therefore, when you win against stronger players, your reward will be bigger than when winning against weaker players. Likewise, when you lose against weaker players, your punishment will be severer than when losing against stronger

players. Because of these features, one might say that your R better reflects your skill levels than your `kyu / dan` rank.

2.2 Four rooms

As we have seen, there are four different rooms where ranking matches are played. Qualifications to play in each room are based on your rank and R.

1. 一般 **(`ippan`; lower-level room)**

This is the only room where you can play initially. Players with an R higher than 1800 and a rank higher than 四段 are not allowed to play here, however. Games in this room can sometimes be a bit random, even chaotic at times. Some of the players in this room probably do not understand the rules very well. You very rarely come across strong players here.

2. 上級 **(`joukyu`; upper-level room)**

You can play here if (1) your rank is 1 級 or higher or (2) you buy a two-month membership (¥ 1080 = € 8 = £ 6).[3] Players with an R higher than 2000 and a rank higher than 七段 are not allowed to play in this room, however.

Games in the `joukyu` room are more reasonable than those in the lower-level room, but you still see many players who do not defend at all, do meaningless `dama` / unreasonable riichi, and make serious mistakes in maximizing tile efficiency. In my impression, games at EMA tournaments most resemble games in the `ippan` and `joukyu` rooms.

[3] If you want to pay for the membership, click on the link that appears when you click the 上級 sub-tab. Keep in mind that you need to buy 60 days' worth of membership. Choose "60 日分を購入 (1080 円)" in the payment page.

3. 特上 **(**tokujou**; advanced room)**

Requirements to play in this room are pretty demanding. You have to have a 四段 or higher rank and a 1800 or higher R. The latter requirement is particularly difficult to satisfy for intermediate players. As I wrote above, achieving the rank of 四段 is not that difficult, but satisfying the R $\geq$ 1800 condition requires that you take mahjong rather seriously. Since weak players are shut out from the tokujou room, games in tokujou are qualitatively different from those in the joukyu and ippan rooms. Games in this room feel similar to those you'd experience at regular フリー (furii) mahjong parlors in Japan.

4. 鳳凰 **(**houou**; phoenix room)**

This is the highest-level room in Tenhou. In order to play in this room, you have to have all of the following: (1) a 七段 or higher rank, (2) a 2000 or higher R, and (3) a paid membership (¥ 540 yen = € 4 = £ 3 per month). Satisfying the first two conditions can be really, really challenging.

This is arguably one of the highest-level mahjong locales in the whole world. It is not uncommon for you to come across a houou-level player at a regular mahjong parlor in Japan. However, you usually play against at most one houou-level player at a table, and the two other players at the table are either tokujou- or joukyu-level players. What is remarkable about games in the houou room is that you will be surrounded by three other houou-level players. It would be safe to say that no other public mahjong locale in the world — whether it is online or offline — could offer a comparable experience.[4]

[4] Perhaps the highest-level leagues in professional mahjong associations in Japan have players who are of comparable quality, but you have to become a professional player to play at such leagues. Even after becoming a professional, you will need at least a few years to reach the highest league.

2.3 Reading the statistics

After you play 30 games or so, you may want to start paying attention to the statistics shown on the right-hand side of the main page.[5] The upper half of the player statistics shows your statistics for the entire period, whereas the bottom half shows your statistics in the present month for a given type of game in a given room.

2.3.1 Overall statistics

The picture below show my old player statistics (upper half) back from when I had a 二段 rank. Let me explain how to read these statistics.

Below a player name is the expiration date of my premium membership (17 November, 2015). When I started playing `Tenhou` on 17 September, 2015, I bought a 60-day membership so I can play in the `joukyu` room. If you have just created a `Tenhou` account, the expiration date will be shown as today's or tomorrow's date, since we are given a 1-day premium membership when we open an account.[6] After a day or two, it will turn into "—-/–/–" meaning that you do not have a premium membership.

[5] There is really no point in reading too much into the statistics when you have played only a few games; the sample size is too small to be meaningful.

[6] You need to have a premium membership to use `Tenhou`'s Windows client.

The box below the expiration date that reads 全期間 / 段位戦 4 人打ち indicates that the statistics below are for the entire period (not just this month) and for 4-player games (not 3-player games). Below that, we see that I had a 二段 rank, 565 points (the initial 400 points plus 165 points earned after I became 二段) out of the 800 points I need for promotion, and an R of 1987.

Three columns below these display my statistics. The first column shows my placement rates. I had come in first place 50% of the games, second place 32.5%, third place 7.5%, fourth place 10 %, and gone bankrupt 7.5% of the games. Ideally, you'd want your first place rate to be greater than your second place rate, your second place rate greater than your third place rate, etc.

The middle column provides the following information. First, 対戦数 shows the number of games you have played. At this point, I had played 40 games. Second, 平均得点 shows the average score (with `oka` and `uma`) from all the games I have played. As I said before, this does not influence your R nor rank. Third, 平均順位 shows the average placement. If you have obtained each of the four places equally, the average placement would be 2.5 $\left(\frac{1n+2n+3n+4n}{4n} = 2.5\right)$. Therefore, any values below 2.5 indicate that you are, on average, winning more than losing. The two rows that follow (shown in light gray) are relevant only if you play games in private rooms. Since I have only played ranking matches, they are left blank.

The third column shows my statistics based on hand-level performance. First, 和了率 (`houra` rate; `agari` rate; win rate) is the number of hands you have won divided by the total number of hands you have played in all games.[7]

[7] The denominator includes hands where no one won.

Second, 放銃率 (houjuu rate; deal-in rate) is the number of times you have fed the winning tile to an opponent's hand divided by the total number of hands you have played. You would want this rate to be lower, but keep in mind that (1) sometimes you would be better off dealing into an opponent's hand to secure your placement, and (2) sometimes you need to discard dangerous tiles (which would increase your deal-in rate, on average) in order to increase the chance of winning your hand (which would increase your win rate, on average). The rule-of-thumb is that the difference between your win rate and deal-in rate (win rate - deal-in rate) should be at least 10 percentage points. That is, if you have a high deal-in rate, you need your win rate to be higher. Likewise, if you have a low deal-in rate, it is OK to have a lower win rate as well.

Third, 副露率 (fuuro rate; call rate) is the number of hands where you have called chii / pon / kan divided by the total number of hands you have played. Finally, 立直率 (riichi rate) is the number of riichi calls you made divided by the number of hands you have played.

The ranking page on Tenhou[8] has a table that summarizes the average values of these statistics among players with different ranks (under the heading that reads 段位戦４人打ち平均戦績). You may want to compare your statistics with the average values among players who share your rank or those who have higher ranks than you do. Figure 2.1 summarizes the average values of hand-level performance statistics for players in different ranks.

We can see some interesting patterns here. The left-hand side panel compares average win rates (和了率) and deal-in rates (放銃

[8] https://bit.ly/2HOAF7V

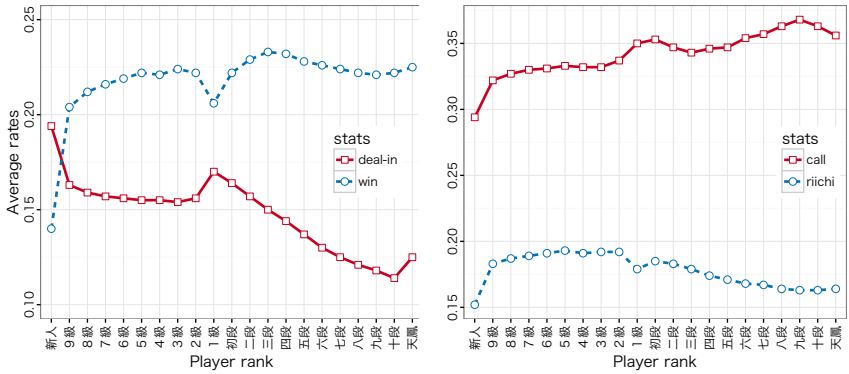


Figure 2.1: Average hand-performance statistics

Note: These graphs show the hand-performance statistics reported in a table on the ranking page (https://bit.ly/2HOAF7V) as of 20 December, 2015.

率) for different ranks. Notice that the average win rate is relatively constant across different ranks; once you pass the 新人 rank, it stays around 20-22 %.

On the other hand, the average deal-in rate is steadily decreasing after players move from the kyu ranks into the dan ranks. It is around 15% for almost all kyu rank players (except for 新人 and 1 級), but it keeps going lower and lower as players rise in the dan rank. The fact that high-dan players have lower deal-in rates on average is remarkable, considering that they are facing stronger opponents than low-dan players do. This pattern signifies the importance of defensive skills.

Another interesting thing to notice on the left-hand side panel is that the average scores deteriorate once you move from 2 級 to 1 級 (i.e., average win rate gets lower, and average deal-in rate gets higher).

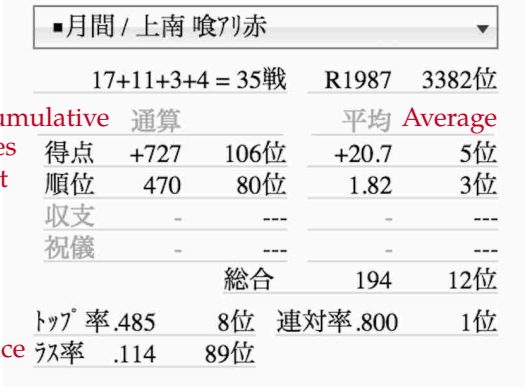
I can think of two reasons for why this happens. First, 1 級 is where most players start playing in the joukyu (upper-level) room,

where average player skills are much higher than those in the ippan (lower-level) room. If a player who belongs to the lower-level room plays in the upper-level room, their performance will necessarily go down, making it look that 1 級 players are worse than 2 級 players even if they are not. Second, if you keep losing as a 初段 (first dan) player, you get demoted to 1 級 but you will never be demoted to 2 級. This means that 1 級 players might actually be worse than 2 級 players, on average.

The right-hand side panel shows the average call rates (副露率) and riichi rates (立直率) for different ranks. The former is increasing as rank goes up, while the latter is decreasing, but the changes are rather gradual for both rates.

2.3.2 Monthly statistics

The bottom-right part of the main page shows monthly statistics from games you have played in a given room. The box is a pull-down menu that lets you choose the room (一般, 上級, 特上, 鳳凰) and game type (East-only, East–South, with or without open tanyao, red fives, etc.). In the example below, the box reads 月間 / 上南 喰アリ赤, which means the following: 月間 means monthly, 上 is short for 上級 (joukyu)[9], 喰アリ赤 means with open tanyao and red fives.



Below the box, you see the raw placement scores. In this example, 17+11+3+4 = 35 戦 means that I have played 35 games this month, and I came in first place in 17 games, second place in 11 games, third place in 3 games, and fourth place in 4 games. R shown here (1987) should be the same as the R you see in the top part. 3382 位 means that R=1987 puts me in 3382th place among all the active players on Tenhou.

Two columns follow, where the left column shows the monthly cumulative values and the right column shows the monthly average values. In the first row that reads 得点 shows the monthly cumulative or average scores from 上南 喰アリ赤 games (after adding oka

[9] Likewise, 般 is short for 一般 (ippan), 特 is for 特上 (tokujou), 鳳 is for 鳳凰 (houou).

and uma). In this example, my cumulative score is 727 from the 35 games I played, which puts me in 106th place among players who have played 30 or more 上南 喰アリ赤 games this month. Similarly, my average score is 20.7 (= 727/35), which puts me in 5th place. Your placement for average scores will not be shown unless you have played 30 or more games of a given type in a given room in a given month.

In the second row that reads 順位 shows cumulative or average placement from games. The cumulative placement is based on placement values (+30, +10, −10, or −30), whereas the average placement is based on raw placement (1, 2, 3, or 4). The 総合 (total) score is the sum of four placements: cumulative 得点, cumulative 順位, average 得点, and average 順位. In this example, I earn 106th, 80th, 5th, and 3th places for these scores, so my total score is 106+80+5+3 = 194 (the lower, the better), which puts me in 12th place among all the players who have played 30 or more 上南 喰アリ赤 games this month. At the bottom, you see トップ率 (first place rate), ラス率 (fourth place rate), and 連対率 (first or second place rate) for 上南 喰アリ赤 games this month.

2.4 Viewing games

2.4.1 Game replay (牌譜)

Tenhou keeps the record of all the games played there, giving each game a unique URL. You can easily take a look at any of the last 40 games you have played on the 牌譜 (haifu; game record) tab on the main page. Click on any of the 牌譜 link shown in the 牌譜 tab to start a replay of the game. You can choose to view the game from any of the four players' viewpoint, not to show the hands of the other three players, or to go back and forth between turns / hands, etc. When

we play mahjong, we often wonder what the opponents are doing (e.g., what are their waits? are they doing honitsu?, etc.). You can find out the answers to these questions after the game by taking a look at the game record.

If you would like to have someone take a look at a particular game you played to ask for their opinions, you need to find the unique URL assigned to the game you want to show. You can find out the URLs of the last 40 games by going to the 牌譜の管理 menu from the メニュー pull-down on the main page. Clicking on 牌譜の管理 will open a new pop-up screen.

You can choose to open a game replay in the current window (このウィンドウで開く), in a new pop-up window (新しいポップアップで開く), or in a new window (新しいウィンドウで開く) from the pull-down menu above. Once you are happy with your choice, click on one of the 再生 (replay) link next to the game you want replayed. You will be taken to a page that looks like the one you saw after clicking on the Play button on the top page of Tenhou. You can now find out the URL assigned to the game in the URL field of your browser.

To start a replay, click on a link that reads » Flash 版牌譜ビューアで開く shown at the bottom of the page. Clicking on the HTML+JS 版牌譜ビューアで開く link will also work, but this one is the low-quality picture version with limited options.

2.4.2 Spectating games (観戦)

You can watch games played in the 特上 (`tokujou`; advanced) and the 鳳凰 (`houou`; phoenix) rooms quasi-real time (with a five-minute delay). Click on the 観戦 (`kansen`; spectating) tab from the main page and you will see the list of games you can watch. Click on one of the player name links to start spectating the game from the chosen player's viewpoint.

Part II

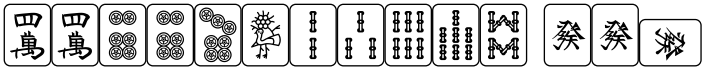
Basic Tile Efficiency

Chapter 3
Riichi mahjong basics

3.1 Learning strategies

Mahjong is a game of skill and luck. There is a set of strategy principles you can learn to improve your skills, but acquiring skills is neither necessary nor sufficient to win a game. On the contrary, with luck, an unskilled player can easily defeat strong players in mahjong. At least in the short run, game outcomes are governed more by luck than by skills.[1] However, learning strategy principles is crucial to improve your performance in the long run. Moreover, you will be able to enjoy the game in greater depth once you understand these principles.

Because of the probabilistic nature of the game, making the best choice does not always lead to the best outcome. The best choices are those that lead to the best outcome, *on average*. An evaluation of our choices thus requires a *probabilistic* (i.e., statistical) assessment of different options. For example, consider the following hand.



What would you discard?

This hand becomes ready to win if you discard  or  . Let's compare the two choices.

[1] An interesting question would be: how short is the "short" run here. That is, how many games do we need in order to discern a strong player from weak players? Studies show that we would need at least 100 games or so to have a reliable estimate of our skill levels. Given that EMA tournaments usually have only 8 games, winning at these tournaments requires quite a bit of luck.

- Discard  ⇒ you wait for   (2 kinds–8 tiles)
- Discard  ⇒ you wait for   (2 kinds–4 tiles)

Which discard choice is better? Although both of the two choices yield a 2-way wait, waiting for   is much better than waiting for   , probabilistically speaking. With the   wait, there are four tiles of  and another four tiles of  to win on, leaving at most eight winning tiles.[2] With the   wait, on the other hand, you have already used up two tiles of  and two tiles of  yourself, leaving at most four winning tiles. It is clearly better to choose the   wait over the   wait, because that will give you a higher probability of winning this hand.

It is possible that, after you decided on the   wait, your opponents end up not discarding  or  at all, while discarding lots of   . This is the kind of things that will happen often in mahjong (or in any game of luck, for that matter). When things like this happen, do not think that you made a bad call; you didn't. You made the right choice, but you were just unlucky. When we experience this kind of bad luck, we just need to keep calm and carry on.

Before discussing a practical method of maximizing tile efficiency in the next chapter, I will discuss some basic principles of tile efficiency in this chapter. In doing so, I introduce several key terms we use in later chapters. I will also provide the original Japanese term for each (shown in `this font`). I do so because you may find these Japanese terms used in some online strategy discussions in English.

[2] Of course, the number of winning tiles could be smaller than eight if some of them have already been discarded.

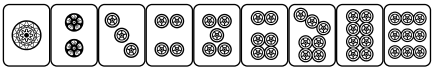
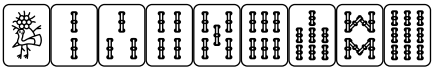
3.2 Basic building blocks

3.2.1 Tiles

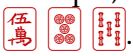
Mahjong tiles can be classified into two categories — number tiles and honor tiles.

Number tiles

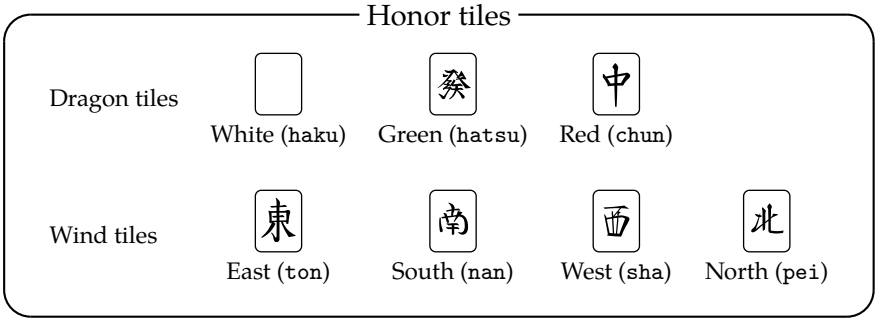
Number tiles

Cracks (characters)	Manzu	
Dots (circles)	Pinzu	
Bamboos	Souzu	

We further classify number tiles into **simples** (`tanyao hai`; tiles between 2 and 8) and **terminals** (1 and 9). They are differentiated because they serve different `yaku` and generate different minipoints (`fu`).

It has become quite common to include some red five tiles. For example, most games on `Tenhou` have one red five tile in each suit,  . These tiles are included in place of regular fives; we have three regular fives and one red five in each suit. Red fives are treated as `dora` regardless of the `dora` indicator. When a 4 in a given suit is the `dora` indicator, the red five in that suit will be a double `dora` tile.

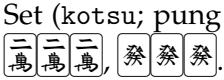
Honor tiles



Some honor tiles are **value tiles** (`fanpai / yakuhai`); we get one `han` if we collect three identical value tiles. All dragon tiles are value tiles regardless of the round and seating. On the other hand, the value status of wind tiles depends on the round and the seating. East tiles are value tiles for everyone during the East round, and South tiles are value tiles for everyone during the South round. In addition, each player gets their own seating wind as a value tile. For example, West tiles are value tiles only for the West player, but they are valueless wind tiles (`otakaze`) for other players.

3.2.2 Group (mentsu)

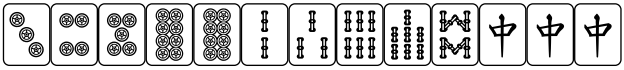
One of the major goals in playing mahjong is to win a hand.[3] To win a standard hand, we need to complete four groups (mentsu) and one head (atama; final pair).[4] Groups can be classified into two kinds — **run** and **set**.[5]

- Run (shuntsu; chow / sequence) is a set of three consecutive number tiles: e.g.,  .
- Set (kotsu; pung / triplet) is a set of three identical tiles: e.g.,  .[6]

3.2.3 Ready and n-away

We say a hand is **ready** (tenpai) when the hand can be complete with one more tile. For example, the following hand is ready.

Ready hand



This hand becomes complete with either  or  . We say that this hand waits for   .

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[3] Another important goal is not to deal into an opponent's hand. See Chapter 8 for discussions of defense strategies. However, the most important goal of all is to win a game. Winning a hand and playing defense are merely two means to this end. See Chapter 10 for more discussions of this.

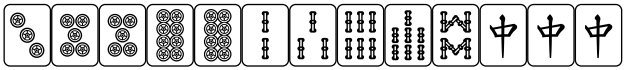
[4] There are three exceptions to this; chiitoitsu (Seven Pairs), kokushi musou (Thirteen Orphans), and nagashi mangan (All Terminals and Honors Discard) do not require four groups and one head.

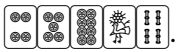
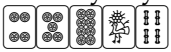
[5] EMA rules refer to run as "chow" and set as "pung." I realize that my use of different terminology here might be confusing at first, but I hope you will get used to it soon.

[6] Technically speaking, there is a third type of groups, namely quad (kantsu; kong), a set of four identical tiles. We treat quads as a variant of sets. See Section 9.3 for discussions on this.

We say a hand is **1-away from ready** (1-`shanten`) when the hand can become ready with one more tile. For example, the following hand is 1-away from ready.

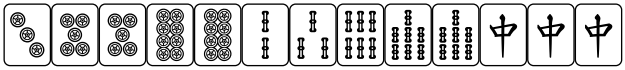
1-away hand

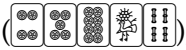
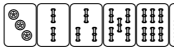


This hand becomes ready if you draw any of  . We say this hand accepts  (5 kinds–16 tiles) as any of them can make this hand advance from 1-away to ready. **Tile acceptance** (`ukeire`) refers to the kinds and the number of tiles a hand can accept. Other things being equal, having a 1-away hand with greater tile acceptance is better than having one with smaller tile acceptance.

More generally, we say a hand is n-away from ready (n-`shanten`) when the hand can be ready with n more steps. For example, the following hand is 2-away from ready.

2-away hand



This hand accepts all the tiles that the 1-away hand above accepts (), plus seven additional kinds of tiles  .[7] The hand will become 1-away if any of these tiles gets drawn.

A hand can also be 3-away, 4-away, 5-away, or 6-away from ready.[8] In practice, however, there is not much point in distinguishing 3-away hands from 4-away (or worse) hands. You thus need to be able

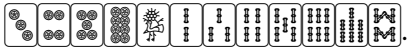
[7]  will make this hand 1-away for `chiitoitsu` (Seven Pairs).

[8] 6-away happens when a hand has no pair, in which case it takes 6 more tiles to make it ready for `chiitoitsu`.

to distinguish between four kinds of hands — ready hands, 1-away hands, 2-away hands, and 3-away or worse hands.

Tile acceptance shrinkage

As n gets smaller and the hand gets closer to completion, the kinds and the number of tiles it can accept will necessarily get smaller. Consider the three stages of a hand we have seen above.

- When 2-away, it accepts:  .
- When 1-away, it accepts:  .
- When ready, it waits for:  .

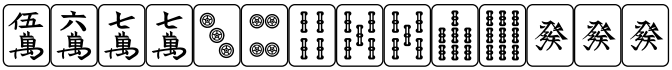
Tile acceptance is minimized when the hand is ready. Note also that it is *virtually* minimized when it is 1-away. This is because with a ready hand you can utilize not only the tiles you draw but also the tiles discarded by others to complete the hand. With n-away hands, however, you have to rely (almost) solely on the tiles you draw yourself to advance your hand.[9] Therefore, in choosing a discard from a 2-away hand, we should try not to make for a 1-away hand with too small tile acceptance.

Advancing your hand

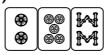
To win a hand, we need to advance our hand by reducing the n of an n-away hand until it is ready. When a hand is 2-away, we should aim to make the hand 1-away. When a hand is 1-away, we should aim to make the hand ready. For example, consider the following hand.

[9] Melding (calling `pon` / `chii`) is not always possible. For example, the 2-away hand above can accept  if you draw one, but you can neither `pon` nor `chii` .

2-away vs. 1-away



What would you discard?

Discarding  makes the hand 2-away, whereas discarding either  or  makes the hand 1-away. You should thus discard  or  to make the hand 1-away. Reverting a 1-away hand to 2-away makes sense only in some exceptional cases where tile acceptance at 1-away becomes unbearably small (i.e., fewer than 2 kinds). With this hand, the hand will be able to accept  (3 kinds–12 tiles) when it becomes 1-away.

3.2.4 Protoruns (`taatsu`)

Of the two kinds of groups, it is easier to complete a run than to complete a set. There are only four identical tiles, and completing a set requires that you collect three out of the four identical tiles. Therefore, we usually prioritize runs over sets in advancing a hand.

A pair of tiles that can become a run with one more tile is called a **protorun** (`taatsu`). There are three types of protoruns, summarized in Table 3.1.

Table 3.1: Types of protoruns

Name	Japanese	Example	Wait	Acceptance
side wait	`ryanmen`			2 kinds–8 tiles
closed wait	`kanchan`			1 kind–4 tiles
edge wait	`penchan`			1 kind–4 tiles

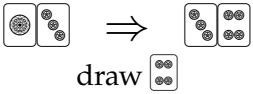
As we can see in the table, a **side-wait** (`ryanmen`) protorun can

accept twice as many tiles as a **closed-wait** (`kanchan`) protorun or an **edge-wait** (`penchan`) protorun can. Therefore, building side-wait protoruns is the key to advancing a hand. Winning tiles of side-wait protoruns are often denoted with a hyphen in the middle, such as  .

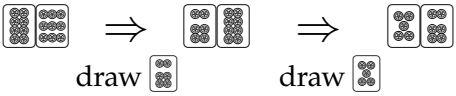
Closed wait vs. edge wait

There is no difference in the kinds and the number of tiles accepted by closed-wait and edge-wait protoruns; they both accept 1 kind–4 tiles. However, closed-wait protoruns are superior to edge-wait ones because they can more easily evolve into a side-wait protorun.

A closed-wait protorun can evolve into a side-wait protorun in just one step. For example, a protorun  can become a side-wait one if you draw  and discard  .



On the other hand, it requires two steps for an edge-wait protorun to evolve into a side-wait protorun. For example, a protorun  can become a side-wait one if you draw  first and then  .



Value ranking of protoruns

side wait > closed wait > edge wait

Tile versatility

Some tiles are more versatile than others. For example, number tiles are more versatile than honor tiles because honor tiles can never form a run. Moreover, we can rank order the versatility of number tiles based on the types of protoruns they can form.

Number tiles between 3 and 7 are the most versatile. This is because each of them can form a protorun with four kinds of number tiles. For example,  can form a protorun with  ,  ,  , and  . Two out of the four resulting protoruns will be side wait.

2 and 8 are less versatile. They can form a protorun with only three kinds of number tiles. For example,  can form a protorun with  ,  , and  . Only one out of the three resulting protoruns is side wait.

Terminals (1 and 9) are the least versatile. They can form a protorun with only two kinds of tiles. For example,  can form a protorun only with  and  . Neither of the two resulting protoruns is side wait.

Versatility ranking of tiles

3–7 tiles > 2, 8 tiles > 1, 9 tiles > honor tiles

Applying the same logic, we can also rank order the versatility of closed-wait protoruns. For example, a closed-wait protorun  can become a side-wait one only if we draw  . Likewise, a closed-wait protorun  can become a side-wait one only if we draw  . However, a closed-wait protorun  can become a side-wait one if we draw  or  . Clearly,  is more versatile than  or  .

Versatility ranking of closed-wait protoruns

35, 46, 57 > 13, 24, 68, 79

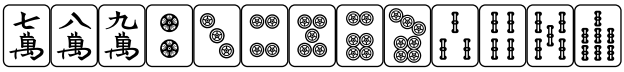
3.2.5 Pairs (`toitsu`)

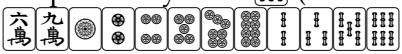
A set of two identical tiles is called a **pair** (`toitsu`). Pairs can perform several different roles. A pair can be the head (final pair) of a hand, a protoset (a candidate for a set), or a component of `chiitoitsu` (Seven Pairs).

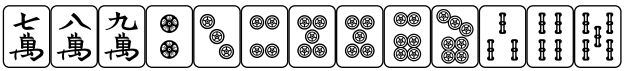
Building the head

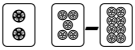
Any hand — including Thirteen Orphans and Seven Pairs — requires the head to be complete. Since building the head is much easier than building a group, we usually don't worry too much about the head. For example, consider the following hand.

Hand with no head



This hand currently lacks the head and the wait is not very good. The hand is complete only with  (1 kind–3 tiles). However, if we draw any of  (12 kinds–41 tiles), the wait will be significantly improved. For example, if we draw  and discard  , the hand becomes:



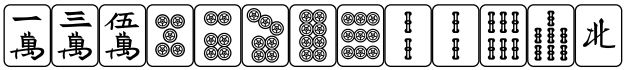
This hand is now waiting for  (3 kinds–9 tiles). When a

hand is missing the head, it is often the case that the wait gets significantly improved quite easily.

3.2.6 Pairs and sets

Another important role a pair can play is to work as a candidate for a set. Especially when a hand has two pairs, we can count on one of the two pairs to become the head while the other becomes a set. In other words, the value of pairs is maximized when there are two (and only two) pairs in a hand. Let's see why this is the case by comparing hands with one, two, and three pairs.

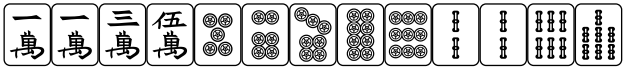
1. Hand with one pair



This 2-away hand has one pair:  . This pair is not very useful as a candidate for a set for two reasons. First, if we draw another  , we will complete a set but then we will lose the head at the same time. The hand will still be 2-away from ready after all. Second, the probability of drawing another  is not very high because there are only two tiles left.

What if a hand has two pairs? Suppose we drew  and discarded  , as follows.

2. Hand with two pairs

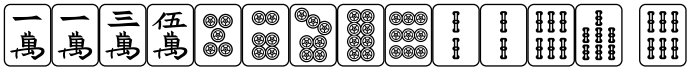


This hand is also 2-away, but it has two pairs:  and  . Each of these pairs is now functioning as an effective candidate for a set. Whenever one pair becomes a set, the other pair becomes the head. Drawing  or  will advance this hand from 2-away to 1-away.

Moreover, whereas the hand with one pair was able to accept two tiles of 1m, the hand with two pairs can accept four tiles (two of 1m and two of 1m). The probability of drawing any one of four tiles is obviously higher than the probability of drawing any one of two tiles. In general, for each additional pair in a hand, tile acceptance increases by two.

What if a hand has three pairs? Suppose we draw 1m, as follows.

3. Hand with three pairs



Draw

If we keep the second 1m and discard the 1m or the 5m, the hand has three pairs. However, keeping three pairs in a hand is inefficient. Recall that each additional pair increases tile acceptance by two tiles. In this case, keeping a pair of 1m means that the hand can accept two additional tiles of 1m. However, doing so comes with a cost. Keeping three pairs by discarding the 1m means the hand can no longer accept 1m 1m (2 kinds–8 tiles). The net tile acceptance gain will be negative ($2 - 8 = -6$). Similarly, keeping three pairs by discarding the 5m means the hand can no longer accept 4m (4 tiles). Therefore, discarding a 1m to maintain two pairs is the most efficient.

What we have seen so far is generalizable beyond the current examples. As long as we intend to keep the hand closed (i.e., not calling `pon` or `chii`), we should avoid having three pairs in a hand. Having three pairs makes for the weakest form, whereas having two pairs makes for the strongest form.[10]

[10] What if there are four or more pairs? Whenever a hand has four pairs, it is 2-away from ready for `chiitoitsu` (Seven Pairs). It may be faster to pursue `chiitoitsu` than pursuing a standard hand in such cases.

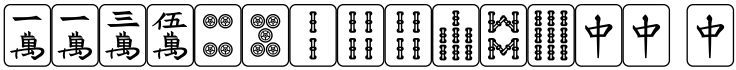
Value of pairs: closed hand

2 pairs > 1 pair, 4 pairs > 3 pairs

Open hand

There is an important caveat to the above rule. When we intend to call pon, having three pairs is actually better than having two pairs. This is because the hand will become a two-pair hand after we call pon once. For example, consider the following hand.

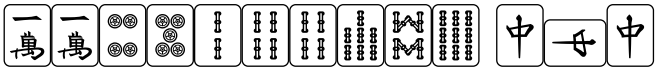
Two pairs vs. three pairs

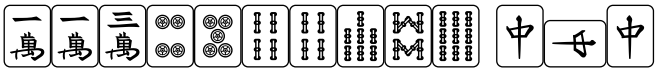


Dora

What would you discard?

We would definitely intend to call pon on 中. Anticipating that, we should discard 伍萬 to keep three pairs in this case rather than discarding 一萬 to have two pairs. After calling pon on 中, we will have a choice between discarding 三萬 or 1索.





In either case, the hand will have two pairs after calling pon.

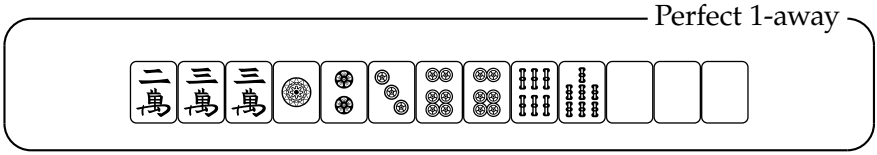
Value of pairs: open hand

3 pairs > 2 pairs

3.2.7 Perfect n-away

Perfect 1-away

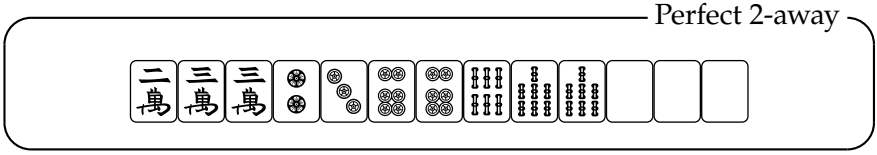
When a 1-away hand has two side-wait protoruns and two pairs, it is called **perfect 1-away**.



