

A Mahjong Strategy Primer
for European Players

Daina Chiba

# Riichi Book I 

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Version 偊

Daina Chiba

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The original form of this book is $\mathrm{EAT}_{\mathrm{E}} \mathrm{X}$ source code. Compiling this ETEX source has the effect of generating a device-independent representation of a manuscript. The ${ }^{E T} T_{E} X$ 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 mahjong in London, Guildford, Kent, Oxford, Aachen, 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 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. ${ }^{3}$

2 EMA's official rule book for Riichi mahjong is available online at http: //mahjong-europe.org/docs/riichi_EN.pdf (last revised in 2012). 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.
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. Introduc-

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 (тEnHou 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 about 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,
tory 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).
but at different levels．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 intro－ duced to me through the writings of a notable Japanese mahjong player and manga author，Masayuki Katayama． Mr．Katayama is an accomplished Riichi player and ar－ guably the best mahjong manga author in the world．Some of the strategies introduced here are unabashedly stolen from Mr．Katayama＇s masterpiece manga storybook Uta－ hime Obakamiiko（『打姫オバカミーコ』）．I strongly en－ courage you to read it yourself if you read Japanese，al－ though I realize that you would not be reading my book if you understood Japanese．

Another Japanese author whose work has been influ－ ential 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 roughly based on Mr. Fukuchi's skillful explanation in his books.

I am also indebted to a lot of friends I have 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 David Smith) for giving me their permission to use it.

Daina Chiba
London, UK
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## 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 read-
ing 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 TENноu (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:

- Complete Beginner's Guide to Online Mahjong (Osamuko)
http://goo.gl/F5sJv0
- Playing Online: Tenhou (Reach Mahjong of New York)
http://goo.gl/Oc1eNe

If you have already read either of the two 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. I omit page numbers to save space, but each page is given an implicit page number that a PDF reader (such as the Kindle app) would recognize. Each entry in the Index section at the end of the book also refers to such implicit page numbers.

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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 the 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 understanding among players in Japan that your rank and rating at 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 at tenhou and provides some basic operation manual.

### 1.2 Setting up an account

One of the challenges for European players in setting up an account at tenhou would be that almost everything is written in Japanese. However, you will only need

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

## 天 <br>  <br> 靃

オンライン対䇝麻雀


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。

## －Flash版／お手軽

Click here to play

標準的なブラウザであれば何もインストールすることな
く遊べます。（Adobe Flash Playerを使用）
※Economy版は無料，Premium版は一部有料
※OS：Win／Mac／UNIX／Wiiなど
※Flash版専用ブラウザ（右クリックパス／牌譜保存／解析な ど）
in a pop－up window．

## PLAY

Click this link to play in the current window．

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

【イベント告知】


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 $\beta$ 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 $\beta$ 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 $\beta$ サーバに接続 within 10 sec－ onds 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．

現在入力欄にあるIDは上書きされます。
IDはメモ帳などにコピーして保管してください。
※Windows版で登録したIDはFlash版でも使用可能です。
新規ID登録を開始しますか？

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 (KYU / 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 less) 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:

## 

## OK

This player name is taken.

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.

```
次のク゚Vーや名で登録を行ないます。
よろしいですか?
```

Your player name here


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

```
プVー㡠録が完了しました
次のIDを大切に保管してください
※IDの再発行は行なえません
※次の登録は一定期間行なえません
```


## ID12345678－ABCDEFGH

 OKThe 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 some－ thing so that you don＇t lose it．They cannot re－issue your player ID（unless you have a paid membership and hold a rank higher than 七段）．

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．


Your player ID Choose 男（male voice）or 女（female voice）

You can make several choices before entering the main page．First，you can choose male or female voice（for Pung／Chow／Riichi，etc．）by clicking on the button right next to the ID field．You can choose a different gen－ der 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（econ－ omy）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 $\beta$ ，技能 $\beta$ ，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（there is no South rounds in these games），${ }^{2}$ and games in the right column（under 東南戦

2 In a special circumstance where no player gets 30000 or more points by the

# TONNANSEN）are more standard East－South games that have 

 both East and South rounds．${ }^{3}$
## 一般 上級 特上 鳳境 四段R1800未满



Games in the first row（喰断ナシ KuItan nASHI）are un－ usual games where open tanyao（All Simples）is not al－ lowed；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 second row are more standard games with open tanyao，but they 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．
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 can－ cel 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（click－ able）only after you make a reservation．

## 1．4 Playing a game

Once a slot becomes avail－ able 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 sec－
 player is randomly assigned to East，West，South，or North．In the example below，my initial seat wind is West （西）．

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 al－ lowance 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［rítf］
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－
 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［rón］
A ロン box will pop up whenever you can legitimately declare ron on an opponent＇s discard or intercept a melded Kong．In other words，сномво 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 sta－ tus，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 sec－
onds＋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 always 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 avail－ able．

4．ツモ tsumo［tsúmo］
A ツモ box will pop up when you can legitimately declare тsumo with your draw．