The hand above is an example of perfect 1-away. It is called "perfect" because this hand can become ready either by calling `chii`, calling `pon`, or drawing a tile to complete a run or a set, and no matter how a hand becomes ready, you will *always* have the option to choose side wait as the final wait.

Perfect 2-away

One step prior to achieving perfect 1-away, we may get a perfect 2-away hand. Perfect 2-away is made up with three side-wait protoruns and three pairs, as follows.

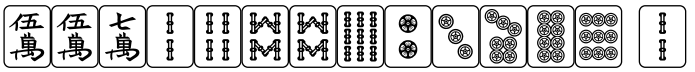


When a perfect 2-away hand becomes 1-away, it can always be perfect 1-away (unless you choose not to, for some reason). However, not all perfect 1-away hands evolve from a perfect 2-away hand.

3.2.8 Putting things all together: an example

Let's see some hand examples that illustrate how we can apply the tile efficiency logics we have learned so far. Consider the following 2-away hand.

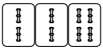
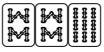
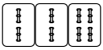
Advancing a hand 1



Draw

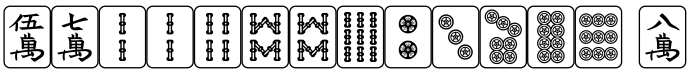
What would you discard?

The hand now has three pairs, and we should avoid it. In order to reduce the number of pairs in this hand from three to two, our discard candidates should be  ,  , or  . Which one should we choose?

Recall that a closed-wait protorun of 57 is stronger than a closed-wait protorun of 24 or an edge-wait protorun of 89. Therefore, it is OK to cut down the  shape to by discarding . This is because  can become a side-wait protorun relatively easily. On the other hand, the  shape and the  shape are both weak; the first can become a side-wait protorun only if we draw  , and the second one will never become a side-wait protorun in one step. Therefore, both  and  should be kept as a candidate for the head or a group rather than making them into weak closed-wait protoruns.

Let's say we discard  , and then we draw  , resulting in the following hand.

Advancing a hand 2



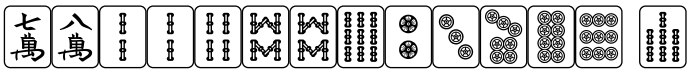
Draw

What would you discard?

Now that we have a side-wait protorun 七萬 八萬, we should discard 伍萬.

Let's say we draw 1索, resulting in the following hand.

Advancing a hand 3



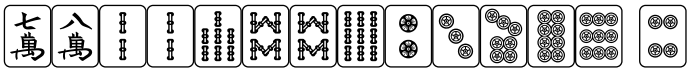
Draw

What would you discard?

This hand is now 1-away from ready, and our discard choice is between 1索 and 4萬. Both tiles are equally useless from our perspective, and so we will eventually discard them both. The question is which one we should discard first. Recall that a 4 is more versatile than an 8. This means that 1索 in this hand may later become dangerous for the opponents; we should thus discard 1索 now rather than later.

Let's say we draw 2筒 after that, resulting in the following hand.

Advancing a hand 4



Draw

What would you discard?

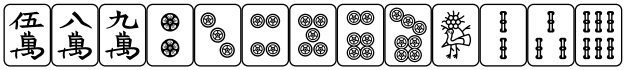
The hand is now ready. We should discard 4萬 and call riichi. If we win on 九萬, we can claim riichi, `pinfu`, and `sanshoku` (Mixed Triple Chow), giving us 7700 points.[11]

[11] We will discuss scoring and `yaku` more extensively in later chapters.

3.3 Complex shapes

The three basic types of tile blocks we have covered so far — groups (runs and sets), protoruns (side wait, closed wait, and edge wait), and pairs — form the basis of any standard mahjong hands.[12] When a hand has some tiles that do not constitute any of these three shapes, we treat them as **floating tiles**. For example,  and  in the following hand are both floating tiles.

Hand with floating tiles



In addition to these basic blocks, we often come across complex shapes that are made up of two or more groups, protoruns, pairs, and floating tiles combined. It is useful to comprehend such complex shapes as they are rather than breaking them up into smaller parts. We will discuss three-tile complex shapes and four-tile complex shapes in turn.

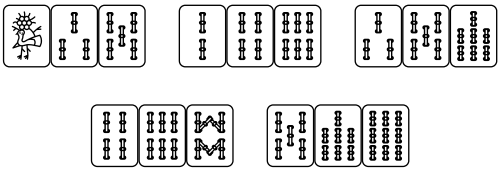
3.3.1 Three-tile complex shapes

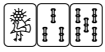
There are two kinds of three-tile complex shapes — double closed shape and protorun plus one shape.

[12] Standard hands are those with four groups and one head. Non-standard hands are `chiitoitsu` (Seven Pairs) and `kokushi musou` (Thirteen Orphans).

Double closed (`ryankan`*) shape*

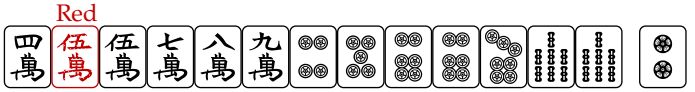
When two closed-wait protoruns are combined, we have a **double closed** (`ryankan`) shape. There are five different patterns in each suit, as follows.



Each shape accepts as many as 2 kinds–8 tiles. For example,  accepts  (4 tiles) and  (4 tiles). This is twice as many as the number of tiles an isolated closed-wait protorun can accept.

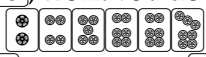
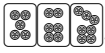
Sometimes a double closed shape is embedded within a tile block, making it difficult to detect it. For example, consider the following 1-away hand.

Hand with a double closed shape



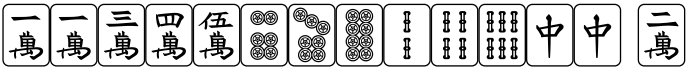
What would you discard?

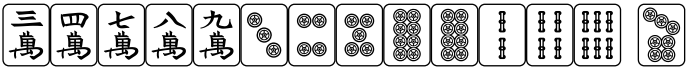
Before drawing  , the hand was already in a very good shape. It was perfect 1-away, accepting any of  (6 kinds–19 tiles). The question is whether we should keep  and discard  instead.

Notice that, if we keep  , we have a double closed shape  . This is because the block  can be split into  and  . If we keep  and discard  , the hand is still 1-away from ready, accepting  (5 kinds–19 tiles). The benefit of discarding  to keep the double closed shape is that the hand can

always be pinfu when it is ready. On the other hand, discarding 8p means that the hand may become a yaku-less hand when drawing 5m or 1s.

Double closed shapes are particularly useful when a hand is relatively far from ready (2-away or worse). As a hand advances, however, its usefulness diminishes because this block requires three (not two) tiles even though it is not a complete group. Moreover, it will ultimately become a single closed-wait protorun when this block remains incomplete when the hand is ready. Therefore, we should not rely too much on a double closed shape. For example, consider the following two hands.





Both hands are 1-away from ready and both contain a double closed shape in souzu (bamboos) tiles. Maintaining the double closed shape in these cases will not be ideal. It is true that, if the hand becomes ready by drawing 1s or 4s first, each of the hands makes for a good-wait ready hand. However, if the first hand becomes ready by calling pon on C or the second hand becomes ready by drawing 2m or 5m first, they only make for a closed-wait ready hand.

Therefore, when we draw a tile next to the head, creating a side-wait protorun, we should keep it and break the double closed shape instead. In the first example above, as we draw 2m that creates a side-wait protorun 4m5m, we should keep it and discard the 1s instead.

In the second example above, as we draw  that creates a side-wait protorun  , we should keep it and discard  instead.

Protorun plus one shape

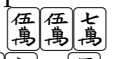
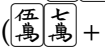
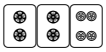
As we saw with the first example in Section 3.2.8, we often come across a tile combination such as  that is made up with one protorun plus one floating tile ().[13] Depending on the type of protoruns, we can classify protorun plus one shapes into three types, as summarized in Table 3.2.

Table 3.2: Types of protorun plus one shapes

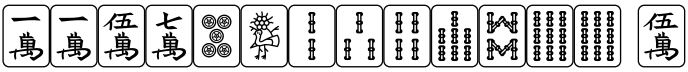
Name	Example	Wait	Acceptance
side wait +1			3 kinds–10 tiles
closed wait +1			2 kinds–6 tiles
edge wait +1			2 kinds–6 tiles

A protorun plus one can accept two additional tiles that an isolated protorun cannot. This is because these blocks can now be a candidate for a set as well as for a run.

Breaking a protorun plus one can be inefficient. For example, if we break a closed wait plus one shape into an isolated pair (i.e., discard  from ), the tile acceptance decreases from 6 to 2; it can accept only  (1 kind–2 tiles). Similarly, if we break it into an isolated protorun (i.e., discard  from ), the tile acceptance decreases from 6 to 4; it can accept only  (1 kind–4 tiles). With this in mind, consider the following hand.

[13] Alternatively, we can think of these combinations as a pair plus one  .

Protorun plus one



Draw

What would you discard?

Discarding 伍萬 or 七萬 to break the protorun plus one 伍萬伍萬七萬 is inefficient here. Discarding 伍萬 decreases tile acceptance by two, and discarding 七萬 decreases tile acceptance by four. Moreover, discarding 七萬 leaves three pairs in this hand, which should be avoided. Discarding 1索 is much more efficient.

Sometimes we have to make a choice between multiple protorun plus one shapes, just like we did in examples in Section 3.2.8. Consider the following hand. What would you discard?

Multiple protoruns plus one

What would you discard?

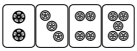
There are two protorun plus one shapes in this hand: 四萬四萬六萬 and 3筒4筒5筒. We have to break one of the two into either an isolated Pair or an isolated protorun, because the other parts of this hand are more or less self-sufficient. Which one should we choose?

When choosing between which protoruns plus one to break, priority should be given to the weaker one. Since the side-wait protorun 3筒4筒 is much stronger than the closed-wait protorun 四萬六萬, we should prioritize the latter and maintain 四萬四萬六萬. In other words, the side-wait protorun 3筒4筒 is so strong that we do not need to provide a cover by maintaining the "plus one" tile, 5筒. On the other hand, the closed-wait protorun 四萬六萬 is weaker so we should cover it by keeping another 四萬 as a back-up. You should thus discard 5筒.

3.3.2 Four-tile complex shapes

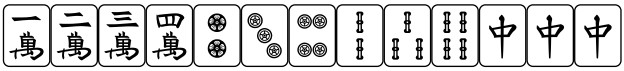
Among several different kinds of four-tile complex shapes, we will focus on those that are made up of one group and one floating tile. There are three variants of this kind — stretched single, bulging float, and skipping.

Stretched single (`nobetan`*) shape*

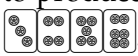
A set of four consecutive tiles such as  is called a **stretched single** (`nobetan`) shape. Stretched single shapes are very useful both when a hand is ready and when a hand is 1-away or worse.

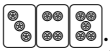
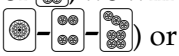
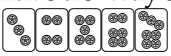
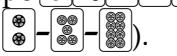
When a stretched single shape is in a ready hand, that part forms the wait of the hand. For example, the following hand is ready, waiting for  .

Ready hand with a stretched single shape



In a ready hand, the stretched single shape can be thought of as a candidate for the head (or) and a candidate for a run (or). For example, if we win this hand on , then becomes the head, and becomes a run. On the other hand, if we win this hand on , then becomes the head, and becomes a run.

Another important role that a stretched single shape can play is to work as a candidate for two runs. When a hand is 1-away or worse, we can count on a stretched single shape to produce two runs. For example, consider a stretched single shape  . If we draw , we will have a side-wait protorun in addition to a complete run

 . Similarly, if we draw  , we will have a side-wait protorun  in addition to a complete run  . Moreover, if we draw  or  , we will have a 3-way side-wait shape  (waiting for ) or  (waiting for ).

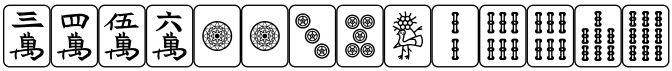
There are six patterns of stretched single shapes, from 1234 through 6789. Table 3.3 summarizes the tiles each shape can accept to produce various waits.

Table 3.3: Types of stretched single shapes

Shape	3-way	2-way	1-way	Pair	Acceptance
一萬 二萬 三萬 四萬		三萬 伍萬	二萬 六萬	一萬 四萬	6 kinds–20 tiles
二萬 三萬 四萬 伍萬	六萬	一萬 三萬 四萬	七萬	二萬 伍萬	7 kinds–24 tiles
三萬 四萬 伍萬 六萬	二萬 七萬	四萬 伍萬	一萬 八萬	三萬 六萬	8 kinds–28 tiles
四萬 伍萬 六萬 七萬	三萬 八萬	伍萬 六萬	二萬 九萬	四萬 七萬	8 kinds–28 tiles
伍萬 六萬 七萬 八萬	四萬	六萬 七萬 九萬	三萬	伍萬 八萬	7 kinds–24 tiles
六萬 七萬 八萬 九萬		伍萬 七萬	四萬 八萬	六萬 九萬	6 kinds–20 tiles

As we can see, the middle two ones — 3456 and 4567 — are the most versatile. They can accept two different tiles to produce a 3-way wait (27 or 38), two different tiles to produce a 2-way side wait (45 or 56), and two different tiles to produce a 1-way wait (18 or 29 to produce a closed wait). The 3456 and 4567 shapes are the most valuable of all four-tile shapes, and we should not lightly break such shapes when a hand is far away from ready. With this in mind, consider the following 2-away hand.

2-away hand with a stretched single shape



What would you discard?

It is true that discarding 三萬 or 六萬 would lead to the greatest tile acceptance (7 kinds–24 tiles) temporarily. However, doing so is too myopic. If we do that, all the remaining protoruns will be closed-wait or edge-wait ones. We should rather discard  to keep the 3456 shape, which we can expect to produce two side-wait protoruns later. The resulting tile acceptance (6 kinds–20 tiles) is not much smaller, either.

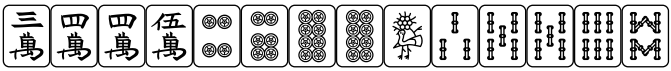
Four-tile complex shapes 1: `nobetan`

Try to keep a stretched single shape if a hand has one. In particular, 3456 and 4567 should be kept until the hand becomes ready or 1-away from ready.

Bulging float (`nakabukure`*) shape*

When we have a floating tile in the middle of a run (e.g., 三萬四萬四萬伍萬), we have a **bulging float** (`nakabukure`) shape. Bulging float shapes are quite good at producing side-wait protoruns. Any bulging float shapes from 2334 through 6778 can accept four kinds of tiles to produce a side-wait protorun and a complete run. Take 三萬四萬四萬伍萬, for example. It can produce a side-wait protorun and a complete run if we draw any of 二萬三萬伍萬六萬. With this in mind, consider the following 2-away hand.

Hand with a bulging float shape

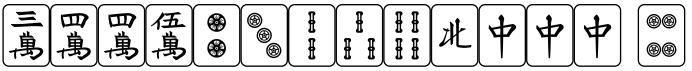


What would you discard?

Discarding 四萬 to break the bulging float shape is not ideal. Although doing so increases tile acceptance temporarily, the hand will be filled with closed-wait protoruns. Alternatively, you should discard 西 to maintain the bulging float shape.

That being said, when this shape remains as is when a hand is ready, it does not make for a good wait. For example, consider the following ready hand.

Ready hand with a bulging float shape



Draw

What would you discard?

Discarding 北 to keep the bulging float shape 三萬 四萬 四萬 伍萬 makes the wait of this hand pretty bad. It is waiting for 四萬, but we are already using two of it in the hand, leaving only two winning tiles. We should rather discard 四萬 to wait for 北.

Four-tile complex shapes 2: `nakabukure`

Try to keep a bulging float shape until a hand becomes 1-away.

Skipping shape

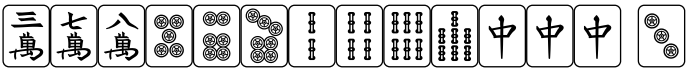
When we have a floating tile two tiles away from a run, we have a **skipping shape**. For example, in a shape 三萬伍萬六萬七萬, 三萬 is floating next next to a run 伍萬六萬七萬. 三萬 in a skipping shape is more valuable than isolated 三萬, because it increases the kinds of tiles the hand can accept to produce a protorun or a 3-way side-wait shape. Table 3.4 summarizes all the skipping shapes and the tiles each shape can accept.

Table 3.4: Types of skipping shapes

Shape	3-way	2-way	1-way	Pair	Acceptance
一萬三萬四萬伍萬		二萬	三萬 六萬	一萬	4 kinds–14 tiles
二萬四萬伍萬六萬	三萬		一萬 四萬 七萬	二萬	5 kinds–18 tiles
三萬伍萬六萬七萬	四萬	二萬	一萬 伍萬 八萬	三萬	6 kinds–22 tiles
四萬六萬七萬八萬	伍萬	三萬	二萬 六萬 九萬	四萬	6 kinds–22 tiles
伍萬七萬八萬九萬		四萬 六萬	三萬 七萬	伍萬	5 kinds–18 tiles
一萬二萬三萬伍萬		四萬 六萬	三萬 七萬	伍萬	5 kinds–18 tiles
二萬三萬四萬六萬	伍萬	七萬	一萬 八萬	六萬	6 kinds–22 tiles
三萬四萬伍萬七萬	六萬	八萬	二萬 伍萬 九萬	七萬	6 kinds–22 tiles
四萬伍萬六萬八萬	七萬		三萬 六萬 九萬	八萬	5 kinds–18 tiles
伍萬六萬七萬九萬		八萬	四萬 七萬	九萬	4 kinds–14 tiles

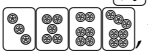
Bearing in mind that 三萬 of 三萬伍萬六萬七萬 is more valuable than isolated 三萬, consider the following hand.

Hand with a skipping shape



Draw

What would you discard?

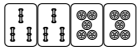
We should keep  and discard  instead. This is because  is a part of a skipping shape  , but  is an isolated floating tile.

As we can see in Table 3.4, skipping shapes with a terminal tile (1345 and 5679) are also valuable. The 1 of 1345 and the 9 of 5679 can accept more tiles than an isolated 2 or 8 (let alone than an isolated 1 or 9).

3.4 Waits

There are five basic wait patterns, as summarized in Table 3.5. More complicated wait patterns can emerge when some of these five basic patterns are combined.

Table 3.5: Five basic waits

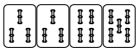
Name	Japanese	Example	Wait	Acceptance
side wait	`ryanmen`			2 kinds–8 tiles
dual pon wait	`shanpon`			2 kinds–4 tiles
closed wait	`kanchan`			1 kind–4 tiles
edge wait	`penchan`			1 kind–4 tiles
single wait	`tanki`			1 kind–3 tiles

As we can see in the table, side wait is the strongest of all the basic waits in terms of the kinds and the number of tiles to win on. Single wait appears to be much worse than others, but single-wait hands tend to have many possibilities of improving the wait and/or scores further. Moreover, single wait of an honor tile has a relatively high chance of winning it by `ron`.

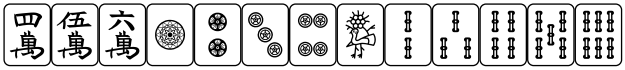
Stretched single wait and semi side wait

Table 3.6 summarizes two wait patterns, each of which can be thought of as a combination of some basic wait patterns. As I mentioned before, a stretched single shape in a ready hand forms a 2-way single wait. It is a decent wait pattern, as the number of tiles to win on (2 kinds–6 tiles) is twice as big compared with a regular single wait.

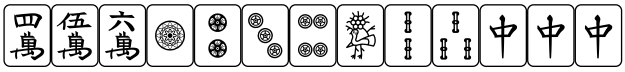
Table 3.6: Stretched single wait and semi side wait

Name	Example	Waits	Acceptance
stretched single wait			2 kinds–6 tiles
semi side wait			2 kinds–6 tiles

However, stretched single wait should not be confused with side wait for a few reasons. First, the number of tiles a 2-way stretched-single-wait hand can win on is at most 6, whereas it is 8 for a 2-way side-wait hand. The difference between 6 and 8 is non-trivial. Second, stretched single wait is still a variant of single wait, which means two things. On the one hand, we cannot claim `pinfu` when the wait is stretched-single wait. For example, the following hand has no `yaku` and hence we cannot win it by `ron` without calling riichi.



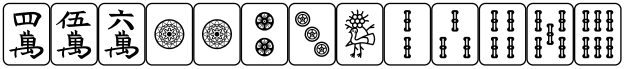
On the other hand, we get 2 minipoints (`fu`) with a stretched single wait. For example, if we win the following hand by drawing  , we get 40 minipoints (20 base minipoints + 8 for a concealed set of honor tiles + 2 for self-draw + 2 for single wait = 32, rounded up to 40).[14]

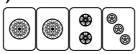


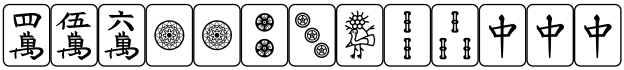
When we have a side-wait protorun right next to a pair (e.g., 1123, 2234, 7899, etc.), we call it semi side wait. We distinguish this from regular side wait for two reasons. First, the number of tiles to win on is smaller (6 rather than 8) because we are already using 2 of the

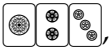
[14] We will discuss methods of scoring and minipoints calculations extensively in Chapter 6.

8 winning tiles in our hand. Second, we can treat this wait pattern either as single wait or as side wait, depending on which interpretation gives us a greater score. For example, consider the following hand.



We will treat the wait in this hand as side wait because that will give us `pinfu`. However, consider the following hand that has the exact same wait pattern:  .

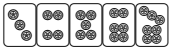
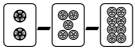
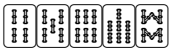
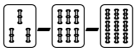


If we win this hand by drawing  , we will treat the wait as single wait:  +  , which will give us 40 minipoints. If we treated the wait as side wait:  +  , we would get only 30 minipoints. Of course, if we win this hand on  , we cannot think of the wait as side wait (because it is not). Similarly, if we win it by `ron`, it does not make a difference if it is side wait or single wait (either way we get 40 minipoints).

3-way side wait

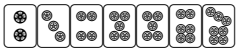
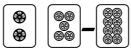
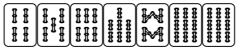
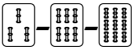
When a side-wait protorun is combined with an adjacent run, we get a regular 3-way side-wait pattern. There are only three of this kind, summarized in Table 3.7.

Table 3.7: Regular 3-way side wait

Example	Wait	Acceptance
		3 kinds–11 tiles
		3 kinds–11 tiles
		3 kinds–11 tiles

When we have a stretched single shape or semi side-wait shape combined with an adjacent run, we also get a 3-way wait pattern. Table 3.8 summarizes some examples.

Table 3.8: Some irregular 3-way waits

Example	Wait	Acceptance
		3 kinds–9 tiles
		3 kinds–9 tiles
		3 kinds–9 tiles

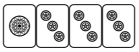
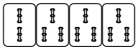
Notice that the number of tiles to win on in each pattern is smaller than those for the regular 3-way side waits, although the kinds of tiles to win on are the same (either 1-4-7, 2-5-8, or 3-6-9). This is because we are already using some of the winning tiles within the hand.

Notice also that not all the wait patterns qualify as side wait, so claiming `pinfu` is not always possible (similarly, claiming single wait is not always possible). For example, the first pattern in Table 3.8 is essentially a 3-way stretched single shape; none of the waits embedded in this shape qualifies as side wait. In the second pattern, if we win on  , the wait must be interpreted as single wait; if we win on  , the wait must be interpreted as side wait; and if we win on  , we adopt whichever interpretation that generates the higher score. In the third pattern, winning on  allows us to claim single wait if doing so gives us a higher score.

Complex waits

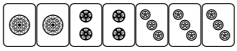
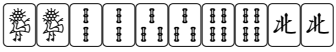
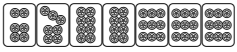
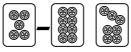
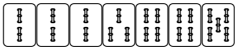
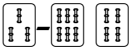
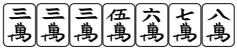
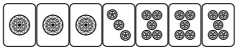
When a set is combined with a floating tile nearby, we get some complex wait patterns with multiple waits. Table 3.9 summarizes a few examples of irregular waits that involve a set and a floating tile.

Table 3.9: Some irregular waits (set and a floating tile)

Example	Combination	Wait	Acceptance
	single and edge		2 kinds–7 tiles
	single and closed		2 kinds–7 tiles
	single and side		3 kinds–11 tiles

When a set is combined with a protorun, pair, or a four-tile shape, we get even more complicated waits. Table 3.10 summarizes only a few representative examples.

Table 3.10: Some irregular waits (set and a protorun, pair, or a four-tile shape)

Example	Wait	Acceptance
		3 kinds–5 tiles
		3 kinds–5 tiles
		3 kinds–6 tiles
		3 kinds–7 tiles
		3 kinds–9 tiles
		3 kinds–9 tiles
		3 kinds–10 tiles
		3 kinds–11 tiles

3.5 Glossary

Simple tiles (`tanyao hai`) are tiles between 2 and 8.

Terminal tiles are 1 and 9.

Honor tiles (`jihai`) are non-number tiles (dragon tiles and wind tiles).

Value tiles (`fanpai` / `yakuhai`) include dragon tiles, seat wind tiles, and prevailing wind tiles. We get one `han` for a set of value tiles.

Valueless wind tiles (`otakaze hai`) are wind tiles that are neither a prevailing wind tile nor a seat wind tile.

Run (chow / sequence; `shuntsu`) is a set of three consecutive number tiles.

Set (pung / triplet; `kotsu`) is a set of three identical tiles.

Quad (kong; `kantsu`) is a set of four identical tiles.

Protorun (`taatsu`) is a set of two tiles in the same suit that can become a run when one more tile is added.

Pair (`toitsu`) is a set of two identical tiles.

Ready (`tenpai`) is when a hand is ready to win.

1-away (`1-shanten`) is when a hand can be ready with one more tile.

Perfect 1-away is when a 1-away hand has two side-wait protoruns and two pairs.

Tile acceptance (`ukeire`) refers to the kinds and the number of tiles a hand can accept.

Stretched single (`nobetan`) shape is a set of four consecutive number tiles.

Bulging float (`nakabukure`) shape is a four-tile shape that is made up with a run and one floating tile in the middle of the run.

Skipping shape is a four-tile shape made up with a run and one floating tile located at two tiles away from the run.

Chapter 4
The five-block method

In introducing basic building blocks of riichi mahjong in the previous chapter, I have also touched upon a number of important tile efficiency principles — e.g., superiority of side-wait protoruns, the value of having two pairs in a hand rather than three, and the value of stretched single or bulging float shapes, to name a few.

These principles are all important, but trying to take all of the important principles into consideration at once could be a daunting task. We have to make our discard choice in a limited amount of time,[1] and tile efficiency is not the only factor we need to consider in making a discard choice. Moreover, some of the tile efficiency principles can at times clash with one another, requiring us to make a judgement call about which principle to follow. For example, we may at times wonder whether to retain a bulging float shape or to retain two pairs in a hand, when we have to discard one of the two.

The **five-block method** I introduce in this chapter will help us prioritize between competing principles and find the most efficient discard choice quickly.[2] The core idea of the five-block method is deceptively simple; we first identify five tile blocks in a hand — four groups + one head, or their candidates — and try to complete each block.

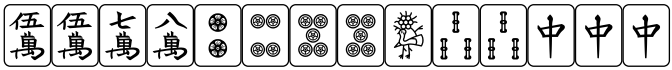
---

1 Recall that, on regular (slower) tables on `Tenhou`, each discard choice must be made within 5 seconds. In offline games, we should make choices even faster so as not to irritate your fellow players.

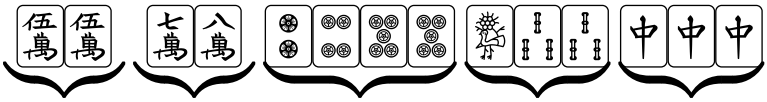
2 As I mentioned in the Preface, the exposition of this chapter is based on Makoto Fukuchi's books. In particular, I am indebted to Makoto Fukuchi 2015 *Haikouritsu Nyumon Doriru 76*, Yousensha. ISBN978-4-8003-0634-0.

4.1 Finding a redundant tile

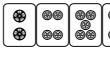
We all understand that a standard hand must have five blocks of tiles — four groups and one head — to win. The five-block method encourages us to be always conscious about five tile blocks in a hand. Consider the following hand. What would you discard and why?



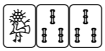
To figure out which tile is the least useful in this hand, let's divide the hand into tile blocks, as follows.

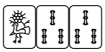
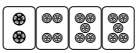
 (4.1)

Notice that, although we do not know which block is going to be the head and which blocks are going to be four groups at the moment, the hand already has five tile blocks. This means that there is no need to increase or decrease the number of blocks from here.

Looking at each of the five blocks, the pair of  , the protorun  , and the set of  are all self-sufficient; we keep them as they are. Our discard choice should thus be from the third or the fourth blocks,  or  . Let's now compare these two closed-wait blocks. While  is being useful within the block it belongs to, enabling the hand to accept  ,  is completely redundant; the hand can accept  without having  . Therefore, the ideal discard here is  .

There are two key points to remember in applying the five-block method. First, we should not make any one of the five blocks "too

weak."[3] In the current example, if we discard  , the  block becomes an isolated closed-wait protorun, which is too weak compared with the other blocks. Likewise, if we discard  , this block becomes a pair of  . Since this hand already has two other pairs, having a third pair makes all the pairs in the hand too weak.

Second, each of the five tile blocks should ideally have three tiles. In the current example, the  block has exactly three tiles and so we should not choose a discard from this block. On the other hand, the  block currently has four tiles so we should discard one from this block to make this a three-tile block.

Five-block method

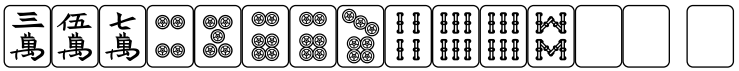
Identify five tile blocks in a hand. Try to make sure:

(1) there is no block that is too weak; and

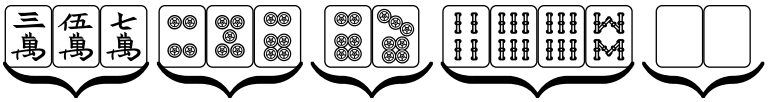
(2) each block has at most three tiles.

[3] Basically, any block that is weaker than a side-wait protorun is a weak block.

Let's see another example.



We can easily see that there is one block in `manzu` (cracks), two blocks in `pinzu` (dots), and a pair of white dragons, giving us four blocks. This means that we need to have only one more block in `souzu` (bamboos). Therefore, we divide the hand as follows.



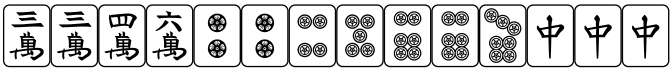
(4.2)

Since we should not create a block that is too weak, discarding 三萬 or 七萬 is not an option. Notice that the block in `souzu` (bamboos) has four tiles. We should thus discard one from this block. In case the pair of white dragon later becomes a set, we should keep the pair of 四索, leaving 二索 or 白 as a discard candidate. Given that 二索 has a higher chance of creating a side-wait protorun, we should discard 白. Then, none of the five blocks is too weak, and each block has at most three tiles.

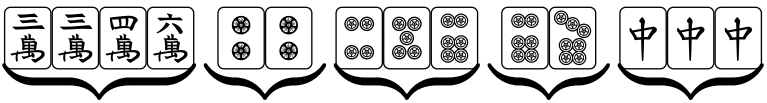
In the two examples we saw above, you might have been able to identify the redundant tiles without really thinking too hard. If so, that was probably because you have implicitly and unconsciously applied the five-block method in your mind. The goal of this chapter is to train our mind further, so that it becomes our second nature to identify five tile blocks in a hand.

4.2 Alternative configurations

Consider the following hand. What would you discard and why?



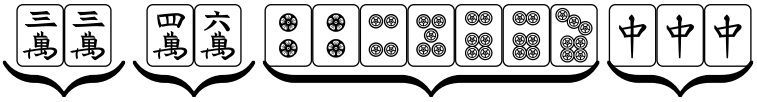
Let's first divide the hand into five tile blocks.



(4.3)

This makes it clearer that, just like the previous example, 六萬 is creating a redundant closed-wait protorun, so we should discard it. Also, discarding 六萬 makes this a three-tile block.

However, there is an alternative way to divide this hand into five blocks, and situational changes may call for such an alternative configuration. Suppose that your opponents have already discarded all four tiles of 二萬. Suppose also that 9p seems live in the wall. Or, suppose 三萬–六萬 tiles seem too dangerous to discard against an opponent. Then, we might want to divide the hand in the following way instead.



(4.4)

2

That is, we aim to make the pair of 三萬 the head of this hand, and we seek to have two runs in pinzu (dots). If we discard 8p, this block becomes  . Recall that a block like this can be split into

 (recall the discussion of double closed shape in Section 3.3.1). Therefore, this block can accept  as well as  to make two runs in `pinzu`. The block in `pinzu` will have six tiles, but this is OK because this block is worth two.

To master the five-block method, we need to be able to instantaneously envision the first block configuration (4.3) the moment we see this hand. However, that is not enough. We should also be able to imagine an alternative configuration (4.4) at the same time. In the game of mahjong, situations change very quickly each time a new tile gets drawn or a new tile gets discarded. Therefore, the ideal five-block configuration would also change accordingly as situations evolve. We thus need to develop our skills to picture many possible five-block configurations and to prepare for possible situational changes that would call for a change in the configuration.

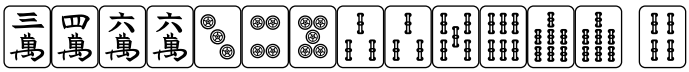
I provide several exercises in the following pages. The answer key to each exercise is provided on the next page. Try not to look at the answers before you actually derive your own answer.

Exercises: finding a redundant tile

Exercise 1

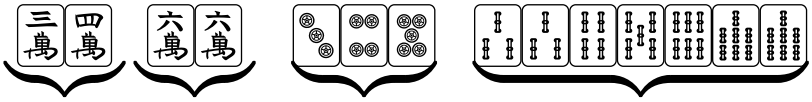
What would you discard?

How do you divide the hand into tile blocks?



Draw

Answer 1



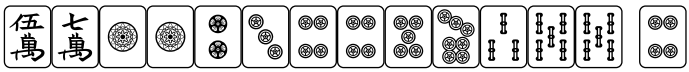
2

With the draw of 2s, we now have a 3-way side-wait block in souzu (bamboos). 1s or 3s could be our back-up candidate for the head, in case we draw another 六萬. Since there is sanshoku (Mixed Triple Chow) of 345, we discard 2s.

Exercise 2

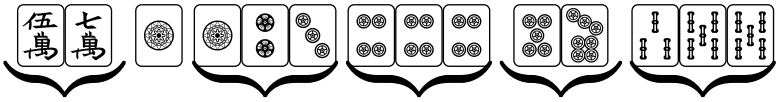
What would you discard?

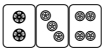
How do you divide the hand into tile blocks?



Draw

Answer 2

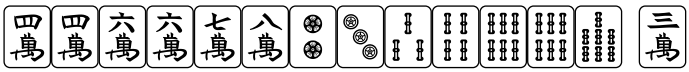


Before we drew the third  , the `pinzu` (dots) tiles were  +  +  , so the  was simply a floating tile. Now that we have another  , the five-block configuration changes accordingly. The ideal discard is  , as this has become redundant.

Exercise 3

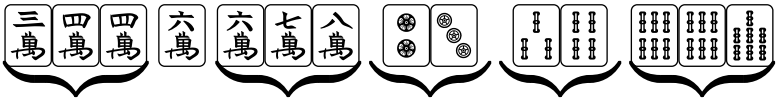
What would you discard?

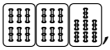
How do you divide the hand into tile blocks?



Draw

Answer 3

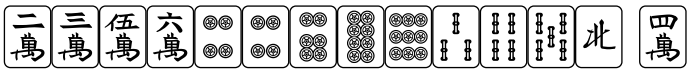


There are two "side wait plus one" shapes,  and  , that might later become the head or a run. At this point, however, we cannot determine which one will be which, so we should keep them as they are. One of the two  has become an obvious redundancy so we should discard one.

Exercise 4

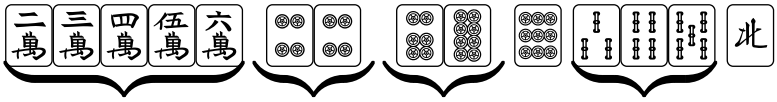
What would you discard?

How do you divide the hand into tile blocks?



Draw

Answer 4



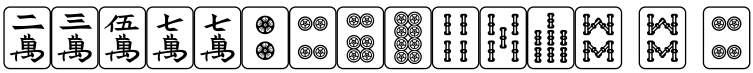
2

The 北 is obviously redundant, but 🀙 is also useless. Without 🀙, the hand can accept 🀘. Since honor tiles can be used as a safety tile (see Chapter 8), we discard 🀙 first.

Exercise 5

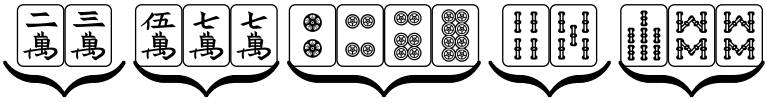
What would you discard?

How do you divide the hand into tile blocks?



Draw Dora

Answer 5

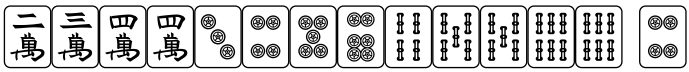


This is a bit difficult, as there are so many closed-wait protoruns. Recall that each tile block should have at most three tiles and that pairs are most valuable when there are two of them in a hand. The block in `pinzu` (dots) has four tiles, so we discard one from this block. Since  is `dora`, we discard  , leaving the double closed shape around `dora`:  .

Exercise 6

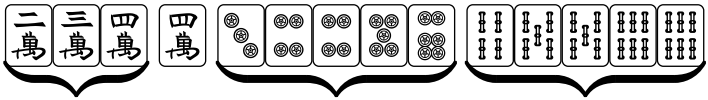
What would you discard?

How do you divide the hand into tile blocks?



Draw

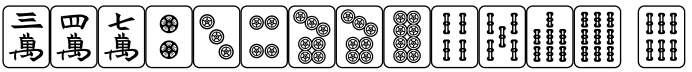
Answer 6



Finding the best discard by actually comparing tile acceptance counts for each possible discard candidate is super tedious. The five-block method simplifies the process quite a bit. Since we have two blocks in `pinzu` (dots) and two blocks in `souzu` (bamboos), we only need one block in `manzu` (cracks), hence one  is redundant. If we discard  , the hand can be made ready with 11 kinds–34 tiles. If we discard   or  , the hand can be ready only with 6 kinds–19 tiles.

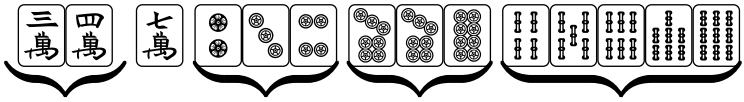
Exercise 7

What would you discard?



Draw

Answer 7



2

Do not discard the 2 just because it forms a closed wait or because discarding it gets us `tanyao` (All Simples). Avoiding closed wait too much and being hung up on `tanyao` are two pathologies common among intermediate players.

The block in `souzu` (bamboos) is actually not too bad; this is a stretched single plus one, which can become either two runs immediately (if we draw W), one run plus one side-wait protorun (if we draw any of 3 4 5), or one run plus the head (if we draw 3 or 5). Note also that we need both 7 and 8, because this part may become the head if we get two runs in `souzu` (bamboos); when we get the head in `souzu` (bamboos), we will treat this part as a side-wait protorun. We thus discard 七萬.

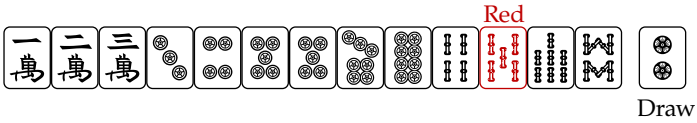
4.3 Selecting tile blocks

All the hands we have seen so far in this chapter already have five tile blocks. In practice, however, this is not always the case. A hand can sometimes have fewer or more tile blocks. Since we need to have exactly five blocks to win a hand, we will need to bump up tile blocks by using a floating tile when we have fewer of them or to discard some blocks entirely when we have a plethora of them.

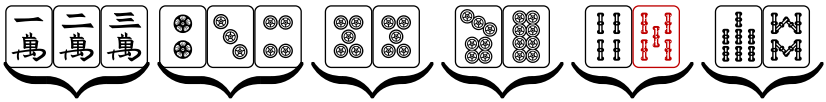
In selecting which tile blocks to keep and which ones to discard, we focus on a combination of the following three criteria:

1. tile efficiency;
2. hand value;
3. the safety of tiles to be discarded.

As we will see below, we can sometimes find a block to discard based on all the three criteria. Consider the following hand. How do we divide the hand into tile blocks, and what would you discard?



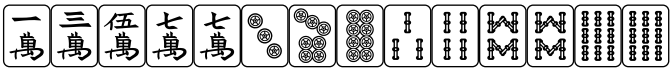
We can see that the hand currently has six tile blocks, as follows.



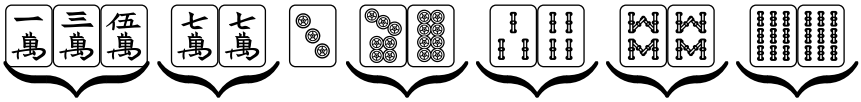
Since the first two tile blocks are already complete and the third block is the head, our discard choice should be from the last three tile blocks,  ,  , or  .

From a perspective of tile efficiency, discarding the  block means that we lose the ability to accept *both*  and  . On the other hand, if we discard the  block, we only lose the ability to accept  ; because of the  block, we can still accept  . We should thus choose between the two blocks in `souzu` (bamboos). Keeping the  is desirable from a perspective of hand value (it is a red five) as well as safety (discarding  is much safer than discarding  , generally speaking). Therefore, the three criteria collectively suggest that we should discard  .

In practice, however, satisfying all three criteria may not be feasible. A common tradeoff we face is between speed and hand value. That is, maximizing tile efficiency to gain speed often entails giving up possibilities of pursuing an expensive hand. Consider the following hand.



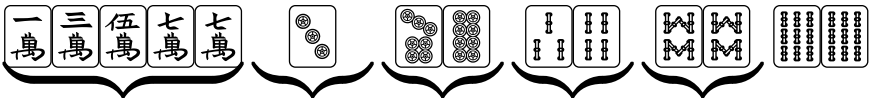
Let's divide the hand into tile blocks. There are several ways to do this. One way to do this is to split it into the following blocks.



If we simply maximize tile efficiency, we discard  , as we already have six tile blocks and we won't need any more floating tile.

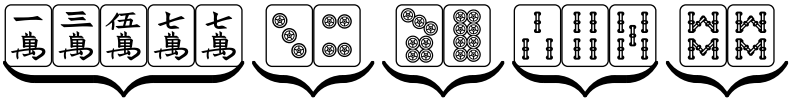
However, as it stands, the hand has no `yaku` and it is likely to be a very cheap riichi-only hand. Moreover, the hand has three pairs, which is not ideal as we saw in the previous chapter. Therefore, we

might want to split the hand into the following five blocks.



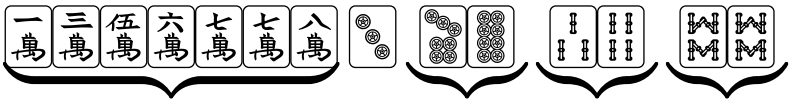
We count the floating  as an independent block, hoping it to grow into a run. We also treat the tiles in `manzu` (cracks) as a single block, hoping to get at least one group or the head out of it. We thus discard one  now, then another  in the next turn. Depending on what tile gets drawn, our five-block configuration will be different.

For example, suppose we draw  and then  . We will then have the following.



We will discard the  as a first step toward reducing the number of tiles in the `manzu` (cracks) block to three. We can now see that this hand has a potential of getting `sanshoku` of 345 as well as `pinfu` and `tanyao`.

On the other hand, if we draw  and then  , we can expect to have two groups in `manzu` (cracks) so we will discard  .



2

In selecting tile blocks, we should try to achieve the best balance between speed and hand value. Don't fantasize too much about getting an expensive hand. At the same time, don't fixate too much

about tile efficiency at the cost of hand value. This is of course easier said than done; it is quite difficult even for advanced players.

Exercises: selecting tile blocks

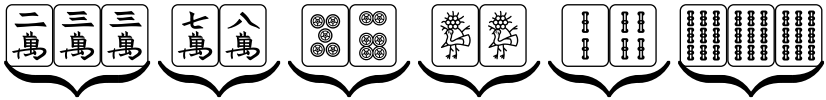
Exercise 8

What would you discard?

How do you divide the hand into tile blocks?

Draw

Answer 8

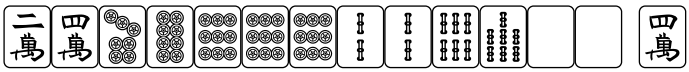


The hand currently has six blocks so we need to get rid of one. The  block is the weakest – it is the only closed-wait protorun – so we should get rid of this one. We should discard  first; if we draw  we will discard  to leave the possibility of `pinfu`. If not, we discard  next, and then  .

Exercise 9

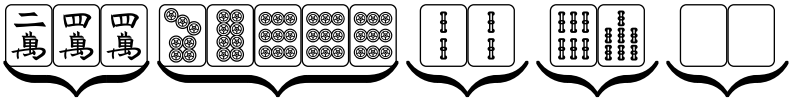
What would you discard?

How do you divide the hand into tile blocks?



Draw

Answer 9



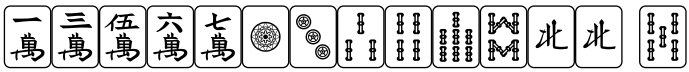
2

We were planning to discard the  block because this was the weakest block among the six blocks in this hand. However, now that we drew another  , the  block is now the weakest. We thus discard  .

Exercise 10

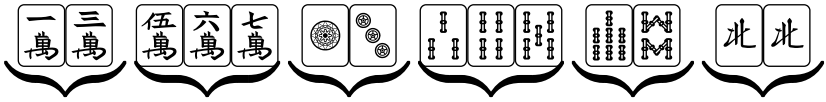
What would you discard?

How do you divide the hand into tile blocks?



Draw

Answer 10



The hand currently has six blocks so we need to get rid of one. Comparing the two closed-wait blocks 一萬 三萬 and , the 一萬 三萬 block is more valuable because it is adjacent to a run. If we draw 四萬, we will get a 3-way side-wait block. On the other hand, the block will only become a 2-way side-wait block when we draw . We should discard first, not , because if we draw next, we will discard the 一萬 三萬 block.

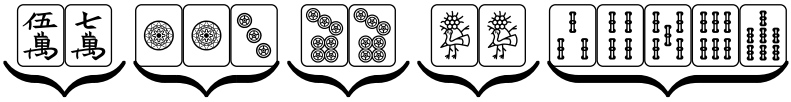
Exercise 11

What would you discard?

How do you divide the hand into tile blocks?

Draw

Answer 11

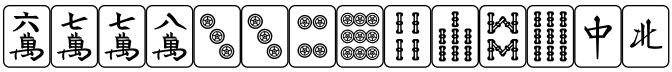


2

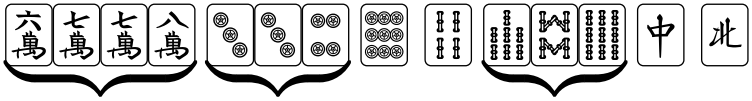
Now that we have a 3-way side-wait block in souzu (bamboos), we should get rid of one block. Comparing a closed-wait block  and two pairs  and  , we should value the closed-wait block. This is because the hand has three pairs already so we should get rid of one of them. Since we see a (remote) possibility of sanshoku of 567, we should discard  .

4.4 Building a block

When a hand has fewer than five blocks, we need to build a new block, possibly from a floating tile we already have in the hand. In doing so, we should envision the kind of yaku that the hand is going to have eventually. Consider the following hand. Suppose you are the dealer and this is East-1. What would you discard?



As usual, we will split the hand into blocks. Notice that the hand has at most four blocks only.



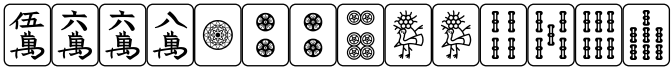
2

We should thus compare the four floating tiles  in terms

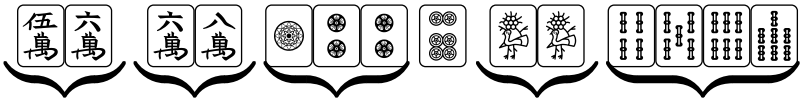
of their relative capabilities to grow into an independent block. Of these four tiles, 3m is the strongest candidate, because it can form a side-wait protorun with two kinds of tiles, 2m and 4m. Any simple tiles between 3 and 7 are a strong floating tile because of their ability to form a side-wait protorun. Terminals (1 and 9) will never become a side-wait protorun, and 2 and 8 can become a side-wait protorun when paired with only one kind of tiles (3 or 7). However, number tiles are still stronger than honor tiles because honor tiles can never form a run.

We should thus choose between the two honor tiles, 中 and 北. Which one should we discard? Notice that this hand is clearly a `pinfu` hand and that it is currently lacking the head. Since value tiles can never be the head of a `pinfu` hand, we should discard 中 rather than 北.

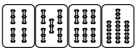
We may want to choose a discard from an existing block rather than discarding a floating tile in order to enhance the hand value. Consider the following hand.

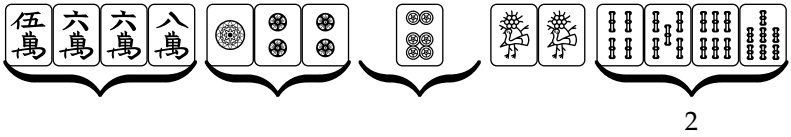


From a pure perspective of tile efficiency, the discard choice should be either 3m 4m or 3p, for discarding either of the three will maximize tile acceptance. The block configuration behind such a decision is as follows.



However, doing so makes it almost inevitable that the hand ends up having a low score and/or a bad wait. Alternatively, we can expect

the stretched single shape  to produce two runs,  to form a run, and the tiles in `manzu` (cracks) to produce one run, as follows.



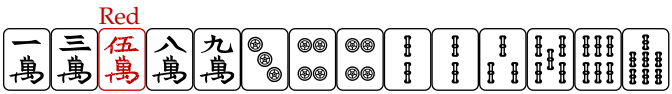
We should thus discard the  for now, anticipating to discard the pair of  eventually. That way, we can expect to have `tanyao`, `pinfu`, and possibly `sanshoku`.

Exercises: building a block

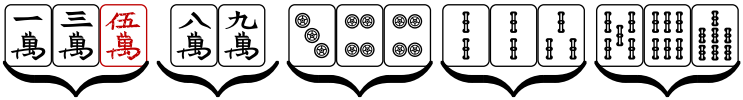
Exercise 12

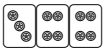
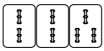
What would you discard?

How do you divide the hand into tile blocks?



Answer 12

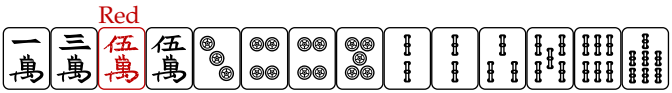


If we were to simply maximize tile acceptance, the discard choice should be either  or  . However, that would make the block in `manzu` (cracks) too weak. Breaking the  or  is not ideal, as these blocks are very strong. We should therefore discard the  to get rid of this edge-wait block. This will temporarily reduce the number of blocks from five to four, but we can expect to get back to five soon with this hand.

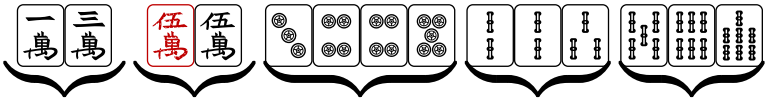
Exercise 13

What would you discard?

How do you divide the hand into tile blocks?



Answer 13



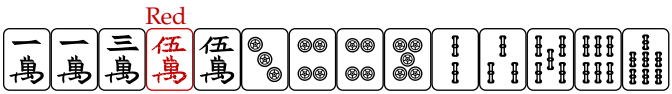
2

Discarding  or  will make this hand 1-Away, so our choice is between these two options. Notice that the  block is weaker than the other four. As a back up, we should keep two  to maintain the bulging float block in `pinzu` (dots) for now, hoping to get two runs out of it. If we draw  or  first, we will get rid of the  block. We should thus discard  . If we draw any of  , we should do insta-riichi.

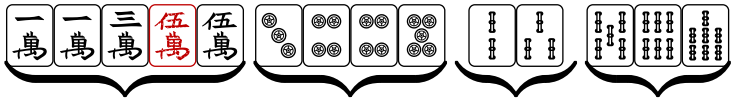
Exercise 14

What would you discard?

How do you divide the hand into tile blocks?



Answer 14



2

As we drew another 一萬, the block in `manzu` (cracks) is now a decent shape. This can become one group and the head with a draw of 一萬 三萬 四萬 伍萬. Therefore, we should discard 二筒 to break the bulging float shape.

Chapter 5
Pursuing yaku

As we saw in the previous chapter, we often face a tradeoff between speed (tile efficiency) and hand value. In modern riichi mahjong, the value of pursuing expensive yaku is much diminished because of red fives. For example, ryanpeiko (Twice Pure Double Chow) is a beautiful three-han yaku, but it is extremely difficult to make this yaku. We can achieve the same hand value more easily with riichi + dora + one red five. We thus tend to think of expensive yaku as something that emerges in a hand (almost) by chance, not something we actively pursue. Given that we can get high scores also from ippatsu, ura dora, and tsumo, getting the hand ready for riichi is generally more important than pursuing expensive yaku.

That being said, always trying to maximize tile efficiency without regard for yaku is not the best strategy, either. We should thus design a five-block configuration with an eye to possible yaku we can reasonably get. Moreover, sometimes situations call for an expensive hand. For example, when you are ranked fourth in South-4, and the player who is currently ranked third has 10000 more points than you do, you should aim for mangan tsumo or haneman ron to improve the placement (more on this in Chapter 10), which will require that your hand has some yaku other than just riichi and dora.

In this chapter, I will discuss some tips to get the following five set of yaku.

5.1 sanshoku (Mixed Triple Chow)
5.2 ittsu (Pure Straight)
5.3 pinfu (Pinfu)
5.4 honitsu (Half Flush)
5.5 toitoi (All Pungs) and chiitoitsu (Seven Pairs)

5.1 How to get sanshoku

Sanshoku (Mixed Triple Chow) is an elusive yaku. Even when we make our hand ready for sanshoku, we may lose it at the very last minute. For example, suppose we manage to get the hand ready for sanshoku of 345, and we have a side-wait protorun  as the final wait. We will get sanshoku only if we win the hand on  ; if we win on  , we will lose sanshoku.

On the other hand, it is possible to have a confirmed sanshoku, but doing so often entails a significant loss in tile efficiency. For example, if our wait were a closed-wait protorun  instead, sanshoku is confirmed; but, a closed wait of  is not very good. As long as we seek to utilize side waits to maximize tile efficiency, sanshoku becomes difficult to achieve. I will discuss the following seven methods to capture this elusive yaku.

5.1.1 Floating
5.1.2 Switching
5.1.3 Double closed shape
5.1.4 Stretched single
5.1.5 Lining pairs
5.1.6 Golden
5.1.7 Crashing a meld

5.1.1 Floating

Sanshoku 1

What would you discard?

三萬 in this hand is essentially a redundant floating tile from a pure tile efficiency perspective; we do not need it to accept 四萬. However, if we keep it and discard 北 instead, we can hope to get `sanshoku` of 345. The best case scenario is to draw 四萬 first, after which we discard 六萬.

That being said, keeping a floating tile this way is risky. What if an opponent calls riichi after we discard 北? We will have to discard either 三萬 or 六萬 against the riichi'ed player when this hand becomes ready. To make things worse, if we draw 一索 first, we will have to discard the potentially dangerous 三萬 (instead of 北) with no benefit of getting `sanshoku`.

Moreover, when we draw 一索 first, a difficult question arises. Consider the following hand.

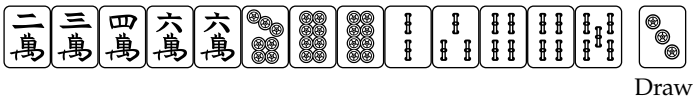
Draw

Should we discard 六萬 and have a closed-wait hand in hopes of getting `sanshoku`, or should we discard 三萬 and give up on `sanshoku` in pursuit of tile efficiency? If a hand has at least one `dora` or `tanyao` (All Simples), we should discard 三萬 to choose a side wait `pinfu` hand. Only when there is no other `yaku` or `dora` in a `pinfu` hand, it is OK to choose closed-wait `sanshoku` over side-wait `pinfu`.[1]

[1] We will talk more about a tradeoff of this kind in Chapter 7.

5.1.2 Switching

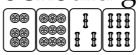
Sanshoku 2



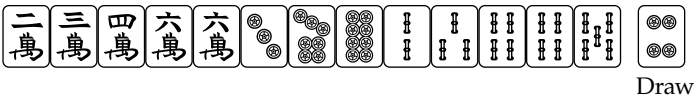
Draw

What would you discard?

The hand already has five tile blocks and all the blocks are strong; in fact, this is a perfect 1-away hand.[2] It is thus OK to discard  we just drew. After all, that is the best discard from a tile efficiency perspective.

However, if we need an expensive hand, we can keep  and discard  instead. The resulting loss in tile efficiency is not very big, as we would still have a strong 1-away hand with two side-wait protoruns:  and  . In addition,  serves as a floating tile to approach `sanshoku` of 234. Keep in mind that we should give up on `sanshoku` and do insta-riichi if we draw any of  first (unless you absolutely need `mangan` or above to improve the placement in South-4).

On the other hand, if we draw  or  first, the hand will be 1-away from ready for `sanshoku`. For example, with a draw of  , the hand becomes the following.



Draw

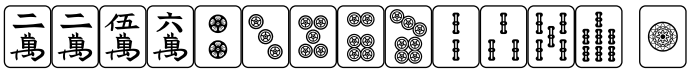
We should discard  and then  to aim for `sanshoku` of 234. We are switching from one protorun  to another protorun  to approach `sanshoku`.

[2] For the definition of perfect 1-away, see Section 3.2.7.

The key here is that we are keeping the hand 1-away throughout the entire process of switching from a perfect 1-away hand to a `sanshoku` 1-away hand. You should not pursue `sanshoku` if switching requires reverting a 1-away hand to 2-away.

5.1.3 Double closed (`ryankan`) shape

Sanshoku 3



Draw

What would you discard?

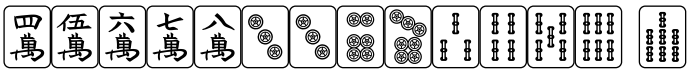
As we have two blocks in `manzu` (cracks) and another two blocks in `pinzu` (dots), we only need one block in `souzu` (bamboos). Our choice is thus between (a) keeping a side-wait protorun  to maximize tile efficiency and (b) keeping a double closed shape  in hopes of getting `sanshoku` of 567.

If the hand has at least one `dora` or some `yaku` (such as `tanyao`), we should give up `sanshoku` and discard  . Only if the hand has no other `yaku` or `dora`, it is OK to discard  to aim for `sanshoku`.

Keep in mind, though, that pursuing `sanshoku` with a hand like this is risky, even compared with the floating method we discussed in 5.1.1. We will end up with a bad-wait `yaku`-less hand if we draw  first. If we give up on `sanshoku` sooner and choose the side-wait protorun  , we can at least get `pinfu`.

5.1.4 Stretched single (nobetan) shape

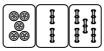
Sanshoku 4

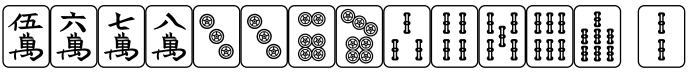


Draw

What would you discard?

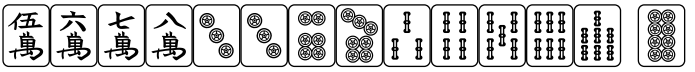
Notice that this hand has two possibilities of sanshoku, 567 or 678, and we do not know at this point which one we can get. An excellent way to aim for sanshoku with a hand like this is to discard  to have a stretched single shape  that contains both 567 and 678.

If we draw any of  first, we discard  to aim for sanshoku of 567.



Draw

If we draw  or  first, we discard  to aim for sanshoku of 678.

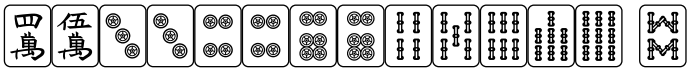


Draw

Either way, you get sanshoku without any loss of tile efficiency.

5.1.5 Lining pairs

Sanshoku 5

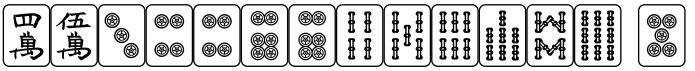


Draw

What would you discard?

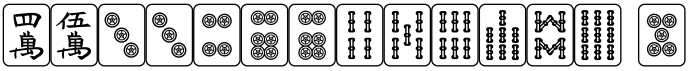
As we have one block in `manzu` (cracks) and two blocks in `souzu` (bamboos), we need to have two blocks in `pinzu` (dots). More specifically, we need the head and a group (preferably a run) in `pinzu`. We therefore view the tiles in `pinzu` not as a collection of three pairs but as a collection of one pair  and two side-wait protoruns  +  .

From a pure tile efficiency perspective, discarding  and discarding  are equally good, and they are better than any other discards. However, there is a clear difference between the two from a perspective of hand value. Suppose we discard  first. If we then draw  , we will get the following hand.



Draw

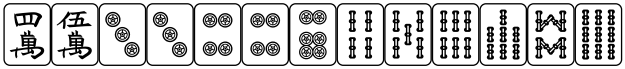
Discarding  makes this hand ready, but it is just a `pinfu`-only hand. On the other hand, suppose we had discarded  before drawing  .



Draw

We can make this hand ready for `pinfu` and `sanshoku` of 456 by discarding  .

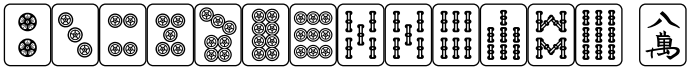
Note that pre-committing to sanshoku of 456 by discarding  before drawing  is massively inefficient. If we do that, the hand becomes a very weak hand as follows.



This hand relies too much on the possibility of drawing  first. If we draw any of  first, the hand will be a yaku-less and/or bad-wait hand.

5.1.6 Golden

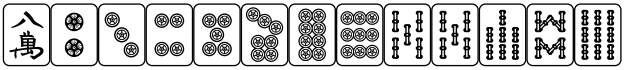
Sanshoku 6



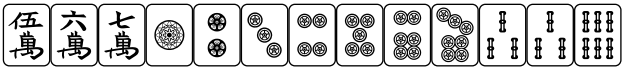
Draw

What would you discard?

If we keep  and discard , the hand becomes what is known as **golden 1-away**, as follows.

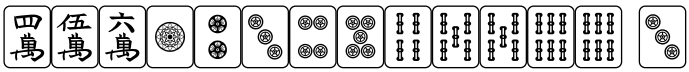


It is called "golden" because the hand is 1-away from ready for `sanshoku` *and* 1-away from ready for `ittsu` (Pure Straight), two of the most popular two-`han yaku` in riichi mahjong. Drawing  or  makes the hand ready for `ittsu`, whereas drawing  or  makes the hand ready for `sanshoku` of 789. The following are examples of golden 1-away.



5.1.7 Crashing a group

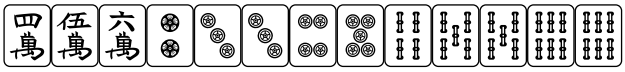
Sanshoku 7

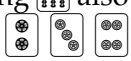


Draw

What would you discard?

Notice that the hand can be made ready for `pinfu` if we discard  . However, that gives us a `pinfu`-only hand. If we need an expensive hand, we could take a rather high-handed approach and crash an already complete run by discarding  . This might sound crazy, but look how good a 1-away hand it becomes.



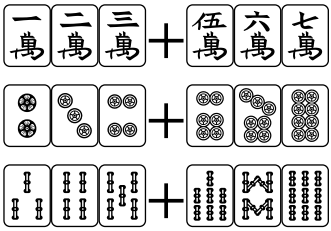
If we draw  or  , the hand becomes ready for `tanyao + pinfu + sanshoku + iipeiko` (Pure Double Chow). Drawing  also gets us `tanyao + pinfu + sanshoku`, and drawing any of  gets us at least `tanyao + pinfu`, and possibly `iipeiko` as well.

5.2 How to get ittsu

Ittsu (Pure Straight) is another popular two-han yaku. As we will see below, even when ittsu *appears* to be a possibility, it is not always worthwhile to pursue this yaku at the cost of tile efficiency. We will see several instances where pursuing ittsu is and is not worth the cost.

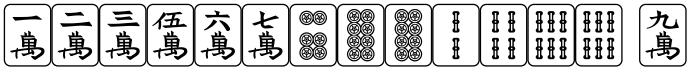
5.2.1 Two non-overlapping runs

The key to getting ittsu is to pay attention to **two non-overlapping runs** in a given suit. For example, suppose a hand has two non-overlapping runs such as the following.



Then, as soon as we draw another non-overlapping tile in the same suit, ittsu is almost around the corner. Consider the following hand.

Ittsu 1



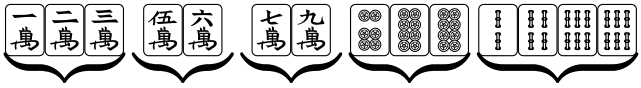
Draw

What would you discard?

From a pure tile efficiency perspective, the best discard choice is 九萬. However, doing so means giving up on ittsu and poking our way toward a bad-wait yaku-less hand. That is not a very good path to take even if we are ahead of the game in South-4 and don't need an expensive hand.[3]

[3] We would still want to have at least one yaku in a hand so that we can win it

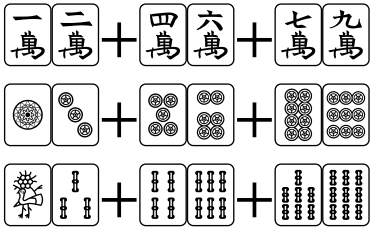
We should rather treat  as a treasure; we now have a realistic possibility of getting ittsu. Let's apply the five-block method to figure out an alternative discard.



We are hoping to get three blocks in manzu (cracks) to have ittsu, so we need one block in pinzu (dots) and another block in souzu (bamboos). Recall the principle that each block should have at most three tiles, which suggests we discard one tile from the block in souzu (bamboos). The choice now boils down to discarding  or  . Recall also that the value of pairs is maximized when there are two pairs in a hand. We should thus discard  .

5.2.2 Six-tile block with intervals

Consider different six-tile configurations where we have a chunk of six tiles with a few intervals among them. For example, consider the following six-tile blocks.



We do see ittsu on the horizon with each of these tile chunks, but aiming for ittsu with these blocks is not very realistic. Take the first six-tile block in manzu (cracks), for example. Even when we draw  , we would want to discard  to have a double closed shape 

without calling riichi.

and a run 七萬 八萬 九萬 rather than trying too hard to pursue `ittsu`. With this in mind, consider the following hand.

Ittsu 2

Draw

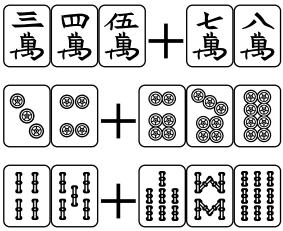
What would you discard?

Although we see a remote possibility of `ittsu` in `souzu` (bamboos), pursuing it requires we fill in three closed-wait protoruns in `souzu`: 發 一, 三 四, and 四 五.

It would be more practical to discard 發 and then 四; we would consider the tile blocks in `souzu` as a collection of two side-wait protoruns: 一 二 and 三 四 + two redundant terminal tiles: 發 四, rather than considering it as a collection of three closed-wait protoruns.

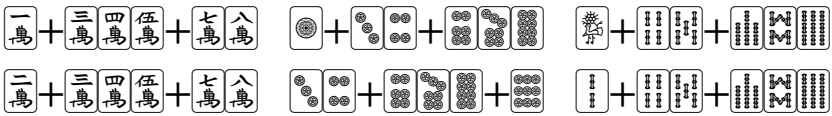
5.2.3 Run + side-wait protorun

At one step prior to getting two non-overlapping runs, we may have one run and a non-overlapping side-wait protorun in a given suit. The following blocks are examples of such run + side-wait protorun combinations.

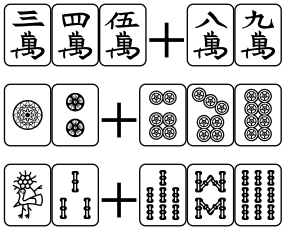


When we have a combination like these, a draw of 一萬 or 三萬 (left example), 一 or 二 (middle example), 發 or 一 (right example) generates a realistic probability of getting `ittsu`. Below are the resulting

tile blocks in each instance. You can pursue ittsu with any of these blocks.

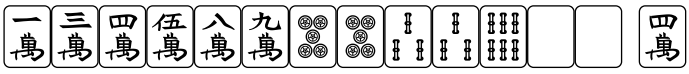


However, if the protorun is instead a closed-wait or an edge-wait one, the chance of getting ittsu is much diminished. The following blocks are examples of such run + closed- or edge-wait protorun combinations. You may not want to pursue ittsu with these blocks.



If the run becomes a bulging float block, you may want to give up on ittsu and discard the closed- or edge-wait protorun part. With this in mind, consider the following 2-away hand.

Ittsu 3



Draw

What would you discard?

Now that we drew a tile that creates a bulging float block in manzu (cracks), it is about time to give up on ittsu. Discarding allows

the hand to accept 9 kinds–25 tiles; if we stick with ittsu and discard 四萬, the hand can accept only 4 kinds–10 tiles.

Moreover, although the hand is 2-away from ittsu. Pursuing ittsu with a hand like this is not very practical.

5.2.4 Ittsu vs. side wait

As we saw with sanshoku hands, we often face a choice between pursuing yaku and keeping a side-wait protorun. Consider the following 1-away hand.

Ittsu 4

Draw Dora

What would you discard?

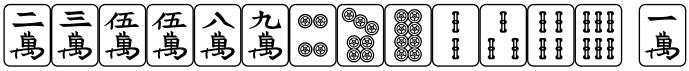
If we discard 一萬 we drew, the hand is a perfect 1-away hand; the final wait can always be side wait. On the other hand, if we discard 伍萬, we have a confirmed ittsu hand. Which option should we choose?

If we compare tile acceptance counts for the two scenarios, the option of confirming side wait is slightly better (6 kinds–18 tiles vs. 5 kinds–16 tiles). However, doing so means we give up on ittsu. Moreover, giving up on ittsu means that we can never call pon or chii with this hand because there is no yaku in the hand. On the other hand, the second option allows us to call pon on 發 or call chii on 二萬. Even though the kinds and the number of acceptable tiles are smaller, the second option would be more efficient if we take melding into account.

5.3 How to get pinfu

Although pinfu is only worth one han, the requirements to claim pinfu are rather demanding. The key to getting pinfu is to build side-wait protoruns even at the cost of tile efficiency. Consider the following hand.

Pinfu 1



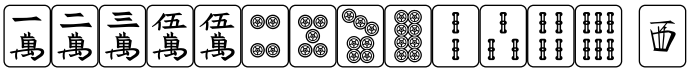
Draw

What would you discard?

We already have five tile blocks in this hand. From a pure tile efficiency perspective, discarding one of the two floating tiles  or  is the best. However, doing so significantly reduces our chance of getting pinfu. If we aim for pinfu we should discard the edge-wait protorun  and keep the two floating tiles, which we hope may grow into a side-wait protorun.

Suppose we discarded  , then we drew  , after which we discarded  . Now the hand is 1-away again, this time with two side-wait protoruns. Suppose further that we drew  .

Pinfu 2



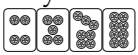
Draw

What would you discard?

We should keep  as a safe tile and discard  . It is true that keeping  has an advantage; if we draw  , we will get a 3-way side-wait block in souzu (bamboos). Even a draw of  improves this hand slightly. This is because having  and  is not very efficient due to the overlap of the waiting tiles; both blocks wait for  . It

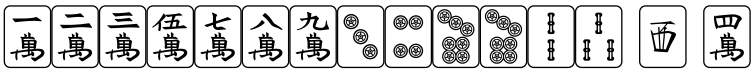
would be better to have  and  , rather than having  and  .

However, keeping  comes at a cost. Even when we draw  , we will then have to discard  or  , possibly against an opponent's riichi. Therefore, once we get a 1-away with two side-wait protoruns (**side 'n' side 1-away**; `ryanmen-ryanmen 1-shanten`), we should try to keep a safety tile in the hand.

Even when we draw a tile that makes a hand perfect 1-away, we may still want to have a safety tile. For example, drawing any of  makes the hand above perfect 1-away. Although perfect 1-away is better than side 'n' side 1-away in terms of tile acceptance, a perfect 1-away hand can end up not having `pinfu` because a set can emerge in the hand.

There is one exception to this, however. If the floating tile leaves a possibility of enhancing the hand value by at least three `han`, it is OK to keep it instead of a safety tile. Consider the following hand.

`Pinfu` 3



Draw `Dora`

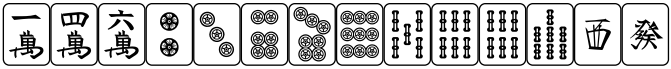
What would you discard?

Keeping  is safer, but keeping  leaves the possibilities of getting `ittsu` and having `dora`, possibly at the same time. In this case, we would rather discard  .

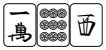
Building the head

To claim pinfu, the head must be a pair of number tiles or valueless wind tiles. Therefore, try not to discard terminals or valueless wind tiles lightly when having a pinfu hand. Keep this in mind especially when a hand is lacking any pair. Assuming you are the South player in the 1st turn in East-1, consider the following hand.

Pinfu 4



What would you discard?

The hand has a potential to have pinfu, so we should not discard any of  at this point. All of these three tiles may appear useless, but they can be the head of a pinfu hand when any of them grows into a pair. On the other hand, the value tile cannot be the head of pinfu. We should discard  in this case.

5.4 How to get honitsu

Going for honitsu (Half Flush) can be a good way to achieve high hand values. As we can combine honitsu with many other yaku, including fanpai, toitoi, chanta (Outside Hand), ittsu, among others,[4] we can aim for mangan relatively easily. The fact that honitsu is worth two han even when we open our hand means we can also enhance the speed by melding without making our hand too cheap.

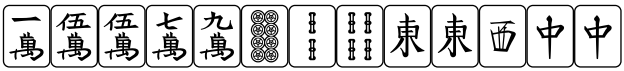
5.4.1 Conditions to go for honitsu

When judging whether to go for honitsu or not, we should consider two factors — five-block potential and hand values with and without honitsu.

1. Five-block potential

The most important factor to consider is whether or not your hand has five tile blocks or block candidates (i.e., floating tiles) necessary for honitsu. Assuming you are the South player in the 6th turn in East-1, consider the following hand.

Honitsu 1



Would you go for honitsu?

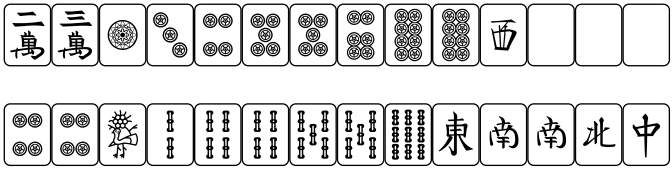
In order to figure out if it is practical to pursue honitsu with this hand, let's apply the five-block method.

[4] Technically speaking, honitsu can be combined with chiitoitsu, shousangen (Little Three Dragons), honroutou (All Terminals and Honors), pinfu, iipeiko, ryanpeiko, san ankou (Three Concealed Pungs), and san kantsu (Three Kongs) as well.

We can count on the two pairs of fanpai, 東東 and 中中, to be two tile blocks, a pair of 伍萬伍萬 and a protorun 七萬九萬 to be another two blocks, yielding four blocks in total. In addition, we can reasonably expect either of the two floating tiles 西一萬 to produce the fifth block. Therefore, you can go for honitsu with this hand.

In addition, the tiles that are made redundant in the hand if we choose honitsu are an isolated 8p and a closed-wait protorun 1p2p. Keeping these tiles would not make this hand particularly more efficient anyway, so we can go for honitsu without much hesitation.

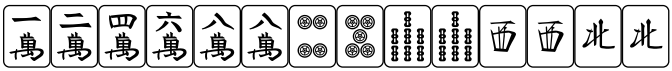
Even when we have a side-wait protorun or a pair to discard, we may still want to go for honitsu. For example, with the following two hands, you should go for honitsu even though doing so means you have to discard a side-wait protorun or a pair.



2. Hand value

Another factor to consider is hand value comparison with and without honitsu. If your hand does not have any yaku potential (e.g., pair or set of fanpai) other than honitsu, you may end up getting a honitsu-only hand, which is very cheap (2000 or 2600 points). In such situations, you should not aim for honitsu; you should try to make the hand ready without melding and go for riichi. Assuming you are the South player in East-1, consider the following hand.

Honitsu 2



Would you go for `honitsu`?

Since West and North are both valueless wind tiles, this hand is likely to become `honitsu`-only if you decide to go for `honitsu`. Although this hand has five tile blocks necessary for `honitsu`, you should not go for `honitsu`.

At the same time, when the hand value is sufficiently high ($\geq$ 5200) *without* `honitsu`, you should not go for `honitsu` at the cost of tile efficiency. Assuming you are the South player in East-1, consider the following hand.

Honitsu 3

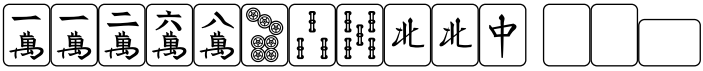
What would you discard?

This hand is worth 5200 points without `honitsu` (Seat Wind + Green Dragon + red five), so you should discard  to maintain a side 'n' side 1-away status. If  were not your seat wind, you should go for `honitsu`.

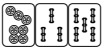
5.4.2 Discard

When pursuing honitsu, pay attention to the order of your discards. Consider the following hand. You called pon on [ ] just now, deciding what to discard.

Honitsu 4



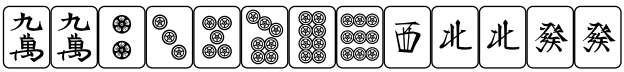
What would you discard?

You should pursue honitsu, so  are your discard candidates. You will discard all three of them eventually, but you should discard them in a way that looks less obvious that you are collecting tiles in manzu (cracks). If you discard  first then  next, the opponents might (correctly) guess that you are doing honitsu with manzu tiles. In particular, the Left player may stop discarding tiles in manzu that you could call chii on. You should thus discard  first then  next, so that the opponents cannot know if you are collecting manzu or pinzu (dots). They will eventually find out that you are collecting manzu, but you should delay that as much as possible.

5.4.3 Melding

When you start melding with a `honitsu` hand, try to leave the possibility of achieving the maximum hand value. Assuming you are the South player in the 6th turn in East-1, consider the following hand.

`Honitsu 5`



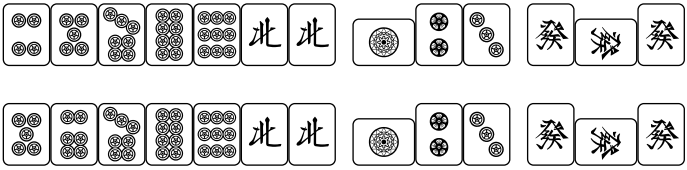
Which tile would you call?

With this hand, do not start melding with a `chii` of  or a `pon` of  if you are playing without red fives; you may end up with a very cheap (2000 points) `honitsu`-only hand. Suppose you managed to call `pon` on  , resulting in the following hand.

Calling `chii` on  or `pon` on  is still not ideal. The only melding you should do is to call `chii` on  to have the following hand.

Notice that the two floating tiles   allow us to envision two possibilities of getting a 7700 hand. On the one hand, if you draw  or call `pon` on  , you get `honitsu` + Green Dragon + `chanta` (Outside Hand), as follows.

On the other hand, if you draw  or  , the hand will be ready for honitsu + Green Dragon + ittsu.

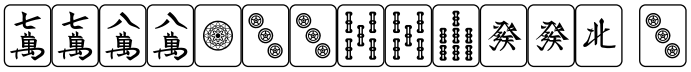


5.5 How to get `toitoi` / `chiitoitsu`

5.5.1 `Toitoi` vs. `chiitoitsu`

When pursuing `chiitoitsu` (Seven Pairs), you may find yourself standing at a crossroad between `chiitoitsu` and `toitoi` (All Pungs). Specifically, what should we do when one of the pairs in a 1-away `chiitoitsu` hand becomes a set? Assuming you are the South player in the 6th turn in East-1, consider the following hand.

`Toitoi` vs. `chiitoitsu`



Draw

What would you discard?

If we discard  that we drew, the hand is 1-away from ready for `chiitoitsu`, accepting  (3 kinds–9 tiles). On the other hand, if we keep it and discard  instead, the hand is still a 1-away `chiitoitsu` hand, albeit with smaller tile acceptance. However, doing so makes the hand also 2-away from ready for `toitoi` and possibly `su anko` (Four Concealed Pungs).

Judgement criteria for a choice of this kind are summarized as follows.

`Toitoi` vs. `chiitoitsu`

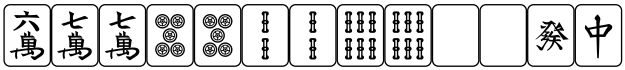
Choose `chiitoitsu` in the following situations.

1. There is a futile pair in your hand.
2. There is no pair of value tiles in your hand.
3. There are three or more pairs of simple tiles between 3 and 7 in your hand.

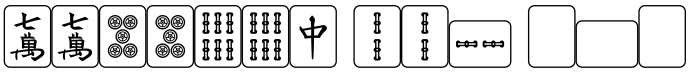
The first condition is by far the most important one. With the current hand example, if the opponents have already discarded two tiles of 七萬, the pair of 七萬 in the hand is a **futile pair** (dead pair) that will never become a set. If there is one or more futile pair in your hand, you must stick with `chiitoitsu`. If not, you can go for `toitoi`.

In addition, you may also want to take into account the second and the third conditions. Specifically, without having a pair of value tiles (`fanpai`), you may end up with a `toitoi`-only hand (2600 or even 2000 points). With one pair of value tiles, you can aim for 5200 with `toitoi`; with two pairs of them, you can aim for `mangan`.

The third factor to consider is whether there are *not* three or more pairs of simple tiles between 3 and 7. Consider the following hand.



Suppose you start melding by calling `pon` on □,[5] then get another `pon` on 1索, resulting in the following hand.



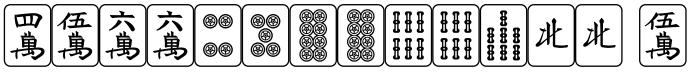
Since the remaining three pairs are all simple tiles between 3 and 7, the hand advancement often stops here. Because of their high versatility, simple tiles between 3 and 7 are very likely to be used by the opponents.

[5] Calling `pon` on □ makes this 1-away `chiitoitsu` hand 2-away from ready for `toitoi`. Doing so would be acceptable if the remaining pairs were not simple tiles between 3 and 7.

5.5.2 Standard hand vs. `chiitoitsu`

Another kind of crossroad is between `chiitoitsu` and standard hand. Assuming you are the South player in the 6th turn in East-1, consider the following hand.

`Pinfu` vs. `chiitoitsu`

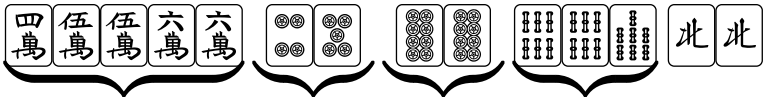


Draw

What would you discard?

As we draw 伍萬, we now have five pairs in the hand, making it 1-away from ready for `chiitoitsu`. However, the hand is also 2-away from ready if we interpret this hand as a standard hand.

When a hand has this many side-wait protoruns, it makes more sense to view it as a standard hand rather than as a `chiitoitsu` hand. To figure out what tile to discard, let's apply the five-block method.



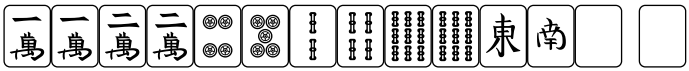
2

Since we already have five tile blocks in simple tiles, the pair of 北 is redundant. Discarding 北 means we are giving up on `chiitoitsu`, but we are maximizing tile acceptance to make the hand ready for `tanyao` as soon as possible. Doing so leaves a decent chance of getting `pinfu` and `iipeiko` as well. The expected hand value will actually be higher if we give up on `chiitoitsu`.

On the other hand, when a hand has few side-wait protoruns but has several pairs, you should pursue a pair-based (set-based) hand

rather than a run-based hand. Assuming you are the South player in the 6th turn in East-1, consider the following hand.

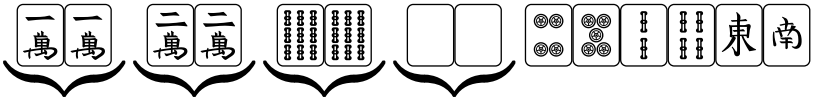
Run-based hand vs. set-based hand

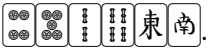
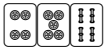


Draw

What would you discard?

Although the hand has one side-wait protorun, we would not be very happy if it were to evolve into a complete run; we may end up with a very cheap hand with a bad wait. Alternatively, you should pursue `chiitoitsu` or `toitoi` with a hand like this. Let's apply the five-block method to figure out what tile to discard.



Since we intend to build four blocks using the four pairs in the hand, we only need one more block from the rest of the tiles:  . Of these six tiles,  are clearly more valuable than others because of their *low* versatilities. On the other hand,  are less useful for you because these tiles have high versatility for the opponents. We should discard  or  first, keeping  just in case we draw a red  (in which case the hand is 1-away from ready for `chiitoitsu`).

Part III

Strategy Principles

Chapter 6
Scoring

The scoring system in mahjong is quite complex. Getting proficiency in score calculation requires a lot of practice. The good news is that scoring is automatically done once you win a hand when you play online. Even when you play offline, you can usually count on your fellow players to help you get the correct score once you win a hand.

However, you often need to calculate the (potential) scores of your hand *before* you win the hand. This is because a lot of important judgements you make during the game — riichi judgement, defense judgement, and melding judgement, among others — depend on the potential scores of your hand. Therefore, developing ability to calculate the scores correctly and quickly without any help of others is of utmost importance. I introduce some efficient methods of score calculation in this chapter before we discuss riichi, defense, and melding judgements in the subsequent chapters.

6.1 Three steps in score calculation

Every rule book of mahjong has comprehensive scoring tables (similar to Tables 6.10 and 6.11 at the end of this chapter) that show all possible scores for all possible minipoints (`fu`). Although such tables are a good reference to have, it is *not* very efficient to try to memorize everything in such tables.

A more practical approach would be to focus on a small number of frequently observed patterns of scoring and memorize them correctly, while ignoring other, less important ones. Before introducing

some shortcuts to do efficient scoring, let's first review the three required steps in score calculation, summarized in a box on the next page.

Three steps in score calculation

Step 1: Count the number of `han`.

First, you need to figure out how many `han` a hand has. If a hand has five or more `han`, skip Step 2 and go directly to Step 3. If not, proceed to Step 2.

Step 2: Figure out the minipoints.

When a hand has four or less `han`, you then need to know the hand's minipoints. This does not mean, however, that you always need to do some maths to get the correct minipoints. We will discuss some practical shortcuts below.

Step 3: Get the score.

Based on the number of `han` (and possibly minipoints), you get the score. You will have to memorize some score patterns.

In the remainder of this chapter, I will first introduce basic methods of score calculation in Section 6.2. The basic methods involve using some shortcuts in Step 2 above. Once you master the basic methods, you will be able to calculate scores correctly most of the time.[1] When you master the contents of Section 6.2, you may skip Section 6.3 and proceed to the next chapter. Section 6.3 covers more advanced methods of score calculation, which would be necessary

[1] In my impression, roughly 75 % of the hands we encounter can be covered by the basic methods.

only in exceptional cases. This involves an exact calculation of minipoints in Step 2 above.

6.2 Basic scoring

1. Counting the number of `han`

Step 1 in score calculation is counting the number of `han` in a hand. This is the most important part in score calculation, and there is no useful shortcut here. You need to be able to identify all the `yaku` in a hand as well as the associated `han` counts for each.

A good way to practice this is to try to beat the automatic score counting on `Tenhou`. Whenever someone wins a hand, `Tenhou` displays all the `yaku` and the associated `han` counts one after another in a few seconds. Try to identify all the `yaku` of your opponent's hand before they get displayed automatically.

Scores for limit hands

When a hand has five or more `han`, the hand is a limit hand. Scores of limit hands do not depend on minipoints so we can go directly to Step 3. To get the score for a given `han` count, we utilize Table 6.1. This is something you need to memorize.

As you can see, there are some regularities and redundancies that make it relatively easy to memorize this table. The most important score of all is 8000 (`mangan ron` for non-dealer). This is the basis of all the other scores in this table. For example, `haneman` scores are 1.5 times `mangan` scores, `baiman` scores are two times `mangan` scores, `sanbaiman` scores are three times `mangan` scores,[2] and `yakuman` scores are four times `mangan` scores. In addition, scores for dealer are exactly

[2] Since `bai` means "twice" or "double" in Japanese, `baiman` literally means double `mangan` in Japanese. Similarly, `sanbai` means "triple," so `sanbaiman` literally means triple `mangan`.

Table 6.1: Scores for limit hands

Han	Name	Ron		Tsumo	
		Non-dealer	Dealer	Non-dealer	Dealer
5	mangan	**8000**	12000	2000-4000	4000-all
6–7	haneman	12000	18000	3000-6000	6000-all
8–10	baiman	16000	24000	4000-8000	8000-all
11–12	sanbaiman	24000	36000	6000-12000	12000-all
13+*	yakuman	32000	48000	8000-16000	16000-all

* A hand with 13+ han is scored as a sanbaiman with the revised EMA rules.

1.5 times the corresponding scores for non-dealer in all limit hands. Finally, scores for tsumo (self draw) cases are simple and straightforward; the dealer pays one half of the total, and each of the two non-dealers pays one fourth of the total. For example, in the case of mangan tsumo (8000), the dealer pays 4000 and non-dealers pay 2000 each.

2. Figuring out the minipoints

When a hand has four or less han, you have to know the minipoints. As I pointed out earlier, this does not mean that you always have to count all the minipoint contributions from all the melds and wait in a hand. Such a calculation is required only in special cases. Instead, you can use the chart in Figure 6.1 that summarizes the six most frequently observed patterns you need to memorize.

You can use this Figure as a flowchart. You first check if the hand is a chiitoitsu (Seven Pairs) hand. If it is, it is always 25 minipoints. If it is not, you then check if the hand has one or more quads (kongs). If it does, the hand is out of the scope of the basic methods. Ask for help from more experienced players after winning the hand. Advanced methods we discuss in Section 6.3 will cover this exceptional

Shortcut for minipoint calculation

1. `chiitoitsu` ⇒ **always** 25 minipoints
2. A hand has one or more quads ⇒ Don't bother.
3. `toitoi` ⇒ **almost always** 40 minipoints
4. `Pinfu`
   - `ron` ⇒ **always** 30 minipoints
   - `tsumo` ⇒ **always** 20 minipoints
5. Closed hand without `pinfu`
   - `ron` ⇒ **almost always** 40 minipoints
   - `tsumo` ⇒ **almost always** 30 minipoints
6. Open hand ⇒ **almost always** 30 minipoints

Figure 6.1: Six most observed patterns

case. Third, you check if the hand is `toitoi` (All Pungs).[3] If it is, it's almost always 40 minipoints unless it is a `tanyao toitoi` hand that is likely to have 30 minipoints.

Once you rule out the first three cases (`chiitoitsu`, quads, and `toitoi`), the last three are the most important ones; the great majority of hands you see will be one of these three. Here, you check two things. First, check if it is a `pinfu` hand. If it is, it's always 30 minipoints (`ron`) or 20 minipoints (`tsumo`). If it is not `pinfu`, you then check if it is a closed hand or an open hand. If it is a closed hand, it

[3] Note that we are only talking about open `toitoi` here. A closed `toitoi` does not require a minipoint calculation under any circumstance. If you win it by `tsumo`, it's `yakuman` (`su anko`; Four Concealed Pungs); if you win it by `ron`, it's at least `mangan` (`toitoi` and `san anko`).

is *almost* always 40 minipoints (`ron`) or 30 minipoints (`tsumo`). If it is an open hand, it is *almost* always 30 minipoints whether you win it by `ron` or `tsumo`.

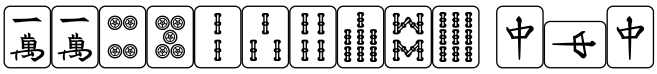
Because of the importance of the cases 4, 5, and 6 (`pinfu`, closed, and open hand), we will first discuss these three cases. We will then discuss cases 1 and 3 (`chiitoitsu` and `toitoi`), which are way more exceptional.

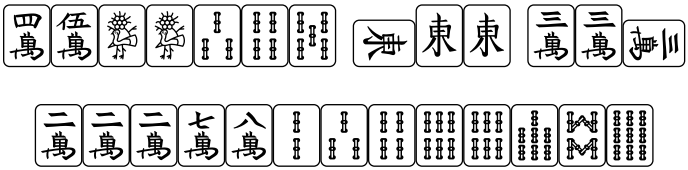
What do we mean by "almost always"?

Before getting to score calculation, let me explain what we mean when we say something is *almost* always X minipoints in cases 5 and 6 in Figure 6.1. With a non-`toitoi` hand without quads, check if the hand has one or more concealed set of terminal/honor tiles or its equivalent. Recall that one concealed set of terminal/honor tiles is equivalent to two open sets of terminal/honor tiles or two concealed sets of simple tiles in minipoints. Therefore, what we check is whether a hand has any of the following:

- at least one concealed set of terminal/honor tiles;
- at least two open sets of terminal/honor tiles;
- one open set of terminal/honor tiles *and* one concealed set of simples;
- at least two concealed sets of simples.

When none of the four above exists in a non-`toitoi` hand without quads, a hand is *always* 40 minipoints if closed and *always* 30 minipoints if open. Therefore, there is really no need of an actual calculation of minipoints with hands like the following.





With these hands, we can simply check if it is a closed hand or not to determine if each hand has 40 minipoints (closed) or 30 minipoints (open).

On the other hand, if a hand satisfies any of the four conditions above, we need to calculate the minipoints by actually counting and summing all the minipoint contributions from all the melds, the head, and the wait to determine the minipoints of a hand. We will discuss this in Section 6.3.

3. Getting the scores

As Figure 6.1 makes clear, the case of 30 minipoints is the most important pattern. We thus start with this pattern. We will then proceed to the cases of 40, 20, and 25 minipoints.

30 minipoints

You get 30 minipoints when you get:

- `pinfu ron` (always);
- closed hand `tsumo` (almost always); or
- open hand `ron` / `tsumo` (almost always).

Scores for 30 minipoints are summarized in Table 6.2.

Compared with the limit hands table (Table 6.1), the regularities in the 30 minipoints table are less precise. For example, scores for dealer are only *roughly* 1.5 times those for non-dealer; `tsumo` scores

Table 6.2: Scores for 30 minipoints

Han	Ron		Tsumo	
	Non-dealer	Dealer	Non-dealer	Dealer
1	1000	1500	300-500	500-all
2	2000	2900	500-1000	1000-all
3	3900	5800	1000-2000	2000-all
4	7700	11600	2000-3900	3900-all
5+	limit hand			

are sometimes slightly bigger than the corresponding `ron` scores. For example, one-`han tsumo` (300-500) gives you $300 + 300 + 500 = 1100$, which is slightly bigger than one-`han ron` (1000).

Therefore, it would be more efficient if we just memorize these patterns as they are, rather than trying to simplify them. Japanese players tend to memorize Table 6.2 column-wise, as follows:

Scores for 30 minipoints

- `ron` (non-dealer): 10, 20, 39, 77
- `ron` (dealer): 15, 29, 58, 116
- `tsumo` (non-dealer): 3-5, 5-10, 10-20, 20-39

The benefit of memorizing this score table column-wise is that scores get (roughly) twice as big for an additional `han`. Moreover, if we memorize the `tsumo` scores for non-dealer, we can easily derive those for dealer. When I was trying to memorize these, I used to recite these sequences a number of times so that they get beaten into my head.

40 minipoints

You get 40 minipoints when you get:

- non-`pinfu` closed hand `ron` (almost always); or
- `toitoi` `ron` / `tsumo` (almost always).

Scores for 40 minipoints are summarized in Table 6.3.

Table 6.3: Scores for 40 minipoints

Han	Ron		Tsumo	
	Non-dealer	Dealer	Non-dealer	Dealer
1	1300	2000	400-700	700-all
2	2600	3900	700-1300	1300-all
3	5200	7700	1300-2600	2600-all
4+	limit hand			

Just like we did with scores for 30 minipoints, I recommend you memorize this column-wise.

Scores for 40 minipoints

- `ron` (non-dealer): 13, 26, 52, `mangan`
- `ron` (dealer): 20, 39, 77, `mangan`
- `tsumo` (non-dealer): 4-7, 7-13, 13-26, `mangan`

The good news is that the `ron` score sequence for non-dealer —13, 26, 52— is a geometric progression; $13 \times 2 = 26$, and $26 \times 2 = 52$. Also, the `ron` scores for dealer —20, 39, 77— should look familiar to you if you have already memorized the 30 minipoints `ron` scores for non-dealer —10, 20, 39, 77.

20 minipoints `(pinfu tsumo)`

Scores for 20 minipoints are summarized in Table 6.4. This table is special in the sense that it does not have the `ron` score component nor the one-`han` row. This is because you get 20 minipoints only when you get `pinfu + tsumo` (hence we have at least two `han`). Even though this is a special case, `pinfu + tsumo` is far from a rare occurrence. It is thus important to know how to get the correct scores for this case.

Table 6.4: Scores for 20 minipoints

Han	Tsumo	
	Non-dealer	Dealer
2	400-700	700-all
3	700-1300	1300-all
4	1300-2600	2600-all
5+	limit hand	

Notice that there is an interesting similarity between the 20 minipoints table (Table 6.4) and the 40 minipoints table (Table 6.3). The scoring patterns are almost identical, except that the required number of `han` to get a certain score is one `han` smaller for 40 minipoints than for 20 minipoints; that is, to get 400-700, we need 2 `han` with 20 minipoints, whereas we only need 1 `han` with 40 minipoints.

This is not a coincidence. In general, when we double the minipoints, we need one less `han` to get the same score. For example, a 3 `han`–30 minipoints hand and a 2 `han`–60 minipoints hand have the same score (3900 for non-dealer; 5800 for dealer); a 2 `han`–25 minipoints hand and a 1 `han`–50 minipoints hand have the same score (1600 for non-dealer; 2400 for dealer). Therefore, once you memo-

rize scores for 30 minipoints, we can easily deduce scores for hands with 60 minipoints. Similarly, we can deduce scores for hands with 50 or 80 minipoints once we memorize scores for 25 or 40 minipoints, respectively.

25 minipoints (chiitoitsu)

The final case we cover as part of the basic scoring is scores for a chiitoitsu hand. As chiitoitsu is a rather exceptional yaku, it is given exceptional minipoints — 25 minipoints. Scores for 25 minipoints are summarized in Table 6.5.

Table 6.5: Scores for 25 minipoints

Han	Ron		Tsumo	
	Non-dealer	Dealer	Non-dealer	Dealer
2	1600	2400		
3	3200	4800	800-1600	1600-all
4	6400	9600	1600-3200	3200-all
5+	limit hand			

Since chiitoitsu is itself a two-han yaku, the scoring table only starts with two han for ron and three han for tsumo. Again, we memorize this table column-wise.

Scores for 25 minipoints

- ron (non-dealer): 16, 32, 64, mangan
- ron (dealer): 24, 48, 96, mangan
- tsumo (non-dealer): 8-16, 16-32, mangan

All the sequences are a geometric progression, making it rela-

tively easy to memorize.

Practice, practice, practice

This completes the basic methods of score calculation. Memorizing all the scores for limit hands as well as the cases of 30, 40, 20, and 25 minipoints should be more than enough. Of course, no one will be able to master this method just by reading and understanding the materials in this chapter. You would need to actually practice what you have learned, and you will have to do so repeatedly.

Notes on `pinfu tsumo`

One of the common mistakes that beginners tend to make is to claim 1000-2000 for riichi + `pinfu + tsumo` (mistaking 3 `han`–20 minipoints for 3 `han`–30 minipoints) or claim `mangan` for riichi + `pinfu + tsumo + dora` (mistaking 4 `han`–20 minipoints for 4 `han`–40 minipoints). If you have trouble wrapping your head around why `pinfu + tsumo` hands are given lower minipoints, knowing the origin of this rule might be helpful.

The `yaku pinfu` is realized when a hand has no component that generates an additional minipoint. A `pinfu` hand cannot have a set, edge wait, closed wait, single wait, or a pair of value tiles because they all generate an additional minipoint. Recall that `tsumo` also generates 2 minipoints. Therefore, logically speaking, `pinfu` cannot be claimed when you win it by `tsumo`. In fact, some traditional mahjong rule sets do not allow a combination of `pinfu` and `tsumo`. Under such rule sets, when you win a `pinfu`-only hand by `tsumo`, you are allowed to claim `tsumo` only, giving you 1 `han`–30 minipoints (20 base minipoints + 2 minipoints for `tsumo` = 22, rounded up to 30 minipoints), which gives you 300-500.

However, some people thought that this is a bit unfair, claiming that a `pinfu tsumo` hand should be given a higher score than a `tsumo`-only hand. At the same time, they recognized that the score for `pinfu + tsumo` should be lower than that for a "proper" 2-`han` `tsumo` hand (e.g., `tanyao + tsumo`). Therefore, they decided that `pinfu + tsumo` should be placed in between these two — 1 `han`–30 minipoints (`tsumo` only; 300-500) and 2 `han`–30 minipoints (`tanyao + tsumo`; 500-1000) — giving it the score of 400-700. Therefore, the score for riichi + `pinfu + tsumo` (3 `han`–20 minipoints; 700-1300) is higher than riichi + `tsumo` (2 `han`–30 minipoints; 500-1000) but lower than riichi + `tanyao + tsumo` (3 `han`–30 minipoints; 1000-2000).

6.3 Advanced scoring

As I mentioned in the previous section, a hand with one or more concealed set of terminal/honor tiles (or its equivalent) or quads may have unusually high minipoints, calling for an actual calculation of minipoints.

6.3.1 Minipoint calculation

Let's first review the basics of minipoint calculations. All standard hands (i.e., hands with melds) have the base 20 minipoints. Then, we add the following minipoints depending on how we win the hand:

- `tsumo` (open or closed, except for `pinfu`): 2
- `ron` (closed): 10
- `ron` (open): 0

We add further minipoints for each set and quad in a hand depending on whether it is a concealed one or an open one. Table 6.6 summarizes minipoint contributions from a set and a quad.

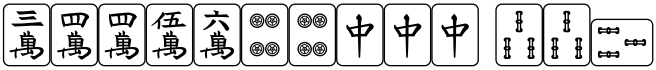
Table 6.6: Minipoint contributions from a set and a quad

	Tile	Minipoint	
		Open	Concealed
set	simple	2	4
	terminal/honor	4	8
quad	simple	8	16
	terminal/honor	16	32

Finally, we add 2 minipoints for each of the following, if any.

- Pair of dragon tiles
- Pair of seat wind tiles
- Pair of prevailing wind tiles
- Closed, edge, or single wait

When the head of a hand is of seat wind *and* prevailing wind (e.g., 東 for the East player in the East round), we get 2 + 2 = 4 minipoints.[4] If the wait is either side wait or dual pon wait, we don't get any minipoint for it. As we saw when we discussed wait patterns in 3.4, we may get different minipoints depending on which of the multiple winning tiles to win on. For example, consider the following hand.



The hand is waiting for 二萬–伍萬. If we win by ron on 二萬, we get no minipoint for the wait and so this hand has 30 minipoints (base 20 + 8 for a concealed set of honors + 2 for an open set of simple = 30). However, if we win this hand on 伍萬, we get additional 2 minipoints for closed wait. This is because 三萬四萬四萬伍萬六萬 can be thought of as 三萬四萬伍萬 + 四萬六萬. Therefore, the hand has 40 minipoints in that case (30 + 2 = 32, rounded up to 40).

6.3.2 Scores for 50 minipoints or above

When a hand has one or more concealed set of honor tiles, the hand may have 50 minipoints or above. You may want to memorize

[4] This is the case with EMA rules and Tenhou rules, but this is not a universally adopted rule.

the case of 50 minipoints, summarized below. If you are a perfectionist, you may also want to memorize the cases of 70 and 110 minipoints as well, but I can assure you that it would not be worth the effort.

50 minipoints

Scores for 50 minipoints are quite easy to memorize if you have already memorized scores for 25 minipoints (`chiitoitsu`), summarized in 6.5. Recall that the score for a 1 `han`–50 minipoints hand should be the same as that for a 2 `han`–25 minipoints hand.

Table 6.7: Scores for 50 minipoints

`Han`	`Ron`		`Tsumo`	
	Non-dealer	Dealer	Non-dealer	Dealer
1	1600	2400	400-800	800-all
2	3200	4800	800-1600	1600-all
3	6400	9600	1600-3200	3200-all
4+	limit hand			

70 minipoints

Hands with 70 minipoints do not appear very often (probably once in 20 games or so). Table 6.8 summarizes scores for 70 minipoints. If you would like to memorize the table, notice that it is sequential (until the end): 23 (non-delaer) $\rightarrow$ 34 (dealer) $\rightarrow$ 45 (non-dealer) $\rightarrow$ 68 (dealer).

110 minipoints

For the sake of completeness, Table 6.9 summarizes scores for 110 minipoints.

Table 6.8: Scores for 70 minipoints

Han	Ron		Tsumo	
	Non-dealer	Dealer	Non-dealer	Dealer
1	2300	3400	600-1200	1200-all
2	4500	6800	1200-2300	2300-all
3+	limit hand			

Table 6.9: Scores for 110 minipoints

Han	Ron		Tsumo	
	Non-dealer	Dealer	Non-dealer	Dealer
1	3600	5300	—	—
2	7100	10600	1800-3600	3600-all
3+	limit hand			

110 minipoints occur only in extremely rare occasions. Consider the following hand.

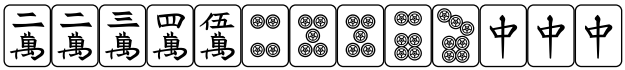
Suppose you are in the East round. If the dealer wins this hand by ron on 中, he gets 20 (base) + 10 (closed hand ron) + 4 (pair of seat & prevailing wind tiles) + 4 (open set of honors) + 32 (concealed quad of terminals) + 32 (concealed quad of terminals) = 102, rounded up to 110 minipoints. The score for 1 han–110 minipoints is 5300.

If he wins by ron on 東, on the other hand, he gets more han (set of seat & prevailing wind) but lower minipoints. This is because the minipoint contribution of the pair of 中 (2) is smaller than that of the pair of 東 (4). Since the score of 2 han–100 minipoints hand is the same as that of 3 han–50 minipoints hand, he obtains 9600 points.

6.3.3 Examples

Let's see how scores change as we advance a hand. For each of the examples below, try calculating the scores for different winning tiles and for `tsumo` and `ron`.

Scoring 1



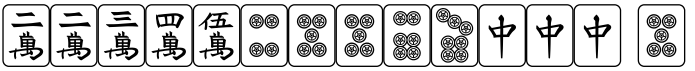
What are the scores?

If you win this hand by `ron`, the hand has 1 `han` (Red Dragon) and 40 minipoints: 20 (base) + 10 (closed hand `ron`) + 8 (concealed set of honors) = 38, rounded up to 40, so you get 1300 points.

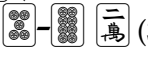
If you win it by drawing  , the hand has an additional `yaku`, `menzen tsumo` (Fully Concealed Hand), with 30 minipoints: 20 + 8 + 2 (`tsumo`) = 30. You thus get 500-1000 `tsumo` = 2000 points.

However, if you win it by drawing  , you get 40 minipoints because of the additional 2 minipoints for closed wait:  . You thus get 700-1300 `tsumo` = 2700 points.

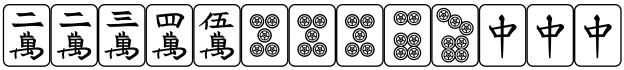
Let's say you draw  . What would you discard?



Draw

If you discard  , the wait is  (2 kinds–7 tiles). If you discard  , however, you get a 3-way wait:  (3 kinds–7 tiles). Let's say you choose the latter, resulting in the following hand. Now, let's think about the scores for each winning tile.

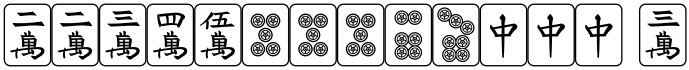
Scoring 2



What are the scores?

If you win this hand on 二萬, the hand is still 1 han–40 minipoints = 1300. However, if you win on 2索 or 2筒, the three tiles of 2索 within the hand are treated as a concealed set, giving you 4 additional minipoints: 20 (base) + 10 (closed ron) + 8 (set of 中) + 4 (set of 2索) = 42, rounded up to 50 minipoints. You thus get 1 han–50 minipoints = 1600 points. If you win by tsumo, you get 40 minipoints so you will get 700-1300 = 2700 points.

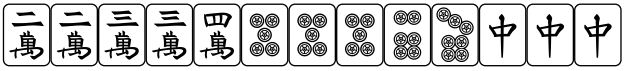
Let's say you draw 三萬. What would you discard?



Draw

If you discard 伍萬, the wait is 一萬-四萬. Let's think about the scores for each winning tile.

Scoring 3



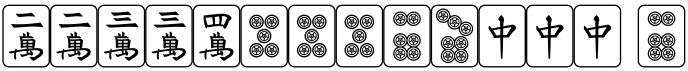
What are the scores?

If you win the hand by ron on 四萬, you get an additional yaku, iipeiko (Pure Double Chow), giving you 2 han–40 minipoints = 2600 points.

If you win the hand by tsumo, the minipoints are now lower than before because you have side wait and only one concealed set; we

cannot think of the three tiles of  as a set any more. You get 2 `han`–30 minipoints if you draw  (500-1000 `tsumo` = 2000), whereas you get 3 `han`–30 minipoints if you draw  (1000-2000 `tsumo` = 4000).

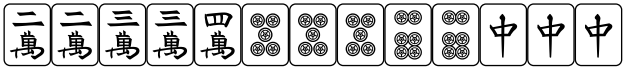
Let's say you draw  . What would you discard?



Draw

Discarding  is the best option. To understand why, let's think about the scores.

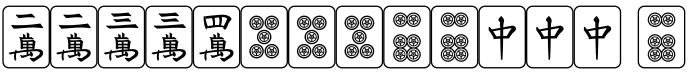
Scoring 4



What are the scores?

Notice that the wait and the potential `han` counts did not change at all. However, you get increased minipoints because you now have the concealed set of  back again. You will get 2 `han`–50 minipoints = 3200 points if you win by `ron` on  . If you draw  , you will get 3 `han`–40 minipoints, giving you 1300-2600 `tsumo` = 5200 points.

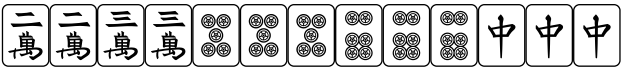
Let's say you draw another  . What would you discard?



Draw

The best discard is  , which makes this hand a `toitoi` (All Pungs) hand, as follows.

Scoring 5



What are the scores?

The hand has three concealed sets already, giving you at least `san anko` (Three Concealed Pungs) in addition to `toitoi` and Red Dragon. Now you no longer need any tedious minipoints calculation. If you win this hand by `tsumo`, it is `yakuman` (`su anko`; Four Concealed Pungs). If you win it by `ron`, you get five `han` (`toitoi`, `san anko`, and Red Dragon); it is `mangan` regardless of minipoints.

6.4 Scoring tables

Table 6.10: Scores for non-dealer

Minipoints	1 han	2 han	3 han	4 han
20	—	—	—	—
	—	(400-700)	(700-1300)	(1300-2600)
25	—	1600	3200	6400
	—	—	(800-1600)	(1600-3200)
30	1000	2000	3900	7700
	(300-500)	(500-1000)	(1000-2000)	(2000-3900)
40	1300	2600	5200	8000
	(400-700)	(700-1300)	(1300-2600)	(2000-4000)
50	1600	3200	6400	8000
	(400-800)	(800-1600)	(1600-3200)	(2000-4000)
60	2000	3900	7700	8000
	(500-1000)	(1000-2000)	(2000-3900)	(2000-4000)
70	2300	4500	8000	8000
	(600-1200)	(1200-2300)	(2000-4000)	(2000-4000)
80	2600	5200	8000	8000
	(700-1300)	(1300-2600)	(2000-4000)	(2000-4000)
90	2900	5800	8000	8000
	(800-1500)	(1500-2900)	(2000-4000)	(2000-4000)
100	3200	6400	8000	8000
	(800-1600)	(1600-3200)	(2000-4000)	(2000-4000)
110	3600	7100	8000	8000
	—	(1800-3600)	(2000-4000)	(2000-4000)

Note: Numbers in parentheses are `tsumo` scores.

Table 6.11: Scores for dealer

Minipoints	1 `han`	2 `han`	3 `han`	4 `han`
20	—	—	—	—
	—	(700)	(1300)	(2600)
25	—	2400	4800	9600
	—	—	(1600)	(3200)
30	1500	2900	5800	11600
	(500)	(1000)	(2000)	(3900)
40	2000	3900	7700	12000
	(700)	(1300)	(2600)	(4000)
50	2400	4800	9600	12000
	(800)	(1600)	(3200)	(4000)
60	2900	5800	11600	12000
	(1000)	(2000)	(3900)	(4000)
70	3400	6800	12000	12000
	(1200)	(2300)	(4000)	(4000)
80	3900	7700	12000	12000
	(1200)	(2300)	(4000)	(4000)
90	4400	8700	12000	12000
	(1500)	(2900)	(4000)	(4000)
100	4800	9600	12000	12000
	(1600)	(3200)	(4000)	(4000)
110	5300	10600	12000	12000
	—	(3600)	(4000)	(4000)

Note: Numbers in parentheses are `tsumo` scores.

Chapter 7
Riichi judgement

7.1 To riichi or not to riichi?

Riichi is a really powerful tool in riichi mahjong. Once you riichi, the opponents would have to slow down their attacks or even completely fold to avoid dealing into your hand. Therefore, one of our top priorities in playing riichi mahjong is to try to make the hand ready as fast as possible and call riichi before anyone else does.

At the same time, however, there are situations where you should keep `dama` (i.e., not calling riichi when having a closed ready hand). If you have played mahjong long enough, you must have come across many instances where you wondered if you should call riichi or keep `dama`. Knowing when to call riichi is one of the most fundamental elements of mahjong strategies, yet it appears this is not very well understood among European players. Let's first review the pros and cons of calling riichi.

Obvious downsides of calling riichi can be summarized as follows.

Demerits of riichi

- You have to pay 1000 points as a riichi bet.
- The opponents may play defense and may not discard your winning tiles that they would otherwise discard.
- You cannot change your hand any more; you cannot play defense nor improve the wait / scores.

However, there are many more upsides as well.

Merits of riichi

- You get one `yaku` to win.
- You can expect to increase the score with `ippatsu` and `ura dora`.
- The opponents may completely fold or play more defensively than otherwise. As a result, the opponents may fail to make their hand ready, in which case:
  - you will have more opportunities to draw tiles;
  - you are less likely to deal into the opponents.
- When your previous discards make it look that your winning tile is safe, riichi may actually *increase* the chance that the opponents discard your winning tile.

Comparing these pros and cons, it should be evident that calling riichi is a low-risk & high-return offense tactic. Moreover, riichi could also work as a defense tactic. If you riichi before the opponents do, it may prevent them from building a ready hand, which obviously reduces your chance of dealing into their hand. Although calling riichi means that you can no longer play defensively by choosing safe tiles to discard, it poses less of a problem if your defensive skills are not very good.

Riichi judgement criteria I recommend are summarized as follows.

Riichi judgement

Choose riichi over `dama` if at least one of the following three conditions is met.

1. Your hand has at least one `han` other than riichi.
2. Your hand has a good wait.
3. You are the dealer.

This means that you should call riichi if

- your hand has a bad wait but has one `han` or more (including `dora`) other than riichi;
- your hand is riichi-only but with a good wait, or;
- your hand is riichi-only with a bad wait, but you are the dealer.

In other words, the only type of riichi that these criteria prohibit is a bad-wait riichi-only hand by a non-dealer.

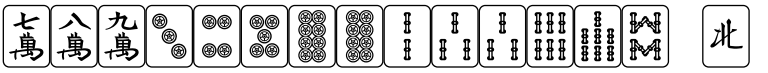
7.2 Insta-riichi

Keep in mind that, when you call riichi you should do so *immediately* when your hand becomes ready (**insta-riichi**). There is usually no point in waiting for a few turns to have the "right" moment to riichi.

Let me describe a few frequently seen examples where you should do insta-riichi. In all the examples that follow, we assume that you are the South player in the 6th turn in East-1.

7.2.1 Examples of insta-riichi

Pinfu-only hand



You should do insta-riichi with a `pinfu`-only hand. It is true that this hand will have `tanyao` if you draw 六萬 and discard 九萬, but waiting for that to happen is simply inefficient. Even after you replace 九萬 with 六萬, you will lose `tanyao` anyway if you win the hand on 發. Getting either `ippatsu` or one `ura dora` has a much higher probability than drawing 六萬 first and then winning on 一索.

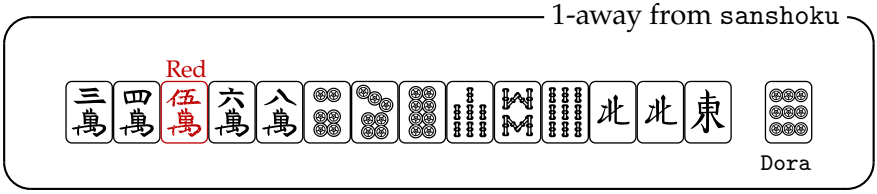
⇒ Insta-riichi, discarding 一索 !

Bad wait, one `dora`

Since this hand has one `dora`, you should do insta-riichi. Do not shy away from riichi even with closed-wait or edge-wait hands. It is true

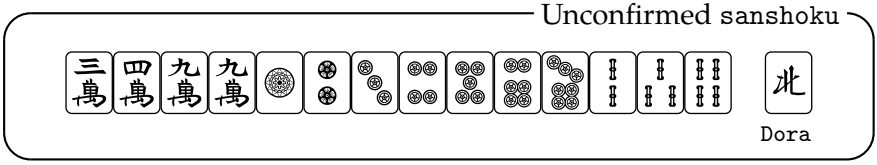
that the wait can be improved with as many as four kinds of tiles (二萬 四萬 伍萬 幾分), but drawing one of those would take about eight more turns, on average.[1] Since this is a yaku-less hand, you cannot win it by ron while waiting in dama. Moreover, even when the wait gets improved, this hand will never become pinfu anyway, so the score will not be improved.

⇒ Insta-riichi, discarding 西 !



It is true that there are some tiles that can improve the scores and/or the wait of this hand. For example, if you draw 四索, the hand will have sanshoku (Mixed Triple Chow). If you draw any of 二萬 四萬 伍萬, the hand will have pinfu. However, since the hand already has one han (red five), you should do insta-riichi.

⇒ Insta-riichi, discarding 東 !

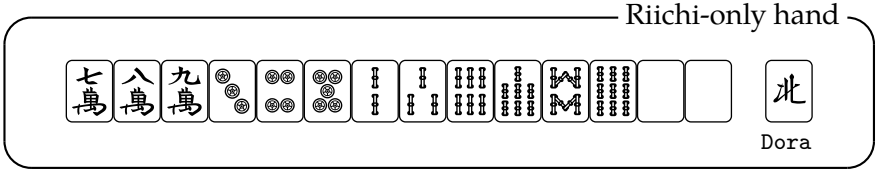


You would want to win this hand on 二萬 (rather than on 伍萬) so that you can claim sanshoku. However, waiting for 二萬 without riichi is absurd. The worst case scenario is to draw 伍萬 while waiting in dama,

[1] This rough calculation is based on an assumption that the probability of drawing an arbitrary tile is $\frac{1}{34}$ = about 3%.

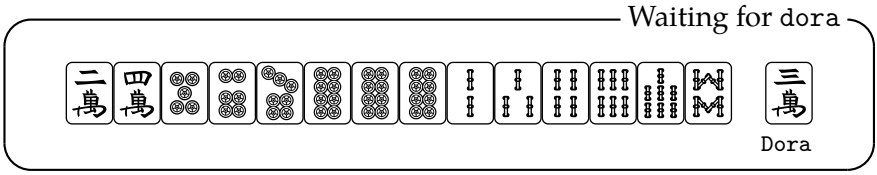
in which case you only get 400-700. If you riichi and draw 伍萬, you will get at least 700-1300. With one `ura dora` or `ippatsu` you will get 1300-2600.

⇒ Insta-riichi, discarding ◎ !



This hand has no `yaku` or `dora`, but the wait is good. You can do insta-riichi with a riichi-only hand as long as the hand has a good wait.

⇒ Insta-riichi, discarding ▥ !



You should do insta-riichi even when waiting for `dora`.

⇒ Insta-riichi, discarding ▩ !

When you wonder whether or not you should riichi in a given situation, choose riichi. You will be correct most of the time.

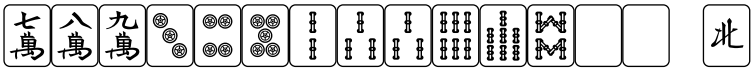
7.2.2 Good wait vs. high scores

We have discussed in previous chapters the difficult tradeoff we face between speed (tile efficiency) and high scores. In riichi judgement, this tradeoff manifests itself as a choice between (a) having a

good wait with lower scores and (b) pursuing higher scores with a bad wait.

In the following examples, there are more than one discard candidates to make the hand ready. I will discuss how to take a balance of tile efficiency and hand value in calling riichi. Again, we will assume that you are the South player in the 6th turn in East-1.

Cheap hand

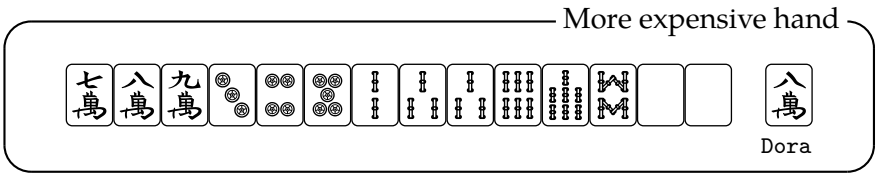


Calling riichi by discarding 4p makes for a good wait (3m–4p; 2 kinds–8 tiles), but the hand becomes riichi-only. On the other hand, calling riichi by discarding 1p leaves the possibility that the hand has an additional yaku (White Dragon), although the wait is not as good (1p 5z; 2 kinds–4 tiles). Which one should we choose?

In cases like this, you should aim for high scores by discarding 1p. Discarding 1p and winning on 5z would double the hand value (riichi + White Dragon = 2600 versus riichi-only = 1300), but the probability of winning on 5z would not shrink below half of the probability of winning on 3m–4p.

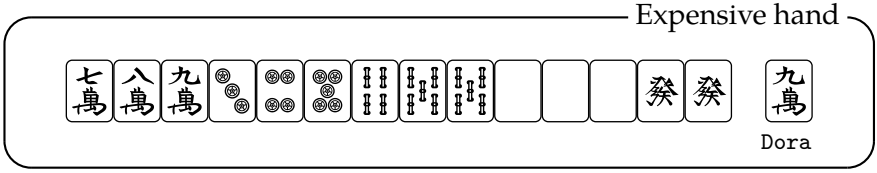
$$\Rightarrow \text{Insta-riichi, discarding } 1p\text{!}$$

Here is a simple rule of thumb: when the *minimum* (guaranteed) hand value is below 5200 (when won by ron), you should value scores over wait. When the *minimum* hand value is 5200 or above, you should value wait over scores. We use 5200 as a cut-point because an additional han (roughly) doubles the hand value until it reaches 5200.



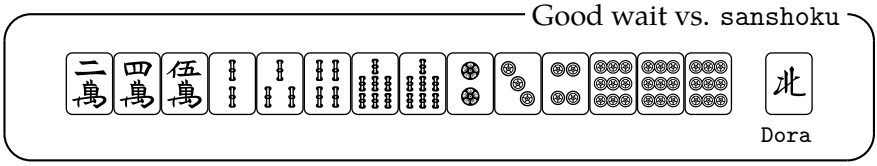
This hand has one `dora`, but the minimum hand value is still below 5200 (riichi + `dora` = 2600). Therefore, again, you should value scores over wait.

⇒ Insta-riichi, discarding 1 !



With this hand, calling riichi guarantees 5200 (riichi + White Dragon + one `dora`). Therefore, you should value wait over scores this time. It goes without saying that riichi is better than going `dama`.

⇒ Insta-riichi, discarding 1 !



Calling riichi by discarding 2 gives you riichi-only with a good wait, whereas calling riichi by discarding 5 gives you riichi + `sanshoku` with a bad wait. Since riichi-only is short of 5200, you should value scores over wait.

⇒ Insta-riichi, discarding 5 !

Good wait vs. ittsu

Calling riichi by discarding 一萬 gives you only riichi + pinfu with a good wait, whereas calling riichi by discarding 伍萬 gives you riichi + ittsu with a bad wait. Since riichi + pinfu is short of 5200, you should value scores over wait.

⇒ Insta-riichi, discarding 伍萬 !

Expensive pinfu hand

Discarding 七萬 would give you a dama mangan hand with a bad wait. That is not too bad, but it is much better to riichi by discarding 一萬 (riichi + pinfu + two red fives = 7700 with a very good wait).

⇒ Insta-riichi, discarding 一萬 !

Let's summarize what we have learned so far.

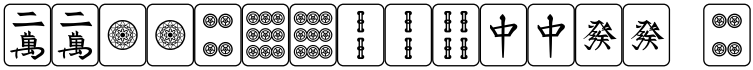
Good wait or high scores?

- Scores are more important than wait when the minimum hand value is < 5200.
- Wait is more important than scores when the minimum hand value is ≥ 5200.

7.2.3 Chiitoitsu waiting for dora

We will discuss riichi criteria for a chiitoitsu (Seven Pairs) hand in this and the next sections.

Chiitoitsu 1



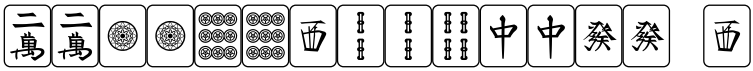
Dora

You should not shy away from riichi with a chiitoitsu hand, especially when waiting for dora. Since dora of  is something your opponents wouldn't lightly discard even if you keep dama, the chance of winning this hand by ron is not very high anyway. Therefore, you would rather riichi and aim to improve the score.

A two-dora chiitoitsu hand can be a game-deciding hand that secures you the first place in a game. If you tsumo after riichi, it is at least haneman and it can easily be baiman with ura dora (ura dora always come in pairs with a chiitoitsu hand). Even when you win by ron, it will be haneman with either ura dora or ippatsu.

⇒ Insta-riichi, discarding !

Chiitoitsu 2



Dora

Dora in this example is a value-less wind tile, which may be easily discarded by your opponents if you keep dama. Nevertheless, you should still do insta-riichi by discarding  . Aim for haneman or baiman rather than being content with 6400.

⇒ Insta-riichi, discarding  !

Riichi criteria for chiitoitsu hands waiting for dora are really simple.

Riichi judgement for chiitoitsu

Riichi any chiitoitsu hand if waiting for dora!

7.2.4 Chiitoitsu not waiting for dora

Riichi criteria for chiitoitsu hands get a bit more complicated when you are not waiting for dora, summarized as follows.

Riichi judgement for chiitoitsu

Do insta-riichi with chiitoitsu (not waiting for dora) if one or more of the following holds:

- You are the dealer;
- You have tanyao;
- You have one red five, waiting for a regular five;
- The wait is a suji-trap wait;[a]
- The wait is any tile other than 4, 5, 6;
- The score without riichi is below mangan.

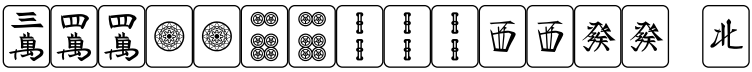
[a] An example of a suji-trap wait is: you are waiting for a 3, and a 6 in the same suit is among your discards. See Chapter 8.

This means that the only two cases where you should go dama are (a) when you are a non-dealer *and* you are waiting for 4,5,6, and (b) you have honitsu (Half Flush) or chinitsu (Full Flush) chiitoitsu.[2]

[2] It is also (theoretically) possible to have tsu iso (All Honors) chiitoitsu. Do whatever you want with such a once-in-lifetime hand. I would riichi.

The criteria do not change when your hand already has two `dora` and waits for a non-`dora` tile.

Chiitoitsu 3

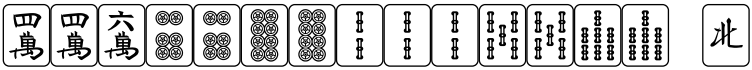


Dora

If you make the hand ready for `chiitoitsu`, you will be waiting for  , a non-4,5,6 tile. riichi is better than `dama` in this case.

⇒ Insta-riichi, discarding  !

Chiitoitsu 4

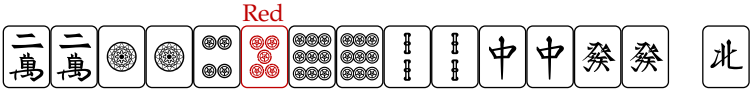


Dora

Waiting for a 6 is not ideal, but having `tanyao` justifies riichi. Aim for 6400 `ron` or `mangan` `tsumo`.

⇒ Insta-riichi, discarding  !

Chiitoitsu 5

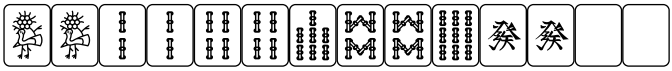


Dora

Likewise, waiting for a 5 is not ideal, but having a red five justifies riichi.

⇒ Insta-riichi, discarding  !

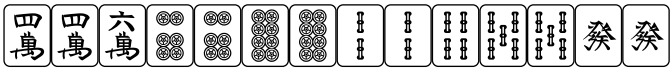
Chiitoitsu 6



Dora

Since you can get `mangan ron` or `haneman tsumo` without riichi, you should keep `dama` with this hand (discard ).

Chiitoitsu 7



Dora

With this hand, you should keep `dama` unless you are the dealer. However, if you have already discarded  &  or  &  , making for a `suji`-trap wait, you can call riichi. You can also call riichi if your wait is "cheap" in the board (more on this in the next section).

Why should we refrain from calling riichi with a single wait of 4, 5, 6? Because of the differences in versatility,[3] some tiles make for a better single wait than others. Specifically, valueless wind tiles are the best candidate for a single wait, followed by value tiles, terminals (1s and 9s), and then simple tiles. Among simple tiles, 2s and 8s are better than 3s and 7s, and 4,5,6 tiles make for the worst kind of single wait.

Since having 4,5,6 tiles is crucial to utilize red fives, your opponents are not very likely to discard them. Moreover, single waits of 4, 5, 6 are less likely to become a `suji`-trap wait before or after calling riichi, compared with single waits of 1,2,3,7,8,9. A single wait of 4 requires both 1 and 7 to be discarded to become a `suji`-trap wait. A single wait of 1, on the other hand, only requires 4 to be discarded.

[3] Recall our discussions of tile versatility on in Section 3.2.4.

7.3 When *not* to riichi

Keeping a hand dama for no reason is one of the two biggest sins in riichi mahjong (the other will be introduced in Chapter 9). **Do not ever do meaningless dama.** To put it the other way around, it is OK to keep dama if there is a reason to do so.

That said, there are not many instances where going dama is better than calling riichi. It is thus useful to memorize all these exceptional cases; then you should call riichi in all other instances. Here is a list of five situations where dama is justifiable.

Reasons to keep dama

7.3.1 Bad wait and no dora
7.3.2 In the lead
7.3.3 Genbutsu wait
7.3.4 Expensive hand
7.3.5 Many possibilities of improving the hand

7.3.1 Bad wait

It is OK to go dama if the wait of your hand is really bad, especially when your hand has at least one yaku without riichi so you can win it by ron. The question then is, what is a really bad wait? The answer depends on three things:

1. the kinds and the number of winning tiles left;
2. whether your wait is "expensive" according to your reading of the board; and
3. whether your wait is likely to appear safe in the eyes of your opponents.

1. The number of winning tiles left

The first factor to consider is the pure number of winning tiles of your hand. The more tiles you can win on, the better the wait is. Table 7.1 provides a list of representative waits (roughly) in the order of desirability.

Table 7.1: Typical wait patterns

Name	Example	Wait	Kinds & Number
side wait	三萬 四萬	二萬–伍萬	2 kinds–8 tiles
semi side wait	⊛⊛ ◎◎	⊛⊛–◎◎	2 kinds–6 tiles
stretched single	𝍠𝍠 𝍠𝍠	𝍠𝍠–𝍠𝍠	2 kinds–6 tiles
dual pon wait	二萬 二萬 ◎◎ ◎◎	二萬 ◎◎	2 kinds–4 tiles
closed wait	𝍠𝍠	𝍠𝍠	1 kind–4 tiles
edge wait	一萬 二萬	三萬	1 kind–4 tiles
single wait	⊛⊛	⊛⊛	1 kind–3 tiles

In general, wait is said to be good if there are at least two kinds and more than four tiles left to win on. Therefore, dual pon wait, closed wait, edge wait, and single wait are generally considered to be a bad wait.

In counting the kinds and the number of winning tiles for your hand, keep in mind that you have to count the kinds and the number of *live* tiles to win on. For example, if your opponents have already discarded all the four tiles of 𝍠𝍠 somehow, a side wait of 𝍠𝍠–𝍠𝍠 essentially becomes an edge wait of 𝍠𝍠, leaving only 1 kind–4 tiles to win on.

2. Cheap / expensive waits

However, this is only a part of the picture. When judging whether your wait is good enough, you should also take into account the second factor; namely, whether or not your winning tiles are likely to be used by other players in their hands. As we learned in discussing `chiitoitsu` hands, middle simple tiles 4, 5, and 6 generally have a high chance of being used by the opponents.

Judging whether certain tiles are likely to be used by the opponents also involves a bit of board reading. If your opponents have already discarded a lot of tiles in `souzu` (bamboos), for example, we say that `souzu` are "cheap" in the board. Cheap waits are good waits. Suppose three or more of  have already been discarded by your opponents. In such situations, an edge wait of  is not bad at all. This is because the paucity of  makes it rather difficult for anyone to utilize  in their hand. There is also a good chance that  tiles are live in the wall. Even when an opponent draws  after you riichi, they will have difficulty utilizing it in their hand; they have to either discard  or completely fold.

Applying the same logic, we can see why honor tiles make for a good wait. For example, suppose  had already been discarded and you now have a pair of  in your hand. Then, the opponents will have difficulty utilizing the last  when they draw it. In a situation like this, a dual `pon` wait of (and another tile) is almost as good as side wait, despite the fact that the number of tiles to win on is smaller.

On the other hand, when tiles in one suit are not being discarded as much as those in the other two suits, that suit is being "expensive" in the board. For example, suppose one or more opponents are pursuing a flush hand (i.e., `honitsu` / `chinitsu`) in `souzu`. Then, even a

side wait of  -  can be bad.

3. Trap waits

The third factor you may want to consider is whether your wait would appear safe in the eyes of your opponents. For example, when you have a closed wait of  and you have already discarded  , there is a good chance that your opponent is tricked into thinking that  is safe. This is called a `suji`-trap wait (see Chapter 8). For another example, suppose someone has a concealed quad of  when you happen to have a dual `pon` wait of  and something else. Then, the opponents may think that  may be safe to discard even when it is not.

That being said, reading the board requires some experience, and reading the opponents' thought is even more difficult. You may want to concentrate more on advancing your own hand rather than spending too much time trying to read the board. Just keep in mind that having a pair/closed/edge/single wait does not automatically mean that the wait is bad. Here is a rule of thumb to simplify your decision making.

A reason to keep `dama`: bad wait

- Call riichi if there are three or more winning tiles left in the board.
- Go `dama` if there are only one or two simple tiles left to win on.[a]

[a] When waiting for an honor/terminal tile, you can call riichi even when only one tile is left in the board.

7.3.2 In the lead

The second case where going dama may be preferred to riichi is when you are ahead of the game by much, and you just want to proceed to the next hand or finish the game while keeping your leading position. This is especially the case towards the end of the South round. For example, let's say you are in South-4 and the scores are as follows:

East (you)	39000	South	22900
West	13000	North	25100

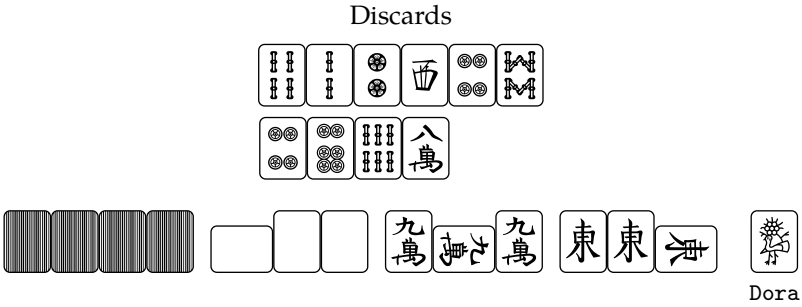
You are currently in a safe lead because even the second ranked player (North) cannot defeat you with a mangan tsumo. You can secure your position even if you deal into a mangan hand by the South or the West players. However, if you riichi, the North player can now get the first place with a mangan tsumo, and the South player can get the first place with a direct hit mangan ron from you. Do not run such risks by calling riichi. Even when you get a ready hand with a really good wait, you must go dama. For more discussions of what to do in South-4, see Chapter 10.

7.3.3 Genbutsu wait

The third case where going dama is OK is when another player is already getting a lot of attention from others (e.g., riichi, dora pon, or honitsu) and one of your winning tiles is among his genbutsu tiles. One player's genbutsu tiles are all the tiles discarded by that player *and* the tiles that are passed up by that player.[4]

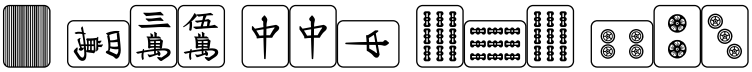
For example, suppose the dealer has the following hand and discards in East-1.

[4] See Section 8.2.1 for a more detailed explanation.



This is a confirmed 7700 hand (seat & prevailing wind + White Dragon), and the hand value can easily go up to `haneman` (18000) or `baiman` (24000).[5] In such a situation, everybody will be paying attention to the dealer (as they should). Suppose further that you manage to make your hand ready for `pinfu`, waiting for  . Then, you should keep the hand `dama`, as  is one of the dealer's `genbutsu` tiles. There is a good chance that the other two players fold against the dealer completely and try to discard nothing but his `genbutsu` tiles.

Keep in mind, though, that there is a bad kind of attention as well. For example, suppose someone is doing the following.



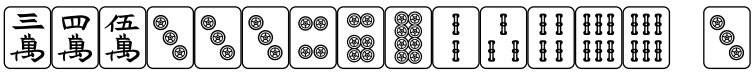
Suppose further he has already discarded `dora`. Then, he is getting a lot of attention, but no one really cares about him, let alone folds against him. In such a situation, you should call riichi even when your winning tiles are among his `genbutsu`. Punish a player who makes bad calls like this.

[5] The hand can have (a combination of) the following `yaku` in addition to what's already visible: `toitoi` (All Pungs), Green Dragon, Red Dragon, `dora`, `honitsu`, `honroutou` (All Terminals and Honors), and `shousangen` (Little Three Dragons). With this hand, the maximum possible hand value is `sanbaiman` (36000).

7.3.4 High scoring hand

When your hand is already expensive without riichi (minimum of 7700 if playing with red fives; 5200 if playing without red fives), it is OK to go dama. Let's see a few examples.

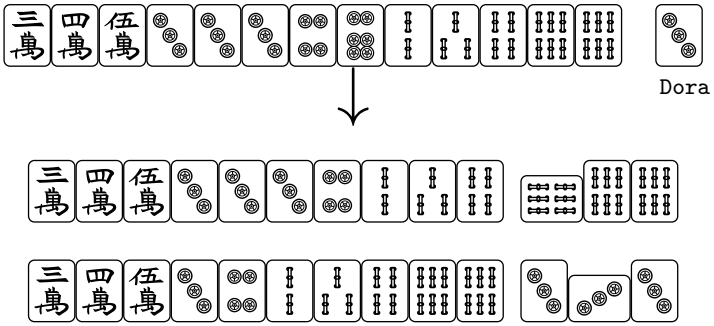
Expensive hand 1



You should keep this hand dama because the hand is already expensive (tanyao + three dora = mangan) and the wait is not very good.

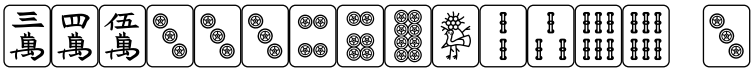
$$\Rightarrow \text{Keep dama, discarding } \boxed{\text{8p}}\text{!}$$

Why should we discard  , not  (which will make for a suji-trap wait)? This is to leave the possibility of improving the wait. If you draw or call pon on  or the fourth  after discarding  , the wait gets significantly better, as follows:



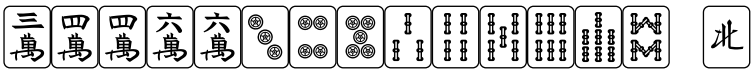
Note that, to justify dama your hand has to have *at least* 7700 when won by ron. This means that (1) your hand has to have at least one yaku (without it you cannot win by ron) and (2) its value is at least 7700 when winning on a tile that gives you the lowest possible score.

Expensive hand 2



This hand does not have `yaku` and so you cannot win by `ron` without riichi. You should do insta-riichi with this hand by discarding  .

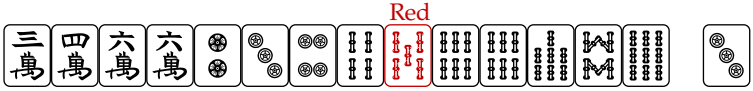
Expensive hand 3



This hand is worth 7700 when winning on  (`tanyao + pinfu + sanshoku`), but the hand is worth only 2000 if winning on  (`tanyao + pinfu`). You should therefore do insta-riichi by discarding  .

When you have an expensive hand, going `dama` is acceptable but calling riichi is also an option, especially when you have a good wait. Consider the following hand. Should we riichi?

Expensive hand 4



Discarding  , we get a confirmed 7700 hand without riichi. I already said above that it is acceptable to keep `dama` when the minimum hand value is 7700. However, would calling riichi be even better?

Riichi criteria for hands like this are as follows.

Riichi judgement for an expensive hand

- Riichi if you are far behind from other players.
- Riichi if it is the 6th turn or before and the wait is 2-way side wait or better.
- Riichi if it is the 10th turn or before and the wait is 3-way side wait or better.
- Don't riichi if the minimum hand value is `haneman` or better.

7.3.5 Many possibilities of improving the hand

It is OK to keep `dama` when there are *many* possibilities of further advancing your hand. Keep in mind, however, that it is rather rare that waiting in `dama` is worthwhile; doing insta-riichi is still better in most instances even when there are *some* possibilities of advancing your hand. It makes sense to wait in `dama` only when *both* of the following two conditions are met.

A reason to keep `dama`: improving the hand

- It is still an early turn (8th turn or before);
- There are at least six kinds of tiles that can improve the scores and/or the wait,
  or
  there is at least one kind of tiles that can improve the score by at least three `han` in one step.

Keep in mind that waiting in `dama` becomes less and less desirable towards the end of a hand. After passing the 9th turn (the midpoint

of the middle row of your discards), you'd better call riichi even if the second condition is met. Remember that the probability of drawing a particular tile is very small (roughly 3%).[6]

If you decide not to riichi, it often makes more sense to revert the hand to 1-away rather than maintaining a ready hand. As we learned in Chapter 3, a ready hand can accept fewer tiles than a 1-away hand can. For example, consider the following hand.

Since calling riichi by discarding 伍萬 gives you riichi-only with a bad wait, you may want to refrain from riichi. However, if you discard 伍萬, the hand can be improved only if you draw 1索 or 西風. Moreover, even when you luckily draw 1索, the hand is still only riichi + `pinfu`, albeit with an improved wait.

A more sensible choice here is to discard 1索 and revert the hand to 1-away, as follows.

This is another example of golden 1-away. This 1-away hand is so much better than the ready hand you'd get by discarding 伍萬. Specifically, there are four kinds of tiles that can improve the score by at least three `han`.

- If you draw 9索, the hand is ready for `junchan` (Terminals in All Sets) + `sanshoku` — `mangan` without riichi and `haneman` with ri-

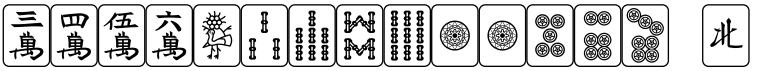
[6] As I mentioned before, when there are four kinds of tiles that can improve your hand, it will take (on average) eight turns to draw one of them.

ichi. You may want to go riichi in this case because your previous discard of 1p makes for a `suji` trap wait, although going `dama` is also OK.

- If you draw 1m, the hand is ready for `pinfu + junchan + sanshoku` — `haneman` without riichi. You may still want to riichi. It would be a shame to win this monster hand on 1p, but doing so without riichi is the worst.

- If you draw 4m or 6m, the hand is ready for `pinfu + ittsu` — 7700 with riichi. You should definitely riichi. Going `dama` with this hand is absurd.

For another (less exciting) example, consider the following hand.

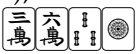


Dora

Suppose this is the 5th turn in a hand. The choice is between (1) discarding 3m to make this hand ready or (2) discarding 9s to revert the hand to 1-away.

It is OK to choose either of the two in this case, but there is one thing you should *not* do. That is discarding 3m without calling riichi. If, according to your reading of the board, a closed wait of 1p is good enough (e.g., none of 1p has been discarded yet, but lots of other tiles in `souzu` (bamboos) have been discarded), do insta-riichi. Waiting in `dama` with a `yaku`-less hand is generally a bad move. If you discard 3m just to keep the hand ready, the hand cannot be won by `ron`, and it can be improved only if you draw 1p. It makes no sense to have

such a hand.[7]

If you want to wait and improve the hand, you should discard  to revert the hand to 1-away. If you draw any of  (5 kinds–15 tiles), both the wait and the scores get improved. If you draw any of  (4 kinds–11 tiles), at least the wait gets improved. A basic rule of thumb with a yaku-less hand is as follows.

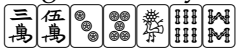
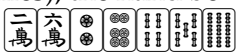
What to do with a yaku-less hand

- Riichi if you make the hand ready.
- Don't make it ready if you don't riichi.

Yaku-*less* dama

In some exceptional situations, it may make sense to wait in dama while keeping a yaku-less ready hand.

Dora

This hand has one dora with a bad wait (single wait of  or ). According to the riichi criteria given at the beginning of this chapter, you could call riichi with this hand. In fact, if it is already the 9th turn or later, you should definitely do insta-riichi. However, if it is the 6th turn or before, waiting in dama by discarding  or  is an option. If you draw any of  (7 kinds–21 tiles), the hand becomes pinfu with a semi side wait. Moreover, with 

[7] Of course, if this were towards the very end of a hand (15th–18th turn), it would make a lot of sense to have a yaku-less dama hand in order to avoid noten penalty.

(7 kinds–28 tiles) the wait will become a stretched single wait. When there are this many possibilities of improving a hand (14 kinds–49 tiles), it is OK to go dama with a yaku-less hand.

7.4 Glossary

Insta-riichi is to riichi immediately when a hand becomes ready rather than wait for a few turns to riichi. Basically, all riichi should be insta-riichi.

Dama is not to riichi when having a closed ready hand. See Section 7.3 for cases where going dama might be better than riichi.

Yaku**-less** dama is when you have a ready hand with no yaku and choose not to riichi. There are very few instances where doing so is justifiable.

Genbutsu are tiles that are safe for a given player, either because they were discarded by that player themselves or because they are discarded by other players after that player called riichi. See Section 8.2.1 in Chapter 8.

Chapter 8

Defense judgement

8.1 To push or to fold?

Knowing when to push and when to fold is another important element of mahjong strategies. Push–fold judgement is a lot more complicated than riichi judgement covered in the previous chapter. In presenting defense strategies, I will first describe a very simple principle that tells you when to be defensive and when to be offensive, based purely on your hand. After understanding this principle, the next step is to understand *how* to be defensive. The latter part of this chapter introduces a set of defensive techniques.

8.1.1 A simple principle

A lot of variables can factor into our decision to push or to fold against the opponents. You may want to consider, among other things, whether or not you currently have a ready hand, the potential hand value of your hand, the likely hand value of an opponent's hand, your current rank in the game, the opponent's standing in the game, just to name a few.

It is simply impossible to take into account these and other important factors all at once in a limited amount of time. Instead, I suggest you utilize the following shortcut for push/fold judgement.

Push/fold judgement

When another player has a ready hand,

Push if **two** of the following conditions are met:

1. Ready hand;
2. High scoring hand;
3. Good wait.

Fold if **two** of the following conditions are met:

1. 1-away (or worse) hand;
2. Low scoring hand;
3. Bad wait.

Let me explain each component of this principle in turn.

8.1.2 Guessing if an opponent has a ready hand

First, you need to guess if another player has a ready hand or not; if your opponent does not have a ready hand, there is no point in playing defensive. Of course, knowing whether an opponent has a ready hand can be difficult. Rather than spending too much time trying to guess if they have a ready hand, let's stick with rough but simple shortcuts.

There are three possibilities to consider.

A. `Riichi`
   This is the easiest case. You can be fairly certain that the opponent has a ready hand. We will talk about how to defend against riichi in Section 8.3.

B. Open ready hand
   Knowing whether or not an opponent has an open ready hand

is a bit complicated. We will discuss this in Section 8.4.

C. `Dama` ready hand
We will completely ignore this case.

Assuming an opponent would not have a `dama` ready hand is obviously not always correct. Nevertheless, this shortcut would be acceptable given that accurately guessing whether or not an opponent has a ready hand is extremely difficult. Part of the reason why it is OK to ignore the case of `dama` ready hand lies in the fact that riichi is such a powerful tool in riichi mahjong that calling riichi is strictly better than going `dama` in most instances; your opponents cannot win a game if they keep choosing `dama` when they should call riichi (and they are likely to know that).

8.1.3 Three conditions to push/fold

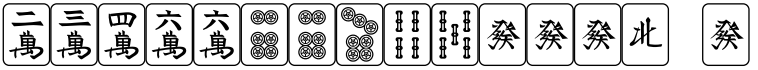
Note that, according to the principle laid out above, just because (you think) an opponent has a ready hand, it does not automatically mean that you must fold immediately. Specifically, you should still push if two out of the three conditions specified above — ready, high score, and good wait — are met.

The first condition is fairly straightforward. Just remember that a clear, firm line should be drawn between having a ready hand and having a 1-away (or worse) hand. Pushing with a 1-away hand is acceptable only when *both* of the other two conditions are met.

The second condition is also straightforward. We say a hand is a high scoring one if the minimum hand value is 7700; otherwise it is a low scoring hand (recall the discussion in Section 7.3.4 from the previous chapter).

The third condition (good / bad waits) needs some explanation. When you have a ready hand, this is straightforward. You can decide if the third condition is met simply based on the waits classification discussed in Section 7.3.1 from the previous chapter. That is, wait is good if it is at least as good as stretched single or semi side wait (2 kinds–6 tiles); dual `pon` wait, closed wait, edge wait, and single wait are usually considered to be a bad wait.

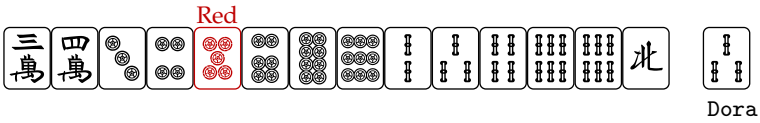
The question then is: how do we judge if a hand has a good wait when the hand is 1-away or worse? When a hand is 1-away or worse, your judgement should be based on the *best* possible wait pattern you can choose when the hand becomes ready in the *worst* possible manner. An example will be helpful. Suppose you have the following hand when another player calls riichi.



Dora

This hand is not ready but has the minimum of 7700 point, so your decision to push or fold depends on the third condition. Notice that this is a perfect 1-away hand; no matter how this hand becomes ready, you can *always* choose to have a side wait. In other words, the *best* possible wait pattern you can choose when this hand becomes ready is always a good one. If you draw or `pon` on 六萬 or 6 or `chii` 6–7, you can have a side wait of 1–4. If you draw or `chii` 1–4, you can have a side wait of 6–7. Therefore, you can push to the fullest (`zentsu`) with this hand.

On the other hand, the following hand is also 1-away from ready with a high scoring potential, but it will not always lead to a good-wait ready hand.



Specifically, it will be a side-wait ready hand *only* if you draw  first. If you draw   first (which will occur with a much higher probability than drawing  will), it will be a closed-wait hand. Therefore, the *best* possible wait pattern in the *worst*-case scenario is not a good one. Therefore, you should fold with this hand when you are forestalled by an opponent.

For another example, consider a `chiitoitsu` hand. A `chiitoitsu` hand will always have a bad wait. This means that you should in principle fold if an opponent calls riichi when your `chiitoitsu` hand is not ready, even if you have two or more `dora` in your hand.

8.2 Defense basics

Once you understand the criteria to fold, the next thing you need to know is *how* to fold. There are three main ways to identify safe tiles to discard.

8.2.1 `Genbutsu` and other absolutely safe tiles

I introduced the term `genbutsu` in the previous chapter. Strictly speaking, `genbutsu` tiles of player X refer to those tiles discarded by X himself. However, if X has called riichi, then all the tiles discarded by anyone after riichi (and passed up by X) are also called X's `genbutsu` tiles.

`Genbutsu` tiles of player X are 100% safe against X, but not necessarily safe against the other two players.[1] There are three kinds of

[1] Of course, a tile discarded by all three of your opponents is safe against all three players.

tiles that are 100% safe against all of the opponents.

- The tile that was just discarded by your left player.
- A fourth honor tile when there is no possibility of Thirteen Orphans.
- An absolute "no chance" tile.

The first kind is fairly straightforward. Because of the `furiten` rule, the tile just discarded by the left player is 100% safe for you to discard in the present turn. That tile is not only `genbutsu` for the left player but also a temporary `genbustu` for the right and the facing players. Until their temporary `furiten` status is lifted, the right and the facing players cannot call `ron` on it.

The second kind of absolutely safe tile is relatively simple. Suppose all four of  are visible to you (among the discards, in your hand, or as a `dora` indicator). Then, none of your opponents can win Thirteen Orphans unless you discard  . In such situations, a fourth honor tile is 100% safe. That is,  is 100% safe for everyone if all the other three tiles of  are visible to you.

The third kind, absolute "no chance", needs some explanation. Let me just give you an example here. Suppose all four tiles of  , all four tiles of  , and all three tiles of  are visible to you. Then, the fourth  is 100% safe for everyone because this tile cannot be a part of any set, run, or pair. I will explain more about "no chance" tiles in Section 8.2.2 of this chapter.

Of course, it is not always possible to find tiles that are 100% safe for the player who has called riichi (let alone for all three opponents). Therefore, we need to know how to identify relatively safe tiles by

relying on suji and kabe (blockade) theories. I will introduce these two theories in turn.

8.2.2 Understanding suji

When someone calls riichi, the possibility you need to be wary of first and foremost is that the opponent has a side-wait hand. It is true that players will call riichi even when their wait is worse than side wait. However, according to some statistics,[2] about two thirds of riichi hands have a side wait or better. This is partly because the likelihood of choosing dama increases when the wait is bad. Another reason is that players seek to retain side-wait protoruns over closed- or edge-wait protoruns when choosing tile blocks to maximize tile efficiency.

Suji defense is a defense tactic to avoid dealing into a side-wait hand. A suji is a three-tile interval that corresponds to the wait of a side-wait hand. For example, when a hand has a side-wait protorun 二萬三萬, the wait is 一萬 or 四萬. This wait combination of 一萬 and 四萬 is called 一萬–四萬 suji. There are 6 suji in each suit, giving rise to 18 suji in total. All the six suji and their corresponding side-wait protoruns are summarized in Table 8.1.

Table 8.1: Six suji

suji	protorun	suji	protorun
1-4 suji	二萬三萬	4-7 suji	伍萬六萬
2-5 suji	三萬四萬	5-8 suji	六萬七萬
3-6 suji	四萬伍萬	6-9 suji	七萬八萬

When 四萬 is among a player's genbutsu, we say 一萬 and 七萬 are suji tiles. Suji tiles are safer than non-suji tiles because the furiten rule

[2] See, for example, https://osamuko.com/identifying-dangerous-suji/.

Table 8.2: suji tiles

Genbutsu	suji tiles
4m discarded	1m and 7m become safer
5m discarded	2m and 8m become safer
6m discarded	3m and 9m become safer
1m and 7m discarded	4m becomes safer
2m and 8m discarded	5m becomes safer
3m and 9m discarded	6m becomes safer

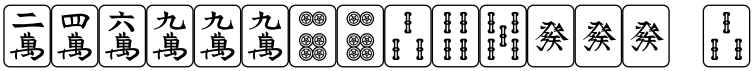
prohibits a player from calling ron on 1m when 4m is his genbutsu *and* his wait is 1m-4m. Likewise, when 5m is among a player's genbutsu, 2m and 8m are suji tiles and thus they are safer than non-suji tiles; when 6m is among a player's genbutsu, 3m and 9m are suji tiles and thus they are safer than non-suji tiles.

Although 4m makes 1m a suji tile, the opposite is not true; 1m in itself does *not* make 4m a suji tile. 4m is no safer than other tiles just because 1m is among genbutsu. What 1m negates is the possibility of the 1m-4m side wait, but the 4m-7m side wait is still a possibility. 4m becomes safer only when *both* 1m and 7m are among a player's genbutsu. Table 8.2 summarizes combinations of genbutsu tiles and tiles that are made safer by them.

Suji *trap*

Keep in mind that suji defense works only against side-wait hands. Since players will call riichi even when their wait is worse than side wait, we cannot rely too much on suji. When you wait for a tile that is a suji tile of some tiles you have discarded yourself, we say you have a suji-trap wait. In particular, when your wait is a suji tile of the riichi declaration tile, we say it is an immediate suji-trap

wait. An immediate suji-trap riichi is a rather common occurrence in riichi mahjong primarily because of double closed shape (e.g., 135, 246, 357, etc.). Consider the following hand.



Dora

If you call riichi by discarding the 六萬, the hand waits for 三萬, which is a suji tile of 六萬 (immediate suji-trap riichi).

In general, the reliability of suji is higher for tiles discarded earlier in a hand. That is, suji tiles of early discards tend to be safer, whereas suji tiles of those tiles that are discarded later are more dangerous. In particular, suji tiles of the tile discarded upon riichi is at least as dangerous as non-suji tiles.[3]

For example, suppose an opponent calls riichi in the 7th turn with the following discards.

riichi

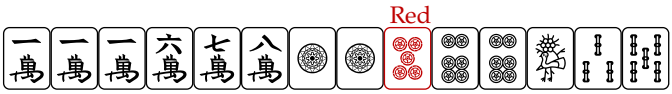
There are three tiles in the discard that create suji tiles.

- 四萬 makes 一萬 and 七萬 suji tiles.

[3] You might wonder about the reliability of suji for those tiles discarded *after* riichi. There is in fact a big disagreement among professional players about whether those tiles discarded after riichi make for safe or dangerous suji. For example, 渋川 難波 (Nanba Shibukawa; NPM) argues that suji tiles of those discarded after riichi are more dangerous than suji tiles of those discarded before riichi, whereas 石橋 伸洋 (Nobuhiro Ishibashi; Saikouisen) argues the exact opposite. However, both schools of thought agree that the very tile discarded upon riichi makes for dangerous suji. See http://osamuko.com/identifying-dangerous-suji/ for some data analyses.

- 8m makes 2p and 5p `suji` tiles.
- 4s makes 1s and 7s `suji` tiles.

Note that 9m and 5z do not create any `suji` tiles on their own. Among these three tiles 4m 5m 6m, `suji` tiles of 4m are relatively safe, whereas `suji` tiles of 6m are rather dangerous. The reason why `suji` tiles of 6m are dangerous is that players tend to keep double closed shape such as 6m 7m 8m or 5m 6m 6m until the hand becomes ready. Consider the following 1-away hand.



We would discard 8m rather than 6m. Then, if we draw 5p-Red first, we do insta-riichi by discarding 6m, creating an immediate `suji`-trap wait.

3. Understanding tile blockade (`kabe`)

Another defense tactic to identify safer tiles is to utilize a **tile blockade** (`kabe`; wall). When chunks of a number tile are visible to you, we say these tiles form a blockade; they block a formation of runs that contain that tile. Suppose all four of 2m are visible to you, either because they have been discarded, they are in your hand, or they are used as a `dora` indicator. Then, none of your opponents can have 1m-4m `suji` wait, making 1m relatively safe. This is because no one can have a protorun 2m 3m in such a situation.

No chance

When *all four* of a number tile are visible, we say we have a "no chance" situation, meaning that there is no chance that an opponent

has a suji wait that contains the tile that forms a blockade. In the example above, 一萬 is a no-chance tile thanks to a blockade of 二萬.

No-chance tiles are safer than a non-suji tile, but keep in mind that dual pon wait and single wait of a no-chance tile is still possible. A nice thing about no-chance tiles is that their safety does not depend on whether it is a suji tile or not. For example, when we have a blockade of 二萬, 一萬 is safe regardless of whether 四萬 is among genbutsu. Note also that 四萬 is not necessarily safe just because we have a blockade of 二萬, for 四萬–七萬 suji wait is still a possibility. Of course, when all four of 二萬 are visible to you *and* 七萬 is among a player's genbutsu, then 四萬 becomes safer for that player.

Table 8.3 summarizes possible blockades and the resulting no-chance safe tiles. Notice that each blockade can produce at most two sets of safe tiles. It should be easy to see how a blockade of 1 does not make any tile safer, a blockade of 2 makes 1 safer, and that a blockade of 3 makes 1 and 2 safer. However, a blockade of 4 makes only 2 and 3 safer, as it negates 2-5 and 3-6 waits that contain 4, but it does not make 1 any safer. Similarly, a blockade of 5 makes only 3 and 7 safer, negating 3-6 and 4-7 suji waits.

Blockade	Safe tiles
一萬	None
二萬	一萬
三萬	一萬 二萬
四萬	二萬 三萬
伍萬	三萬 七萬
六萬	七萬 八萬
七萬	八萬 九萬
八萬	九萬
九萬	None

Table 8.3: Blockades

A blockade can negate non-suji waits as well. For example, if all four of 三萬 and all four of 伍萬 are both visible, then a closed wait of 四萬 is impossible. An opponent has to have a dual pon wait or a single wait if he is to win on 四萬. If, additionally, all three of 四萬 are visible to you as well, then the fourth 四萬 is 100% safe. Waiting for 四萬 in this situation is simply impossible.

A blockade can also negate certain yaku, which decreases the chance that an opponent has an expensive hand. For example, when all four of  are visible to you. Then an opponent cannot have ittsu (Pure Straight) in manzu (cracks). This information can help us decide whether to discard a non-suji  or a non-suji . The chance of dealing into an opponent's hand is equal, but the chance of dealing into an expensive hand is lower with . A blockade of also negates sanshoku of 123, 234, or 345. This information can help us decide whether to discard a non-suji or a non-suji . Again, the chance of dealing into an opponent's hand is equal, but the chance of dealing into an expensive hand is lower with .

One chance

When only three of a number tile are visible to you, we have an incomplete blockade, making for what's called "one chance" tiles. One-chance tiles are generally safer than non-suji tiles, but not as safe as no-chance tiles. The reliability of incomplete blockades depends on two things.

First, relying on an incomplete blockade is effective in earlier turns but not as much in later turns. Suppose that an opponent calls riichi, and is among his discards. Then, because other players are likely to discard if they have one, this tile may become an incomplete blockade later on. However, an incomplete blockade formed this way is not very reliable. When all three players have apparently folded *and* the fourth is still invisible to you, then it is highly likely that the riichi'ed player has it. One-chance tiles would become almost as dangerous as non-suji tiles in later turns in situations like this.

Second, one-chance tiles are more reliable when the incomplete blockade that makes for a one-chance tile is known *only to you*, thanks

to a concealed set or a pair in your hand. On the other hand, one-chance tiles that are created by an incomplete blockade in the discard pool are not particularly safe. This is because an opponent is more likely to choose riichi over `dama` when one of his winning tiles is a one-chance tile and appears safe.

When we have two incomplete blockade of consecutive number tiles, we say they form a "double one chance" situation. For example, if three of  and three of are both visible, an opponent has to have the fourth *and* the fourth to have – `suji` wait, which is highly unlikely. Therefore, double-one-chance tiles are safer than single one-chance tiles.

Tile blockade: Safety ranking

No chance > Double one chance > One chance (earlier turns) > One chance (later turns) ≃ Non-`suji`

Combining blockade and `suji`

When we have a blockade of *and* is among a player's `genbutsu`, we can deny not only – `suji` wait but also – `suji` wait, making safe. Combining the blockade and `suji` theories like this might seem a bit complicated at first, but you will get used to it as you play more games.

8.2.3 Safety ranking

Based on what we have learned so far, Table 8.5 below provides a ranking of tile safety.

Table 8.5: Safety ranking

Rank	
100%	`Genbutsu`
AAA	Fourth `suji` terminal; Fourth honor tile
AA	Third `suji` terminal; Third honor tile
AA-	Second `suji` terminal
A+	Second valueless wind tile; First `suji` terminal
A	Second honor tile
BBB	`Suji` 4,5,6; No-chance tile
BB+	`Suji` 2, 8
BB-	`Suji` 3, 7; One-chance tile (earlier turns)
B	First honor tile
CC	Non-`suji` terminal
C	One-chance tile (later turns)
DDD	Non-`suji` 2,8
DD	Non-`suji` 3,7
D	Non-`suji` 4,5,6

There is not much difference between ranks if they are given the same alphabet. Tiles in the AAA ranking are dangerous only against Thirteen Orphans. When Thirteen Orphans is not possible (i.e., there are some terminals or honors that are already exhausted), they become 100% safe. Fourth tiles mean that three of that tile have already been discarded. Likewise, third, second, and first tiles mean that two, one, or none of that tile have already been discarded, respectively.

There is a difference between 4,5,6 tiles, 3,7 tiles, 2,8 tiles, and terminals (1,9) because of the difference in versatility. Non-`suji` 4,5,6 tiles are the most dangerous because they can be caught by two dif-

ferent suji waits. For example, 4 can be caught by a 1-4 suji and a 4-7 suji, making it doubly dangerous. 3,7 tiles are more dangerous than 2,8 tiles because 3,7 can be caught by an edge wait, whereas 2,8 tiles cannot. terminals cannot be caught by either an edge wait or closed wait. Suji 4,5,6 tiles are safer than suji 2,8 tiles because 4,5,6 make for bad candidates for dual pon wait or single wait.

8.3 Defense against riichi

Putting together what we have learned so far, the defense strategy against an opponent's riichi can be summarized as follows.

Defense against riichi

- Do not discard **Rank D** tiles against an opponent's riichi until your hand becomes ready
  (unless your hand has a really good wait *and* a really high score).
- If you need to push when your hand is 1-away from ready, you can discard **Rank C** or safer tiles. Only if your hand has a guaranteed `mangan`, you can discard **Rank D** tiles.
- If you need to push when your hand is 2-away from ready or worse, you can discard **Rank B** or safer tiles.
- If you cannot satisfy the above criteria, you must completely fold (`betaori`).

8.3.1 What to discard when you get stuck

When you cannot identify safe tiles at all, rely on the following and try to be as safe as possible.

Tile chunks

Discard pairs and concealed sets. Once you get one tile passed against a riichi'ed player, you can be safe for the next turn or two.

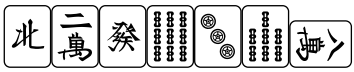
Avoid dealing into expensive hands

If you discard terminals, you can avoid dealing into a `tanyao` (All Simples) hand. Also, try not to discard the `dora` indicator tile (when

`dora` is a number tile) and any tiles close to `dora`, as well as the `dora` tile itself.

Tiles outside early discards

Tiles that are outside those discarded in "early" turns are relatively safe. Consider the following riichi.



riichi

This opponent discarded 二萬 in the 2nd turn, which is relatively early. This suggests that he is not very likely to have 一萬–四萬 `suji` wait. If he had a tile block 二萬二萬三萬, he would probably have kept it and discarded something else. This line of argument is obviously not 100% reliable. However, if you compare 九萬 and 一萬 in the current example, 一萬 is relatively safe.

8.3.2 Miscellaneous

Here are some additional factors you may want to take into account when deciding whether or not to be defensive, and how much defensive you should be.

Your position in the game

You should be more defensive when you are ahead of the game, while you should be more aggressive when you are behind. This should especially be the case in the South round.

Turn

You can be more aggressive in earlier turns, whereas you need to be much more defensive towards the end of a hand. Suppose an opponent calls riichi in the 3rd turn, and your hand is 1-away

from ready. Since you have 15 more turns to draw, you still have a good chance of making the hand ready. In such situations, it may be worthwhile to be a little bit aggressive against riichi. However, if you have only three more turns to draw (i.e., in the 15th turn) and your hand is still 1-away from ready, the chance of making a ready hand before the hand ends is very low. It is not worthwhile to discard dangerous tiles at this point.

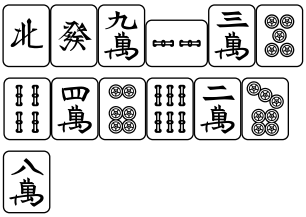
Moreover, in earlier turns, there are many `suji` that are "alive", which diminishes the probability of dealing into an opponent's side-wait hands. For example, suppose an opponent calls riichi with the following discard.


riichi

So far, only 2 out of 18 `suji` have been denied by the discards ( –  and  – ), leaving 16 `suji` alive. Suppose you are considering whether to discard  . Assuming that the riichi'ed player has a side-wait hand, the conditional probability of dealing into his hand with  is only $\frac{1}{16}$ at this point.[4]

However, as the hand proceeds, the number of live `suji` waits will decrease, making it more and more dangerous to discard a non-`suji` tile. Suppose that the hand proceeds and the riichi'ed player's discard is as follows.

[4] Since the riichi'ed player may not have a side-wait hand, the joint probability that this is a side-wait hand *and* the hand waits for  is even lower than $\frac{1}{16}$. The total probability that the riichi'ed player is waiting for is a bit greater than this joint probability because of the possibility of dual `pon` wait and single wait.



Since as many as 16 suji waits have already been denied, there are only 2 suji waits that are "alive" ( – ). Then, the conditional probability of dealing into his hand with  given that he has a side-wait hand is now as high as 50%. This gives us an additional reason to be more defensive towards the end of a hand.

Opponent's style

If you know the type of opponent you are facing, you may want to take that into account. For example, if you know that your opponent is an old-fashioned player who calls riichi only when they have a good-wait hand, you can rely heavily on suji theories.

However, if you know that your opponent understands the modern riichi strategies as described in the previous chapter, it is more difficult for you to guess whether he has a good wait or a bad wait. This is because he would not shy away from riichi even with a bad-wait hand. You cannot rely too much on suji theories in such situations.

8.4 Defense against open hands

8.4.1 Guessing if an opponent has a ready hand

To defend against an open hand, we first need to know if an opponent has a ready hand or not. Again, we will use some simple shortcuts, which hopefully lead us to the right conclusion most (if not all) of the time.

Defense against open hands

Assume an opponent has a ready hand in any of the following situations.

1. He has three or more open sets / runs.
2. When he is doing a flush hand, he starts discarding tiles in the suit he is supposedly collecting.
3. He keeps discarding the tile that he draws.

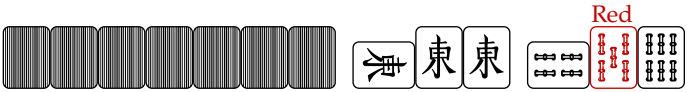
8.4.2 Estimating the value of an opponent's hand

The next thing you need to know is how expensive an opponent's hand is. Although it is practically impossible to infer riichi'ed player's hand value, we can often estimate the hand value of an opponent's open hand. If you can easily see that an opponent's hand is `tanyao`-only or `fanpai`-only, there is no need to be defensive.

Open hands with `dora`

An obvious case of an expensive open hand is one with `dora` tiles. For example, if an opponent has an open set of `dora`, clearly he has

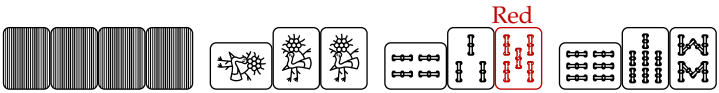
a four-han (or higher) hand. Also, if you play with red fives, scores get expensive quite easily. For example, suppose the dealer has the following open hand in East-1.



Then, this hand has at least 5800 (seat and prevailing wind + red five). Try not to push too hard against this player.

Flush hands

Flush hands (honitsu or chinitsu) tend to get expensive as well.



A hand like above has a minimum of 3900 and a maximum of haneman if you deal into it with a souzu tile. You should fold when you draw an unwanted souzu tile.

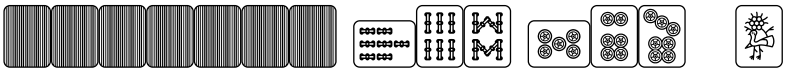
Value tiles

Open sets of value tiles also make for an expensive hand.

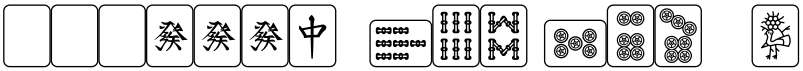
This is a pretty scary hand. You should not discard anything other than genbutsu tiles.

Cheap hands

On the other hand, you can sometimes see that an opponent is likely to have a cheap hand. For example, suppose an opponent is doing the following.



We can see that `honitsu` and `ittsu` are impossible and `sanshoku` is unlikely. If all of the `dora` tiles and red fives are visible to you (in your hand or among the discards), you can be pretty sure that this hand is inexpensive. It is true that the following is still a possibility.



But, you may be able to rule this out if you check what value tiles are still alive in the wall.

8.4.3 Identifying dangerous tiles against open hands

You can't win your own hand if you completely fold every time an opponent melds. Unless an opponent has an obviously expensive hand (e.g., three open sets of value tiles, etc.), we would want not to fold completely but to discard some tiles that are not particularly dangerous. It is therefore important to identify dangerous tiles against open hands.

For example, consider the following.

This opponent probably has a `toitoi` (All Pungs) hand (otherwise, it would be cheap so you can ignore it). If it is `toitoi`, `suji` theories and blockade theories are completely useless (remember, their purpose is to avoid dealing into side-wait hands). Most dangerous tiles in this situation are "raw" tiles (tiles that are completely invisible to you). In particular, you should not discard raw value tiles. As single wait is also a possibility, all honor tiles are generally dangerous (unless they are the fourth tile).

For another example, consider the following.

Dora

In a situation like this, one possibility is that the opponent has a dual `pon`-wait hand with value tiles on the one hand and `dora` tiles on the other, as follows.

Dora

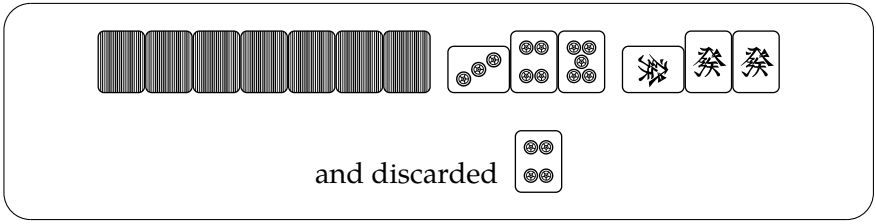
Especially when you are facing a "reliable" opponent, there would be a good reason (such as having two `dora` tiles) why he rushed by melding a side-wait protorun first.

8.4.4 Discard upon `chii`

We can sometimes identify tiles that are relatively safe or relatively dangerous against an open hand by paying attention to what an opponent discarded upon calling the last `chii` or `pon`. Consider the following three cases.

Case 1 `chii` → *discard a tile in the same suit*

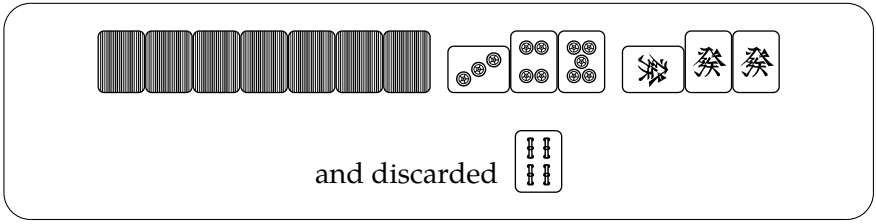
An opponent who had an open set of 發 called `chii` on 2p and discarded 2p.



In this case, it is unlikely that this opponent has a wait in the neighborhood of 2p, so `pinzu` (dots) tiles such as 1p 3p 4p 5p 6p are relatively safe.

Case 2 `chii` → *discard a tile in a different suit*

An opponent who had an open set of 發 called `chii` on 2p and discarded 3s.

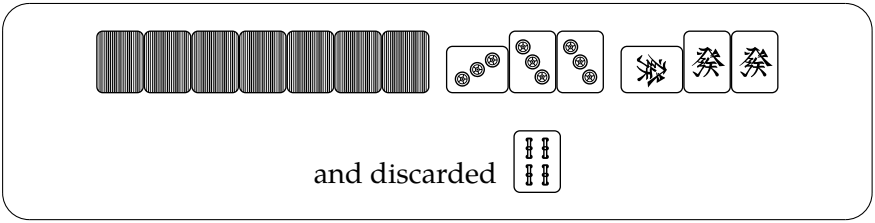


In this case, this opponent's wait is very likely to be in the neighborhood of the the last discard, 3s. In particular, 1s–4s `suji` and 4s–7s `suji` are extremely dangerous, and a closed wait of 5s is also

a possibility.

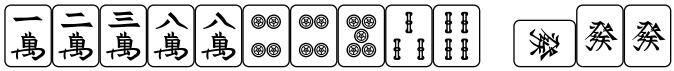
Case 3 `pon`

An opponent who had an open set of 發 called `pon` on 🀙 and discarded 🀜.



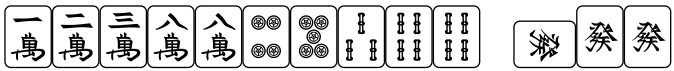
In this case, this opponent's wait can be in any suit; we cannot identify which tiles are particularly safe or dangerous.

What makes these differences? These readings are based on an assumption that the opponent has a good 1-away hand before calling the last `chii` or `pon`. In Case 1, the opponent has the following perfect 1-away hand before the last `chii`.



Then, after calling `chii` on 🀙 the opponent discards 🀙, making the neighborhood of 🀙 relatively safe.

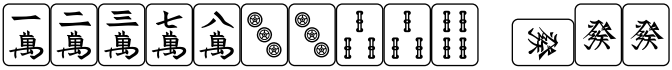
On the other hand, in Case 2, the opponent has the following perfect 1-away hand before the last `chii`.



Then, after calling `chii` on 🀙 the opponent discards 🀜, making the neighborhood of 🀜 dangerous. In this particular case, the resulting

wait is  –  `suji`. If the  block were  instead, the resulting wait is  –  `suji`. If the  block were  , the resulting wait is  .

Finally, in Case 3, the opponent has the following perfect 1-away hand before the last `pon`.



Then, after calling `pon` on  the opponent discards  , making the wait unrelated to  . Notice that, if the opponent calls `chii` on  with this hand and discards  , the neighborhood of the last discard becomes dangerous (just like Case 2). Similarly, if the opponent calls `chii` on  with this hand and discards  , the neighborhood of the last discard becomes safe (just like Case 1).

Discard upon `chii`

- `chii` → discard a tile in the same suit
  ⇒ the neighborhood of the last discard is safe
- `chii` → discard a tile in a different suit
  ⇒ the neighborhood of the last discard is dangerous
- `pon`
  ⇒ wait can be anything

8.5 Glossary

`Zentsu` is to push to the fullest, usually against an opponent's riichi.

`Betaori` is to fold to the fullest.

`Suji` is a three-tile interval that corresponds to the wait of a side-wait hand. There are six `suji`: 1-4, 2-5, 3-6, 4-7, 5-8, and 6-9. See Section 8.2.2.

`Suji` **tile** is a tile that is made safe against side wait when a certain tile(s) is among an opponent's `genbutsu`. For example, when  is among `genbutsu`,  and  are safe against a side-wait hand.

`Suji` **trap** is when the wait is a `suji` tile. When this happens, the wait is either dual `pon` wait, closed wait, edge wait, or single wait.

Blockade (`kabe`; wall) is formed when three or four of a number tile are visible to you. When all four of a number tile are visible, they form a complete blockade, making for no-chance tiles. When three of a number tile are visible, they form an incomplete blockade, making for one-chance tiles.

No-chance tile is a tile that is made safe by a complete blockade. There is "no chance" that an opponent has a protorun that includes a tile that is blocked.

One-chance tile is a tile that is made safe by an incomplete blockade. There is "one chance" that an opponent has a protorun that includes a tile that is blocked.

Chapter 9
Melding judgement

9.1 To meld or not to meld?

Melding decisions — to call `pon`/`chii` or not to call — depend on a lot of variables. The most important criteria of all are the following two.

When *not* to meld

Do not meld if one of the following two holds.

1. The hand is *both* cheap and far from ready.
2. Melding significantly reduces the hand value.

I will discuss each of the two in turn, and then discuss exceptional situations that justify melding even when the two conditions above are satisfied.

Throughout this chapter, I assume that you are playing with rule sets that allow open `tanyao`. Although older EMA rules did not allow it, revised EMA rules (effective as of April, 2016) now allow `tanyao` to be an open hand. I will also assume that you are the South player in the 6th turn in East-1 unless otherwise stated.

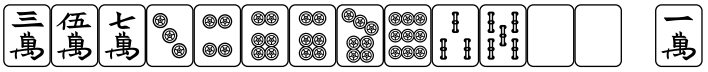
9.1.1 When not to meld 1: cheap and slow

Melding is acceptable only when your hand is either expensive or fast. Melding with a cheap *and* slow hand is one of the two biggest sins in riichi mahjong.[1]

[1] As we learned in Chapter 7, the other big sin is meaningless `dama`.

When we say a hand is "slow", we mean that the hand is 2-away or worse *after* melding (i.e., 3-away or worse before melding) *and* with a bad wait. Let's see a few examples.

Cheap and slow hand



Dora

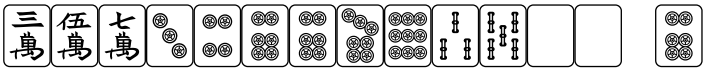
An opponent discarded [ ] just now.

You should not call `pon` in this situation. Even after calling `pon`, the hand is still 2-away from ready with a couple of bad waits, as follows.

Dora

The probability of winning this hand any time soon is not very high. What if an opponent calls riichi now? You will have nothing but simple tiles between 3 and 7 to discard. It is not worthwhile to discard such tiles against riichi when you have a cheap 2-away hand. When your hand is cheap and slow, you should worry more about keeping safe tiles such as [ ] than about winning the hand.

Slow but expensive hand

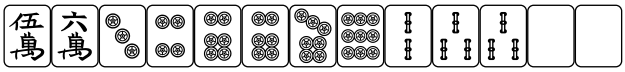


Dora

An opponent discarded [ ] just now.

This time, you can call `pon` on [ ] then discard [ ]. This hand is still slow (after all, the hand shape is exactly the same as before), but it has a potential to be 7700 (White Dragon + `sanshoku` + two `dora`) even when you open it. When you see a high score potential, you can meld even with a slow hand.

Cheap but fast hand



Dora

An opponent discarded  just now.

Again, you can call `pon` on  then discard  . This hand is cheap and it will be 2-away after the `pon`, but all the remaining blocks have a good wait. When you can expect to win a hand in no time, you can meld even with a cheap hand.

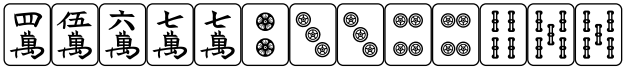
Melding judgement 1

Don't meld with a cheap and slow hand!

9.1.2 When not to meld 2: big gap in hand values

You should also refrain from melding when doing so significantly reduces the hand value. More specifically, do not meld when the hand value drops from 7700 or above to 2000 or below.[2]

Cheap but fast hand



Dora

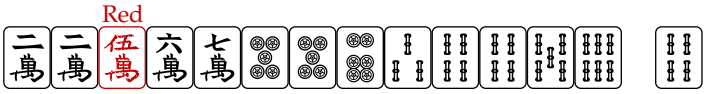
The left player discarded  just now.

Do not meld with a hand like this, at least until the 13th turn or so (the third row in the discard). Although calling `chii` on  will make the hand ready with a good wait, the hand value reduces to 1000. If you keep the hand closed and call riichi, the hand can potentially be

[2] When the hand value reduces from `haneman` to `mangan`, or from `baiman` to `haneman`, melding is acceptable. This is because `mangan` is already expensive enough.

a game-deciding hand with a realistic possibility of getting `mangan` or `haneman`.[3]

Fast and expensive hand



The left player discarded  just now.

Calling `chii` on  will make the hand ready with a good wait and a high score (7700). It is true that this hand can be even more expensive if you keep it closed. However, 7700 is already pretty expensive. An additional `han` does not improve the hand value as much beyond 4 `han`. We should thus call `chii` on  , especially after the 9th turn or so.

Melding judgement 2

Don't meld if melding significantly reduces the hand value!

9.2 Melding choice: examples

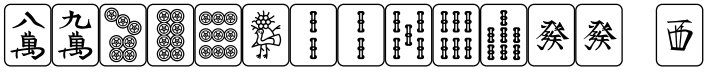
We will now see more examples of melding judgements, some of which will describe an exception to the two conditions introduced so far.

9.2.1 Eliminating bad waits

One of the purposes of melding is to eliminate a bad wait in a hand to enhance speed. When you can call `pon` or `chii` to complete a bad-wait block in your hand it often makes sense to do so. More

[3] `Riichi + tanyao + pinfu + iipeiko + dora = mangan ron or haneman tsumo.`

specifically, when you call `chii` with an edge-wait or closed-wait protorun to make the hand ready, you should meld. Consider the following hand.



The left player discarded 七萬 just now.

You should call `chii` on 七萬 and discard 幾分. It is true that doing so means that the hand value will be 1000 (Green Dragon only) and that the hand can be won only with 發. However, notice that the hand value is not very high anyway if you keep the hand closed. Even if you draw 七萬 and call riichi, the hand value is 2600 if you win on 發 or 1300 if you win on 一索.

Keep in mind also that winning a cheap hand like this is not totally meaningless. This is because doing so also means you prevent your opponents from winning their (possibly expensive) hands. You do not want to make your `mangan` hand into a 1000 hand, but the hand above is not a `mangan` hand.

Moreover, this hand has pretty low tile acceptance (4 kinds–12 tiles, 七萬 一索 一索 發); the chance of making the hand ready without melding is not very high, either.

Melding judgement 3

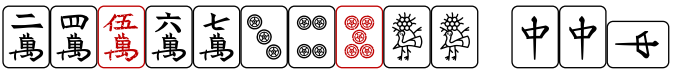
If you can eliminate a bad wait and make the hand ready, meld!

9.2.2 Improving the wait

It sometimes makes sense to meld even when your hand is already ready, as long as doing so improves the wait and/or the scores.

It may also make sense to meld to make a bad-wait 1-away into a good-wait 1-away one.

Improving the wait



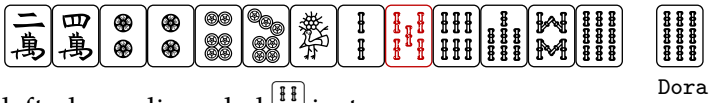
The left player discarded 伍萬 just now.

The hand is already ready, waiting for 三萬. However, you should call `chii` on 伍萬 with 六萬七萬 and discard 二萬, so you can upgrade the wait to a side wait of 三萬–六萬. With melded hands, it is important to think about the possibilities of improving the wait and/or scores by melding further. In the current example, calling `chii` on 伍萬–八萬 or `pon` on 幺索 will improve the wait from a closed wait to a 2-way wait.

9.2.3 Confirming `yaku`

Ideally, we would like to complete a bad-wait block by melding so that we can have a good-wait block as the final wait of the hand. However, it sometimes makes sense to complete a good-wait block by melding if doing so confirms a certain `yaku` in a hand.

Confirming `yaku`

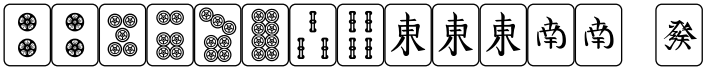


The left player discarded 1索 just now.

Calling `chii` on 1索 completes a side-wait block in this hand, leaving the hand 1-away with one edge-wait and one side-wait protoruns. However, this is acceptable because calling `chii` on 1索 confirms `ittsu` in this hand. Getting `ittsu` with this hand requires that we have 1索,

not 🀙, to complete the protorun 🀙🀚. We should thus think of this protorun more as an edge-wait protorun rather than a side-wait protorun. Calling `chii` on 🀙 is tantamount to eliminating a bad wait in this case.[4]

Confirming `yaku`



Dora

The left player discarded 🀇 just now.

If you call `pon` on 🀇 and discard 🀛, the hand is ready. However, doing so only gives you a 1300 hand. Instead, you should discard 🀙 after calling `pon` to have a 1-away `honitsu` hand, as follows.

Dora

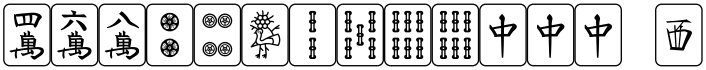
You can further call `chii` on any of 🀚🀛🀜🀝 or call `pon` on 🀆 to get 5200 or above.

9.2.4 Concealed set of value tiles

There are situations where melding with a cheap and slow hand may be acceptable. Recall that one of the reasons why melding is not worthwhile with a cheap and slow hand is that we will lose safety tiles if we meld. When that is less of your concern, melding may be an option even with a cheap and slow hand.

[4] Note that you should discard the 🀌, not the 🀋, after melding. This is because we will discard the 🀜🀝 block if we draw the red 🀋.

Concealed set of value tiles



Dora

The left player discarded  just now.

This hand is both cheap and slow. Even after calling `chii` on  , the hand is still 1-away with a bad wait. However, this hand has a concealed set of  , which can be used as three safe tiles when someone calls riichi. In such cases, you can meld as long as doing so advances the hand. That is, you can `chii` any of  . You should not call `chii` on  or `pon` on  , because doing so does not advance this hand from 2-away to 1-away or improve the wait/scores.

Melding judgement 4

If you have a concealed set of value tiles, you can meld with a cheap and slow hand.

9.2.5 When it is OK to meld with cheap & slow hands

There are a few more instances where melding with a cheap and slow hand is acceptable, summarized as follows.

1. You are ahead of the game in South-4.
   The hand value is not of your concern in such a situation. You can meld with a cheap hand; you can also meld even when melding significantly reduces the hand value.

2. There are two or more riichi bets on the table.
   Winning any hand guarantees a minimum score of 3300 points in such a situation, as you get at least 1000 (your hand) + 2000 for riichi bets + 300 for continuation. This is not much different from winning a 3900 hand.

3. You are losing and you are the dealer.
   You should aim for calling riichi as soon as possible in order to delay the opponents' attack. However, when you think you cannot make the hand ready for riichi soon enough, calling `pon` or `chii` early may serve the same purpose.

9.3 Calling kan

There are three ways to call kan (kong) — making a concealed quad (ankan), making an open quad (daiminkan), and extending an open set to an open quad (kakan). I will discuss decision criteria for each of the three cases in turn.

9.3.1 Concealed quad (ankan)

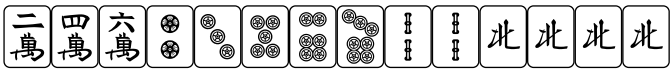
The benefits of making a concealed quad includes:

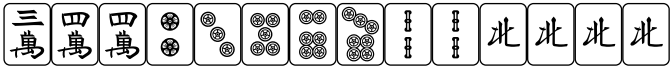
- another chance to draw a tile;
- increased minipoints; and
- possibilities of getting more dora.

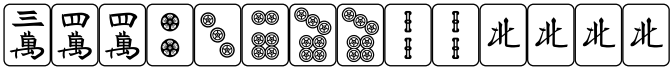
Conditions to justify making a concealed quad includes:

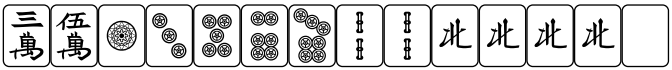
- 1-away, where at least one block has a good wait;
- 2-away, where all the blocks have a good wait;
- you need more dora or more minipoints to improve the placement (especially in South-4);
- you are losing badly.

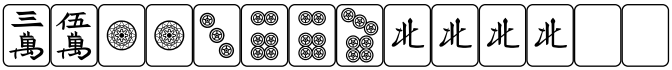
With this in mind, consider several examples. (Dora is 西 in all the examples.)

(1) 

(2) 

(3) 

(4) 

(5) 

(1) This hand is 1-away, and one block has a good wait and another has a bad wait. You can call `kan`.
(2) This is a perfect 1-away hand, so you can call `kan`.
(3) This is a perfect 2-away hand, so you can call `kan`.
(4) This hand is 1-away, but all the remaining blocks have a bad wait (closed wait). You should not call `kan`.
(5) This hand is 2-away with a bad wait. You should not call `kan` in normal situations. However, if you are in South-4, and you need 2000 points to win the game, then you should `kan` immediately. As the hand will have at least 60 minipoints, you can get 2000 points with one `han` (White Dragon).

`Kan` judgement 1

In principle, your hand needs to be close to ready to justify making a concealed quad.

When not to make a concealed quad

Calling `kan` also comes with some cost, including:

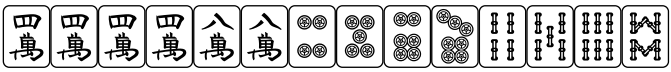
- you may lose safety tiles;
- the new `dora` may go to the opponents.

When the following conditions are present, you should refrain from calling `kan`.

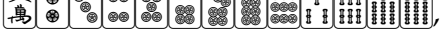
- the hand is close to ready for `chiitoitsu` as well;

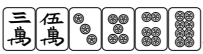
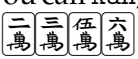
- one of the four tiles can be used a good floating tile;
- you lose some yaku if making the set into a quad.

Concealed quad?



It is your turn. What would you do?

If you call kan, the hand will be 1-away and the wait will not be terribly bad; it can be made ready if you draw any of  , and you may draw one of these tiles as a rinshan tile (the bonus draw after kan). However, the resulting hand will be either riichi only or riichi + tanyao only, sometimes with a bad wait.

If you choose not to call kan and discard  , you can treat one of the four tiles of  as a floating tile that could form a side-wait protorun. The hand will be a side-wait ready hand if you draw any of  . Moreover, if you draw  or  , the hand will be ready for sanshoku of 456. If you call kan, on the other hand, the hand will lose the ability to accept  that would otherwise make the hand ready. Therefore, you should not call kan at this point and simply discard  . You can call kan later if the hand becomes ready by drawing a pinzu (dots) tile.

Concealed quad?

It is your turn. What would you do?

If you call kan, you will lose pinfu. Moreover, if you draw a tile that

completes one of the two side-wait protoruns after calling `kan`, the hand becomes a single-wait hand. You should thus discard 四萬. Then, if you complete one of the side-wait protoruns first, you can discard another 四萬 to make the hand ready for `pinfu`.

`Kan` judgement 2

There are cases where we should not make a concealed quad even when the hand is (close to) ready.

9.3.2 Open quad (`daiminkan`)

Conditions to justify making an open quad are a little bit more demanding than the conditions to justify making a concealed quad.

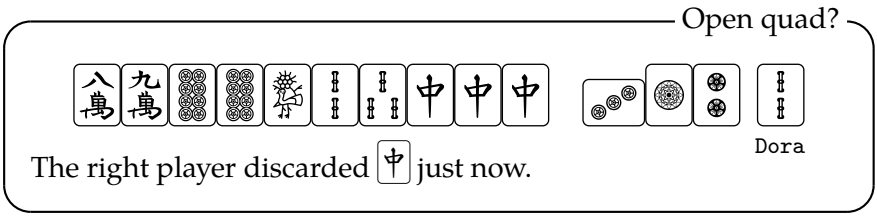
You can make an open quad in any of the following situations:

- the hand is ready with a good wait, and the hand value is between 2000 and 5200 points;
- you need more `dora` or minipoints to improve the placement (especially in South-4);
- you are losing badly.

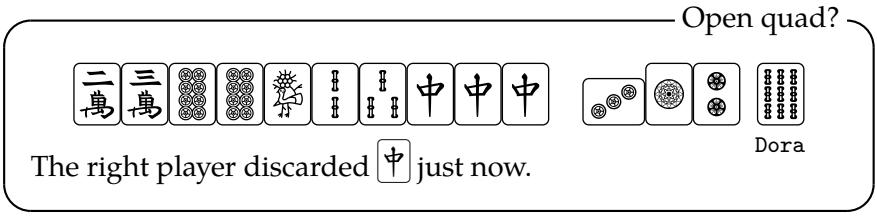
Open quad?

The right player discarded 中 just now.

This ready hand is currently worth 2000 points with a good wait. Calling `kan` on 中 is therefore justifiable. If any one of the tiles in your hand becomes `dora`, the hand value increases from 2000 to 5200. If you get `rinshan tsumo` in addition, it will be `mangan`.



This ready hand is currently 2000 points with a bad wait. Calling kan on 中 is *not* justifiable when the wait is bad.



This ready hand is currently 1000 points with a good wait. Calling kan on 中 is *not* justifiable. Even when one of the tiles in your hand becomes new dora, the hand value only increases from 1000 to 2600 points.

9.3.3 From an open set to an open quad (kakan)

When you draw the fourth tile of an open set, you have an opportunity to extend the open set to an open quad. Conditions to justify extending an open set to a quad are more demanding than those for a concealed quad but less demanding than those for a regular open quad. Doing so is less foolhardy compared with a regular open quad because you are not losing four safety tiles. At the same time, this is riskier than making a concealed quad because you may be running the risk of getting chankan (Robbing the Kong).

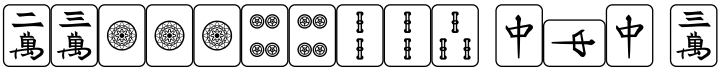
You can extend an open set to an open quad in any of the following situations:

- the hand is 1-away or better with a good wait, and it has two

han or more;

- the hand is 1-away or better, and there are not many turns left to draw tiles;
- you need more dora or minipoints to improve the placement (especially in South-4);
- you are losing badly.

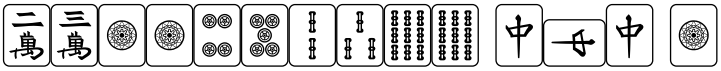
Open set to quad?



You drew the fourth 中 just now.

This 1-away hand has two han and a good wait. Calling kan on 中 is justifiable.

Open set to quad?



You drew the fourth 中 just now.

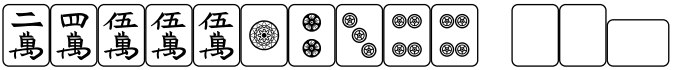
This hand has three han and a good wait. However, since it is 2-away from ready, calling kan on 中 is *not* justifiable.

9.4 Miscellaneous tips for melding

9.4.1 Think ahead

When you call pon, you have to say "pon! [pɔ́ŋ]" out loud immediately and nothing else. There is no such call as "Wait!", and you will have to forgo your call if (1) the next player has already drawn their tile before you call pon or (2) another player has already called chii before you do.[5] This means that you need to think ahead and make up your mind about what tile to call *before* the tile is discarded. That is, you should think about what tile(s) can improve the wait and/or the scores of your hand all the time. For example, consider the following hand.

Thinking ahead



What tile(s) are you waiting for?

The hand is ready, waiting for  . However, you should also be prepared for melding further to improve the wait and/or the scores. If you draw or call pon on  and discard  , the wait will be upgraded to an irregular 3-way wait of  –   . Moreover, if you draw or call pon on the red  and discard  , not only the scores get better but also the wait will be upgraded to a side wait of  –  .

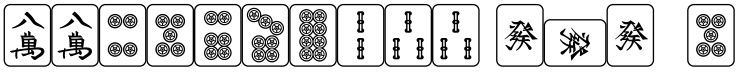
Relatedly, think about what to discard upon melding *before* you call. If you are unsure about what to discard upon melding, it probably means you should not make the call.

[5] A pon call takes precedence over a chii call, but only if calls are made simultaneously. If the chii call was made well before the pon call, the chii call should take precedence.

9.4.2 Be ready for `dora`

You should also think about how to utilize `dora` when melding. Consider the following hand.

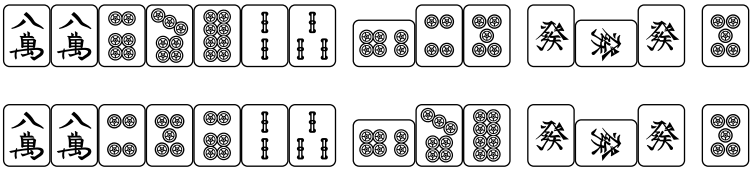
Utilizing `dora`



Dora

The left player discarded  just now.

We should definitely call `chii` on  to make the hand ready, but the question here is: should we `chii` with  or with  ? Let's compare the resulting hands in each of the two possibilities.



Dora

Notice that the first hand can accept another `dora`. That is, if you draw  , you can keep it and discard  to improve the hand value from 2000 to 3900. With the second hand, you will have to discard the `dora` when you draw another.

Calling `chii` with  is better also from a perspective of defense. Having to discard  against an opponent's riichi is much better than having to discard  .  can be captured by both  -  and  -  `suji`, whereas  can be captured only by  -  `suji`. Moreover, even if you deal into an opponent's  -  wait, the hand value would be lower if you discard  than  , on average.[6]

[6] Of course, this is unless an opponent has `sanshoku` of 678.

9.4.3 Be mindful of the seating

Each time you take a tile from the facing player (`toimen`) with a `pon` (or `kan`) call, the left player's (`kamicha`) turn gets skipped. Likewise, each time you take a tile from the right player (`shimocha`) with `pon/kan`, the facing player's turn gets skipped. At the same time, the right player will have an additional chance to draw a tile in either of the two instances. In this sense, your act of calling `pon/kan` benefits the right player while penalizing the left and the facing players. It is useful to keep this in mind in making a melding choice, especially when the benefit of melding only slightly outweighs the benefit of keeping the hand closed in terms of tile efficiency.

For example, when you are North, you should not meld as aggressively because doing so will benefit the dealer. Likewise, when you are South, you should try to call `pon` from the facing player (North) rather than from the left player (East), so that you can penalize the dealer. The same is true when there is a clear front-runner in the game. When your right player is much ahead of the game, you should try to have a closed hand rather than a melded hand. On the other hand, when your left player is leading the game, you should meld a bit more aggressively so you can penalize him.

Seating-related tip 1

When your right player is the dealer and/or the front-runner, try not to call `pon` too much.

Applying the same logic, you do not want your right player to call `pon` from your left player. This means that, if you plan to discard something that can be `pon`'ed by the right player, you should do so sooner rather than later. For example, suppose you are East, and you are deciding which one of the three valueless wind tiles  to

discard in the 1st turn. In this case, you should discard  first. If the South player calls pon on  you discard, that would be much better than if he called pon from the North player. Moreover, if you discard  , there is a good chance that another player may do the same in the 1st turn as well, lowering the chance that the South player builds a pair of  in later turns and calls pon.

Seating-related tip 2

When discarding valueless wind tiles, discard the right player's wind first, then the facing player's wind next.

Chapter 10
Grand strategies

The most important goal in mahjong is to win a game or generally improve the placement. I do not deny the inherent joy of winning an expensive hand with rare `yaku`. However, we should always keep in mind that winning a hand is just a means to an end; sometimes dealing into an opponent's (cheap) hand can serve our purpose of winning the game. In this chapter, I will discuss strategies to improve the placement.

10.1 What do do in South-4

Most mahjong rule sets adopt some type of `uma` system where players get some extra bonus / penalty points according to the placement. For example, EMA rules award 15000 points to the first ranked player, 5000 points to the second ranked player, -5000 points to the third ranked player, and -15000 points to the fourth ranked player. Such systems make it clearer that getting a better placement is generally more important than simply winning hands.

Suppose you are currently ranked fourth in South-4, and that the third ranked player has 1800 more points than you do. In such a situation, winning a 1000 hand is not very meaningful. If you manage to add just one more `han` and win, you will not only get 2000 points directly but also get an extra 10000-point bonus for coming in third,[1] a total of 12000-point gain. This is as big as winning a `haneman` hand.

In a situation like this, the tradeoff between speed and hand value is qualitatively different than usual. For example, when choosing

[1] You will get -5000 points instead of -15000 points, resulting in a net gain of 10000.

between a good-wait one-han hand and a bad-wait two-han hand, you should definitely choose the latter. After all, you are essentially comparing a good-wait 1000-point hand with a bad-wait 12000-point hand. On the other hand, when choosing between a good-wait two-han hand and a bad-wait three-han hand, you should choose the former. Increasing the (virtual) hand value from 12000 to 13900 would not be worthwhile if doing so significantly diminishes the chance of winning.

Suppose further that the third ranked player is the dealer. Then, you will have another option to improve the placement. That is, if anyone other than the third ranked player gets a mangan tsumo (or above), you will come in third. This is because the dealer pays 2000 more points than a non-dealer in case of a mangan tsumo. When this happens, you will lose 2000 points for the mangan payment but gain 10000 points for the placement bonus, resulting in a net gain of 8000 points. This is as big as winning a mangan hand yourself.

Suppose yet further that the second ranked player is the right player, who is behind the first ranked player by 10000 points. Then, he will try to get a mangan tsumo because doing so puts him in the first place. If he is obviously pursuing a honitsu hand, you may want to discard tiles in the suit he is collecting so he can meld his hand to get it ready.[2] If he indeed gets a mangan tsumo, you will get 8000 points; if he wins by ron from the third ranked player, you will get 10000 points.

That being said, assisting other players in hopes of their getting a mangan tsumo is more like a last resort. What you should think about

[2] Of course, you assist him only until he gets ready. You need to be careful not to deal into the mangan hand you helped him make.

first and foremost is winning your own hand that is just expensive enough to improve your placement, which we will now turn to.

Improving the placement by `ron` / `tsumo`

As the discussion in the previous section illustrates, you need to be extra conscious about your placement in South-4. If you are currently ahead of the game, your top priority is to maintain your placement. If you are behind, you should do your best to improve your placement as much as possible.

In South-4, the first thing you need to do *before* the hand begins is to figure out the point differences between you and other players. When playing online on `Tenhou`, this can be easily done any time by mouseovering the middle board, as illustrated in Section 1.4.4. When playing offline, each player should count and report their points before the hand begins.

Once you figure out the point differences, you then need to know how expensive your hand has to be to improve your placement. In doing so, you need to figure out the required hand values under three possibilities, as follows.

1. `ron` from anyone
2. `tsumo`
3. direct hit `ron`

The first possibility to consider is winning your hand by `ron` from anyone (that is, not from the very player you are trying to overtake). For example, suppose you are currently ranked second, and the first ranked player has 3400 more points. Then, winning a 3 `han`–30 mini-points hand (3900 points) by `ron` from anyone is sufficient to improve

your placement. You should thus aim to have a 3-han hand. Since you don't need a 40-minipoint hand, melding is also an option.

The second possibility to consider is winning your hand by tsumo. For example, suppose you are currently ranked second, and the first ranked player (non-dealer) has 9500 more points. Then, getting a mangan tsumo is sufficient to improve your placement because you gain 8000 points while the first ranked player loses 2000 points, inducing a 8000 + 2000 = 10000 point difference. You should thus aim to have a mangan hand and try to win it either by tsumo or by ron from the first ranked player.

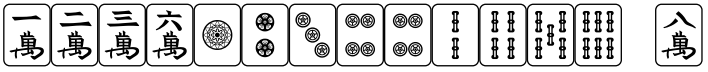
The last possibility to consider is winning your hand by ron from the very player you are trying to overtake. For example, suppose you are currently ranked second, and the first ranked player (non-dealer) has 15200 more points. Then, even getting a haneman tsumo is not enough. You need a mangan ron directly from the first ranked player. This is sufficient because you gain 8000 points while the first ranked player loses 8000 points, inducing a $8000 \times 2 = 16000$ point difference.

Among these three possibilities, your hand value judgement should be based primarily on the first possibility (i.e., winning it by ron from anyone). This one requires the highest hand value but it is the most realistic. Given that the player you are trying to overtake will try hard not to deal into your hand, making your hand value judgement based solely on the third possibility (direct hit ron) is too much of a wishful thinking.

With this in mind, consider the following hand. Assume that you are the North player in the 6th turn in South-4. You are currently

ranked second, and the first ranked player (South) has 5100 more points.

South-4: 5100 points behind, `dora` 六萬



Draw

What would you discard?

If you keep 八萬 and discard 一索, the hand is ready. However, doing insta-riichi with the current hand is not ideal. Since the hand value is only 2600 (2 `han`–40 minipoints), winning it by `ron` from the third-ranked or fourth-ranked player will not improve your placement (unless you get `ippatsu` or `ura dora`). Also, getting `tsumo` will only give you 1000-2000 (3 `han`–30 minipoints), generating only a 4000 + 1000 = 5000 point difference. This is not sufficient to improve the placement.

You should rather keep the hand 1-away by discarding 八萬. If you draw 發 or 一索, you can then do insta-riichi to get riichi + `sanshoku` = at least 5200 (3 `han`–40 minipoints). Winning it by `ron` from anyone is now sufficient to improve the placement. If you draw 伍萬 or 七萬, you can also do insta-riichi to get riichi + `pinfu` + `dora`. Winning it either by `tsumo` or `ippatsu ron` is sufficient to improve the placement.[3]

Point difference induced by `tsumo`

Getting the correct point differences induced by `tsumo` can be a bit complicated. For example, suppose you are the North player, currently ranked second in South-4. The West player is leading the game, having 6300 more points. In this situation, would winning a 3 `han`–30 minipoints hand by `tsumo` be enough to improve the place-

[3] Drawing 七萬 means you are in `furiten`, but you should still do insta-riichi.

ment? What about winning a 3 han–40 minipoints (= 4 han–20 minipoints) hand by tsumo?

To calculate the point difference induced by tsumo, we add the points you gain and the points your rival (the first ranked player) loses. For instance, the point difference induced by a 3 han–30 minipoints hand is: 4000 (your gain) + 1000 (your rival's loss) = 5000 points. The point difference induced by a 3 han–40 minipoints hand is: 5200 (your gain) + 1300 (your rival's loss) = 6500 points. In this example, getting a 3 han–40 minipoints tsumo is sufficient to improve the placement, but getting a 3 han–30 minipoints tsumo is not.

It would be extremely tedious if we have to do these calculations for several possible hand values all in our head in South-4. It would be more efficient if we memorize the induced point differences for several representative cases; that way, we can use our time and energy thinking about other important things during the game.

Tables 10.1–10.4 below summarize induced point differences for limit hands and those with 30, 40 (20), and 50 (25) minipoints. In each table, the second column shows the induced point differences against another non-dealer, whereas the third column shows those against the dealer. Since a dealer pays twice as much as a non-dealer, the induced point differences against a dealer are greater. In addition, for each counter (continuation) placed on the table, the induced point difference will get bigger by 400 points.

Note that these four tables assume that you are a non-dealer. When you are the dealer, you do not usually need to do these calculations because you get to continue the game if you win a hand anyway. However, when playing with a bankruptcy rule or with time limits, the dealer may not be able to continue the game, in which case even

Table 10.1: Limit hands

Tsumo	Non-dealer	Dealer
mangan	10000	12000
haneman	15000	18000
baiman	20000	24000
yakuman	40000	48000

Table 10.2: 30 minipoints

Tsumo	Non-dealer	Dealer
300-500	1400	1600
500-1000	2500	3000
1000-2000	5000	6000
2000-3900	9900	11900

Table 10.3: 40 (20) minipoints

Tsumo	Non-dealer	Dealer
400-700	1900	2200
700-1300	3400	4000
1300-2600	6500	7800

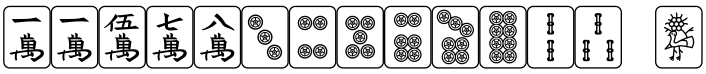
Table 10.4: 50 (25) minipoints

tsumo	Non-dealer	Dealer
800-1600	4000	4800
1600-3200	8000	9600

the dealer has to consider if winning a particular hand improves the placement. Tables 10.5 and 10.6 at the end of this chapter provide a summary for a dealer as well.

Memorizing these tables would be *way* more important than memorizing, say, scores for 70-minipoint hands. With these tables in mind, consider the following hand. Assume that you are the North player in the 6th turn in South-4. You are currently ranked second, and the first ranked player (South) has 3300 more points.

South-4: 3300 points behind, dora 



Draw

What would you discard?

You wanted to draw  first so that you can have riichi + pinfu + one dora = 3900. Winning that hand by ron from anyone would improve your placement. However, now that you drew  , what should you

do?

Recall that a 700-1300 `tsumo` would induce a 3400 point difference. Since this is a `pinfu` hand, getting `riichi + pinfu + tsumo` gives you exactly 700-1300 `tsumo`. You should thus do insta-riichi by discarding 伍萬. Once you call riichi, you can do either (1) `ippatsu ron` from anyone, (2) direct hit `ron` from the first ranked player, or (3) `tsumo` to improve the placement.[4]

Consider a more complicated example that involves some minipoint calculation. Assume that you are the North player in the 6th turn in South-4. You are currently ranked second, and the first ranked player (East) has 4700 more points. What are the conditions under which you can improve your placement with the following hand?

South-4: 4700 points behind, `dora` 伍萬

What are you waiting for?

Winning this hand on 發 by `ron` from anyone or `tsumo` satisfies the condition because it gives you 5200 points (`toitoi` + Green Dragon with 40 minipoints). Winning it on 三索, however, only gives you 2600 points. You can still improve the placement if you get a direct hit from the first ranked player, but not if it is from other players. Even though the first ranked player is the dealer, you cannot improve the placement if you draw 三索, either. Declaring `tsumo` on 三索 gives you

[4] Whether or not you should let it go when the third or fourth ranked player discards your winning tile depends on the point difference between you and the third ranked player. Unless it is greater than 12000 points, you should call `ron` and hope to get one `ura dora`.

700-1300, which induces only a 4000 point difference even against the dealer.

However, if you manage to draw  or  , you should extend the melded set to a melded quad. Doing so not only gives you a chance of `rinshan tsumo` or new `dora` but also enables you to improve the placement when drawing  . This is because the hand will have 50 minipoints if you `tsumo`: 20 for the base minipoints + 8 for a melded Kong of  or  + 2 for a melded set of  or  + 4 for a concealed set of + 2 for a pair of  + 4 for a concealed set of  + 2 for `tsumo` = 42, rounded up to 50 minipoints. A 2 `han`–50 minipoints `tsumo` induces a 4800 point difference against the dealer.

Maintaining your placement

If you are ahead of the game in South-4, you should do your best to maintain your current rank. Trying to win a cheap but fast hand to end the game is an option, but be extra careful not to deal into an opponent's expensive hand. For example, suppose you have 15200 more points than the second ranked player. If neither you nor the second ranked player is the dealer, he cannot defeat you even with a `haneman tsumo`. Then, what you need to be wary of the most is to give him a direct hit `mangan ron`. You will lose not only the 8000 points for the `mangan` payment but also the 10000 bonus points for the placement, a total net loss of 18000 points.

In order to figure out what exactly you should do when you are ahead of the game in South-4, try to imagine what each of your opponents aims to do. Recall the situation I described in discussing riichi judgement in Section 7.3, reproduced below.

Let's think about the incentive structure for each of the other three players in turn. First, the fourth ranked player (West) should try to

East (you)	39000	South	22900
West	13000	North	25100

have a `mangan tsumo`, for that would put him in the third place. The third ranked player (South) would need a 500-1000 `tsumo` or 2600 `ron` to get the second place, which is a realistic goal to pursue. In order for him to get the first place, he would need either a `haneman tsumo` or a direct hit `haneman ron` from you. Finally, in order for the second ranked player (North) to get the first place, he would need a `haneman tsumo` or a direct hit `mangan ron` from you. Given that he has only 2200 more points than the third ranked player, the second ranked player should rather aim to win whatever hand possible to maintain the current rank.

So, what should you do in such a situation? What you should be afraid of the most is a `haneman tsumo` by South or North. However, notice that South and North are in a fierce competition among themselves. Take advantage of this. If winning a fast hand yourself does not seem possible, you should try to assist the South player. Since the South player is your right player, you should discard versatile middle tiles (3–7) so that he would call `chii` on them, possibly with a red five (because South needs 2 `han`). Recall that even giving him a direct hit `mangan ron` will secure you the first place.

10.2 What to do by South-3

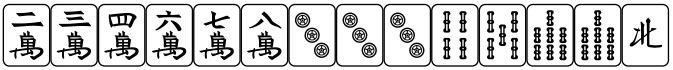
It is never too early to start paying attention to your placement. If you are behind other players, the target point difference you should achieve before the beginning of South-4 is 10000 points or fewer. Overtaking with a 10000 point difference in a single hand is a tough but not unrealistic goal; you can do so either by `mangan tsumo` or

haneman ron.

Suppose the dealer wins a mangan tsumo in East-1. Now he is leading other players by 16000 points, which is a bit depressing. However, instead of trying to overtake him with a single expensive hand, you should aim to reduce the point difference from 16000 to 10000 by the end of South-3. This is a more realistic goal; keep calling riichi with a pinfu-only hand, and you will eventually get tsumo + one ura dora which induces a 6500 point difference.

On the other hand, if you are ahead of the game, you should aim to have a 10000 or greater point difference with the second ranked player in South-4. For example, consider the following hand. Suppose you are the North player in the 6th turn in South-3. You are currently ranked first, and you only have 1000 more points than the second ranked player (West).

Riichi judgement in South-3: dora 



Riichi or dama?

The choice here is between keeping the hand dama to maximize your chance of winning the hand or calling riichi to aim for a bigger point difference. You should do insta-riichi in such a situation. If you win this hand by dama ron, the point difference will only be 3600 in South-4. Having a 3600 point difference is not much different from having a 1000 point difference from the perspective of the second ranked player. However, if you win this hand with riichi, the point difference will be at least 6200 in South-4, 9000 if you get one ura dora, and 11000 if you tsumo. Having a point difference of 11000 in

South-4 significantly increases your chance of winning the game.

If you will be the dealer in South-4, the target point difference with the second ranked player is 12000 or more, not 10000. This is because a `mangan tsumo` by a non-dealer induces a 12000 point difference against the dealer.

You should also be mindful of induced point differences by `noten` penalties in South-4 and South-3. The maximum point difference induced by `noten` penalties is 4000 (1-player `noten` and 3-player `noten`). This means that you should aim to have at least 4000 point difference by the end of South-3. For example, suppose you are leading the game in South-4 and you are the dealer. If the hand ends in exhaustive draw and the point difference between you and the second ranked player is more than 4000 points. Then, you should declare `noten` (not ready) and terminate the game *even when* you have a ready hand. You will not have this option if the point difference is fewer than 4000 points.

10.3 Tables for induced point differences

Table 10.5: For non-dealer

Tsumo	Non-dealer	Dealer
300-500	1400	1600
400-700	1900	2200
500-1000	2500	3000
700-1300	3400	4000
800-1600	4000	4800
1000-2000	5000	6000
1300-2600	6500	7800
1600-3200	8000	9600
2000-3900	9900	11800
2000-4000	10000	12000
3000-6000	15000	18000
4000-8000	20000	24000
6000-12000	30000	36000
8000-16000	40000	48000

Table 10.6: For dealer

Tsumo	Non-dealer
500	2000
700	2800
1000	4000
1300	5200
1600	6400
2000	8000
2600	10400
3200	12800
3900	11600
4000	16000
6000	24000
8000	32000
12000	48000
16000	64000

Appendices

Chapter A
Manners for offline playing

Manners are meant to make the game of mahjong a pleasant experience. They are a collection of small tips and techniques the forerunners have developed to avoid unnecessary troubles. I present manners for four different phases of a game — (1) dealing tiles, (2) drawing and discarding, (3) calling, and (4) winning a hand. Each entry is given a rank, from one star (*) to three stars (***). Three-star manners are more important; you should try to acquire three-star manners first, and then move on to practice two-star and one-star ones.

A.1 Dealing tiles

1-1: Shuffling **

I recommend a 2-step shuffling approach. First, shuffle tiles really hard. Don't worry about keeping the tiles face down at this point. This will guarantee that sets, runs, and pairs from the previous hand are really broken apart. Second, put all the tiles up-side down and shuffle them face down gently. This will guarantee that no one remembers the locations of certain tiles.

1-2: Push the wall forward **

Once you build a wall, push it forward a little so that the facing player can easily reach your wall. If you push it forward too much, you will lose the space for discards.

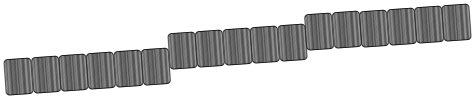
1-3: Tilt the wall *

When pushing the wall forward, it would be better if you tilt the wall a little, as follows. This will make it even easier for the facing

player to pick a tile from your wall.

1-4: Split the wall *

In addition to tilting, some players like to mildly split the wall into three blocks upon building the wall. You get six tiles on the left, five tiles in the middle, and another six tiles on the right, illustrated as follows.



This will make it significantly easier for the dealer to identify the breaking point in the wall.

1-5: Break the wall *

After rolling the dice, the dealer should break the wall himself. When the dice indicate a number k that is greater than 7, it is easier to count $15 - k$ tiles counterclockwise rather than counting k tiles clockwise *after* identifying which wall to break. For example, when the dice roll is 9, the dealer should count 6 tiles counterclockwise (i.e., 6 from the left edge), leaving 6 tile pairs on the left of his wall. Likewise, when the dice roll is 10, the dealer should count 5 tiles counterclockwise, leaving 5 tile pairs on the right of the right player's wall (right from the dealer's view, left from the right player's view).

1-6: Put the `rinshan` tile down **

After breaking the wall, the `rinshan` tile (the first replacement tile) should be preemptively put down. This is to prevent it from falling over. This should be done by the player who has the dead wall in front of him.

1-7: Turn over the `dora` indicator ***

Immediately after putting down the `rinshan` tile, the `dora` indicator should be turned over. Doing so is *way* more important than, say, separating the dead wall from the end of the wall (which is completely unnecessary especially at the beginning of a hand). In my experience, European players somehow like to do the latter first and don't open the `dora` indicator even after they finish the dealing.

1-8: Look at the tiles **

As you take tiles from the wall during the initial dealing, you should start taking a look at them. Don't wait until you get all thirteen tiles; doing so is a waste of time not only for you but also for the other players.

1-9: Dealer's first discard **

The dealer should not discard a tile until the North player gets all thirteen tiles. This is to give everyone a roughly equal amount of time to decide whether to call `pon` / `chii` / `ron` on the first discard.

A.2 Drawing and discarding

2-1: Don't use both hands **

During the play — after the dealing is done and before the hand finishes —, you should use only one hand. If you are right-handed, you should not put your left hand on the table, either. Don't do things like drawing with your left hand and discarding with your right hand. This is to prevent (the appearance of) cheating. The only occasions where using both hands during the play is acceptable are (1) when sorting the tiles in your hand, and (2) when revealing your hand upon winning or in cases of exhaustive draw and four-riichi abortive draw.

2-2: Arrange the discards ***

Discards should be arranged in an orderly way (six tiles in a row).

2-3: Discard before sorting *

You should discard a tile before you put the tile you draw into your hand. Putting the newly drawn tile into your hand upon `tsumo` is a serious violation. To avoid it, you should make a habit of not putting a newly drawn tile into your hand immediately.

2-4: Let go of the discard **

Upon discarding a tile, you need to let it go immediately and not keep your finger on the tile. This is to guarantee that all the other three players can see which tile you discarded all together.

2-5: Don't take an overly long time *

Keep in mind that three other players are waiting for you; you should not take an overly long time to draw / discard. In particular, beginners may want to pay attention to the following.

- When your turn comes, draw a tile immediately (unless you need to think about whether to call the last discarded tile).
- Once you make up your mind about what to discard, discard it immediately.

2-6: Don't speed other players ***

Yes, it could be irritating if someone is taking a long time, but be considerate. You should not press other players to be faster than they could.

A.3 Calling

3-1: Vocalize clearly ***

When you call `pon` [póŋ], `chii` [tʃíː], `kan` [kʌ́ŋ], riichi [ríːtʃ], `ron` [róŋ], or `tsumo` [tsúmo], utter the word clearly so the other three players can hear you.

3-2: Vocalize before taking an action ***

When calling `pon`, say "`Pon`." first before taking the tile. Likewise, when you call riichi, say "`Riichi`." first before discarding a tile and placing a riichi bet (see also 3-4 below).

3-3: Wait before calling `chii` *

When calling `chii`, wait for 1 second before uttering the word. On the other hand, when calling `pon` / `kan` / `ron` you must do so immediately. If someone says `chii` first (after taking 1 second), other players should not be able to call `pon` / `kan` / `ron`. `Pon`, `kan`, and `ron` should take precedence *only if* calls are made concurrently.[1]

3-4: Calling riichi ***

The procedure to call riichi is as follows.

1. Say "`Riichi`."
2. Discard a tile, rotating it sideways.
3. Confirm that no one calls `ron` on the discarded tile.
4. Place a riichi bet.

The most important point is that you say "`Riichi`." before discarding a tile. This is because the opponents' choice of what to do with your

[1] EMA rules allow a `pon` call to occur even after a `chii` call is made. I think this should be changed.

discard (i.e., whether or not to call `pon` on it, etc.) may be different if you riichi.

A.4 Winning a hand

3-1: Vocalize clearly ***

When winning a hand, you need to say `ron` or `tsumo` clearly. It is also OK to say "mahjong" instead.

3-2: Don't put the winning tile into the hand ***

When winning by `tsumo`, don't place the winning tile inside the hand. Just place the winning tile right next to your hand. This is important because scores (`yaku` and minipoints) may be different depending on which tile was the one to complete the hand.

3-3: Don't take the winning tile *

When winning by `ron`, some European players grab the winning tile and place it right next to their hand. Don't do it. You should refrain from doing this to prevent (the appearance of) cheating. People do this on TV, but they do so only for the camera.

3-4: Sort the tiles before revealing your hand **

You need to sort the tiles before showing your hand, so that other players can easily check your hand's score and possible `furiten` violation. Do not split the hand into constitutive groups. Doing so may actually obstruct other players' vision.

3-5: Declare `yaku` **

After revealing your hand, reveal the `ura dora` if you have called riichi. You need to show the `ura dora` to all the other players even when you don't get any of them. This is to make sure that you are

not underreporting your hand value.[2] After that, you should declare all the `yaku` in your hand.[3]

3-6: Declare the score ***

You need to declare the score of your hand yourself. It is OK to get other players' help on scoring, but you need to be the one to declare it. When declaring `tsumo` scores, say the payment by a non-dealer first, followed by the payment by the dealer. For example, when declaring a 300-500 `tsumo`, say "Three hundred, five hundred." rather than "Five hundred, three hundred."

3-7: Confirm the score *

When one player wins a hand, the other three players must also see the hand and confirm the declared score. You should also check if the hand was not `furiten`.

3-8: Payment *

A standard stick set would include four kinds of sticks, as follows.


100 point

1000 point

5000 point

10000 point

In addition to these, I suggest you prepare a set of four 500-point sticks. I usually use green 100-point sticks that I bought in Japan,

[2] It may sound odd, but there are situations where you have strategic incentives to underreport your hand value. Trying to avoid bankruptcy of another player when you are still ranked second or third is one obvious example. For another example, players may not want to change the placements of other players in a game if they are competing for ranking at a tournament. Underreporting the hand value is usually illegal.

[3] Some people may say that you only need to declare the score and that declaring `yaku` is either unnecessary or even undesirable. I personally think it's unnecessary, especially when playing with experienced players. However, given that not everyone at the table can quickly identify all the `yaku` in another player's hand, it would be prudent if the winner declares all the `yaku`.

which look like:  .[4] If you don't have any green sticks, you can use anything (e.g., coins, poker chips, etc.) for substitute. Having 500-point sticks would make stick payment much more efficient.

To streamline the payment, you should try to minimize the number of sticks exchanged on the table. Here are two examples of efficient method of payment.

3900 `ron`

When a player wins a 3900 hand, the player who discarded the winning tile gives the winner one  , and the winner gives back 1100 points with one  and one  .

5200 `tsumo`

When a player gets a 1300-2600 `tsumo`, the most efficient and beautiful method of payment is as follows.

1. The first non-dealer (the one sitting closer to the winner) pays the exact amount with one  and three  .
2. The second non-dealer gives the winner 1500 with one  and one  .
3. The winner gives back the second non-dealer 200 with two of the three  he got from the first, which ensures that the second non-dealer pays 1300.
4. The dealer gives the winner 5100 with one  and one  .

[4] The image of 500-point stick was created by someone known as "381654729" (`Tenhou` ID: 零面聴). I thank him for letting me use it in this book.

5. The winner gives back the dealer 2500 with the two  he got from the two non-dealers and the one  he got from the second non-dealer, which ensures that the dealer pays 2600.

6. After all the exchanges, what remains on the table is exactly 5200 with one  and two  .

For this to work out perfectly, everyone needs to be on the same page. It may sound complicated at first, but it sure feels good when the four players manage to make it happen together.

3-9: Exhaustive draw *

In case of exhaustive draw, the dealer should be the first one to declare whether or not he has a ready hand. If he wants to declare ready, he has to show the hand and say "`Tenpai.`"; if not, say "`Noten.`" or "Not `tenpai`." without showing his hand. Then, South, West, and North declare `tenpai` or `noten` in that order.

The order of declaration could make a difference in some (rare) occasions. Declaring first is advantageous in some instances and disadvantageous in others. Suppose the dealer is ranked first in South-4, having 2900 more points than the second ranked player. Suppose further that he has a ready hand. In such a situation, the dealer has an incentive to make a declaration *after* the second ranked player. If the second ranked player declares `noten`, the dealer would want to declare `noten` to terminate the game.[5] On the other hand, if the second ranked player declares `tenpai`, the dealer would want to declare `tenpai` and continue the game. This is because the induced point difference in case of `tenpai`–`noten` is either 3000 (2-player `tenpai`) or

[5] Continuing the game means he runs the risk of losing the placement bonus (10000 in EMA rules) and the `oka` points (if any).

4000 (1-player `tenpai` or 3-player `tenpai`), each of which exceeds the current point difference of 2900.

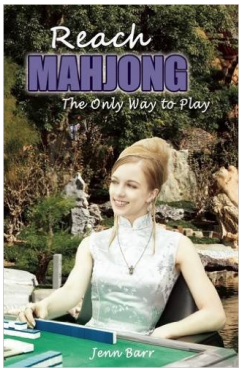
Declaring first can be advantageous only when playing with a bankruptcy rule. Suppose one player is at the verge of bankruptcy, having only 1300 points. Suppose further that both he and the first ranked player have already declared `noten`. In such a situation, if the second ranked player declares `tenpai` first, the third ranked player would have to declare `noten` even when he has a ready hand. Otherwise, the fourth ranked player goes bankrupt and the game is terminated.

Because of these advantages and disadvantages of declaring first, we should stick with the predetermined order for the sake of fairness.

Chapter B

Further readings

B.1 Books on riichi mahjong

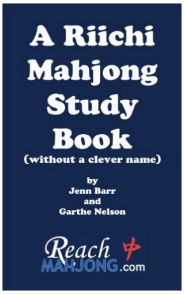


If you are a complete beginner, I recommend:

1. Jenn Barr. 2009. *Reach Mahjong: The Only Way to Play.* Huntington Press.

There are a few English books on WWYD (What would you discard) problems. Working on WWYD problems would be a good next step after finishing my book.

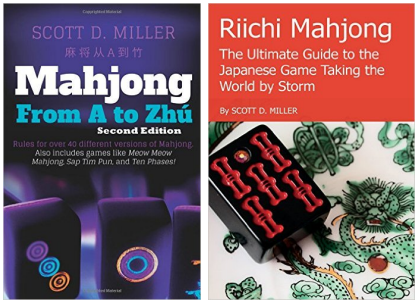
2. Takunori Kajimoto. 2001. *Mahjong: Kaji Mahjong Special Training.*
3. Takunori Kajimoto. 2008. *Mahjong Discard Quiz.*
4. Takunori Kajimoto. 2011. *Mahjong Threefold Quiz.*
5. Jenn Barr and Garthe Nelson (ed. Gemma Sakamoto). 2013. *A Riichi Mahjong Study Book.* Reach Spirits Inc.



Of these four books, I recommend the last one, written and edited by three Western professional players with the Japan Professional Mahjong League. The book contains WWYD problems and discussions as well as quizzes about tile efficiency, waits, and score calculation.

Their WWYD discussions are a lot more multidimensional compared with stylized hand examples introduced in my book. You would find it interesting to see how Jenn and Garthe often disagree about what they would discard. Even those players who share a similar view on strategy principles can still disagree about exactly how to apply these principles in a given situation. You would be able to understand their WWYD discussions much better *after* completing my book first.

Scott D. Miller, a riichi player from Texas, has recently published two books on the history, culture, rules, and variants of riichi mahjong. I have not had a chance to read them, but both of them seem to be a fun reading.



6. Scott D. Miller. 2012/2015. *Mahjong From A To Zhú.* (2nd edition) Lulu.com

7. Scott D. Miller. 2015. *Riichi Mahjong: The Ultimate Guide to the Japanese Game Taking the World By Storm.* Lulu.com

B.2 Online resources

Osamuko: http://osamuko.com/

Osamuko is one of the most extensive online mahjong blogs in English. There are quite a few blog entries there, and many of them are very good. In particular, I find the articles by a contributor named UmaiKeiki very useful.

Osamuko's Facebook group: https://bit.ly/2FepCq0

There is a Facebook group page hosted by one of the contributors of Osamuko. It is a closed group, but I suppose anyone can join the group by sending a request to the administrator. Group members frequently post their play records from `Tenhou` and ask for other members' opinions on them.

Mahjong on Reddit: https://www.reddit.com/r/Mahjong/

Reddit is a social bookmarking website that allows users to add, annotate, edit, and share bookmarks of web documents. It has a lively community dedicated to mahjong where you can discuss mahjong related topics.

Mahjong News: http://mahjongnews.com/

The website is updated regularly with information on upcoming mahjong tournaments (Riichi, MCR, and online), their results, and newly released mahjong books, among other things.

Japanese Mahjong Wiki: http://arcturus.su/wiki/

This website provides an encyclopedic information on rules, terminology, and strategies of riichi mahjong. It is a wiki page so anyone can edit the contents.

Reach Mahjong of New York: http://mahjong-ny.com/

This website not only serves as the hub webpage for players in the US but also provides quite a few useful resources, including a terminology list, beginner's guide, and quizzes about tile efficiency and scoring.

Just Another Japanese Mahjong Blog:
https://bit.ly/2seF2Sz

This website has a number of articles on Riichi theories, translated from Chinese.

ReachMahjong.com: http://reachmahjong.com/en/

This website is run by the professional players who wrote the aforementioned Riichi Mahjong Study Book. You can find more WWYD problems and discussions, strategy guides, and reports on tournaments, among other things.

EMA: http://mahjong-europe.org/

This is the official webpage of the European Mahjong Association. You can find information on rules, upcoming tournaments, tournament results and observer reports, and player rankings.

UKMA: http://ukmahjong.co.uk/

This is the official webpage of the UK Mahjong Association. You can find information on the UK Riichi Open tournaments and the affiliated clubs, among other things.

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