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

## 

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

6．チーChow［tfí：$]$
Chow calls are done in a similar way．When it be－ comes available，a small sign that reads チー will pop up right above the tiles in your hand with which to call Chow．


When you have multiple sets of tiles with which to Chow，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 Chow it with either
（1）or the（3）then the and a will stick out so you can click on them．If you want to Chow it with
 on them．

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

8．九種九牌 Kyushu Kyuhai
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 follow－ ing example，you have a Ready hand waiting for 畐－萬， and the Left player discarded a 燤．You will be given the following three choices：

－Call ron
－Call Chow
－Pass（do nothing）
To call RON on the discarded 㯰，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 Chow，mouseover
the two tiles you want to Chow with（in this case 燤薯） 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．

## Auto discard draw Sound（音）

## 自動和了ツモ加り鸣かない

Auto－call win
No call
Picture（画）

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 problem－ atic 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 automat－ ically（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 Chow，Pung，or Kong．This feature is useful for hiding in－ formation 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．Draw－ ing a deduction from such time lags constitutes an im－ portant skill in tenhou．However，in order not to disad－ vantage players waiting to call Chow／Pung too much， time lags will also occur randomly（i．e．，even when no one can call Pung／Chow 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, Chow, Pung, 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 fan, minipoints, and the total hand value.


In the example above，the Left player dealt into my hand that is worth 60 符（minipoints） 13 粶（FAN）$=32000$ 点 （points）．Yaku names will be shown in Japanese along with fan 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．

## Counter



## Number of Riichi bets

We can see that this is East－4，there is 0 counter and 0 Ri－ ichi bet，and it is the North player＇s turn．The East player is leading（ 34500 points），followed by the South player （33700），the West player（26300），and the North player （5500）．Player＇s rank（KYU／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 East player has $34500-26300=+8200$ more points than I do; the South player has $33700-26300=+7400$ more points than I do, etc. If you are leading against another player, the point difference will be negative. For example, the North player has 5500 so the point difference is $5500-26300=$ -20800.

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 someone wins a 6400 hand from the North player, he will go bankrupt and the game is terminated. Notice that West is currently ranked third, hav-
ing 7200 less points than South and 8200 less points than East．In this case，winning a 6400 from North is not ideal for West because West will still be ranked third and the game is over，which is not the worst outcome but far from ideal．${ }^{5}$

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（JOUкуU），特 for 特上（токUJOU），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．
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．

- A fifth letter (速) is added if it is a fast game.


### 1.4.5 Ending of a game

A game can end in several different ways.

- One or more player goes bankrupt (less than 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 Eastonly 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.
- Ока (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 ока system (possibly because there is no ока in EMA rules), so let me explain this with an example. Suppose that players A, B, C, and D hold the following raw points at the end of a game; 39000, 25100, 22900, and 13000, as shown in Table 1.1 on the next page.

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 ока to the winner's score to obtain the final scores (fourth column).

## Table 1．1：Final score calculation at 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 |

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）．

## [0000000000000000

## 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 ока. 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 tactics 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 at tenhou.
a You might wonder why they still calculate the final scores with UMA and ока 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 dis－ connected．

> サーバとの接続が切れました再接続しますか?
YES $\quad \mathrm{NO}$

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

[^0]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 at 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．

## この接続元からの新規登録は約7日間行なえません

 OK
## 1．6 Rules

Here is a summary of the rules at tenhou games．
－Three red fives（one in each suit）in games with red fives．
－No kuikae（swap－calling）．That is，you cannot dis－ card an identical tile after Pung or Chow．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 automat－ ically terminated if the dealer is leading after the end of South－4，even if she won a hand in South－4）．
－1－fan minimum all the time（i．e．，no 2－fan minimum even after 5 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 discarding the same wind）
- 四槓散了（four Kongs by different players）
－流し満貫（Nagashi mangan）is allowed．You can de－ clare it even when you have called Pung／Chow．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 deal－ ership remains if the dealer is one of the winners．
－The following are recognized as yakuman：天和（ten－ hou；Blessing of Heaven）／地和（chiнou；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（TSU insou；All Honors）／緑一色（Ryu iIsou； All Green）／清老頭（chinroutou；All Terminals）／国士無双（кокushi 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）／四梖子（sukantsu；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 yaku－ man 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 Pung／Chow／Kong on the last dis－ card in a hand．
－Sekinin barai：a player who feeds the third Dragon Pung／Kong to an opponent with two melded Dragon Pungs／Kongs 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 | FAN（open） |
| :---: | :---: | :---: | :---: |
| 門前清自摸和 | （MENZEN－）TSUMO | Fully Concealed Hand | 1 （NA） |
| 立直 | Rilchi | 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 Pung | 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 | All Terminals and Honors Discard | 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 offers two differ－ ent player rating systems－ rank（Kyu／DAN）and R（rate）． The kyu／dan ranking sys－ tem is similar to the one com－ monly 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 or－ der．After passing 1 級，you

| 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 | enter the dan（段）ranks，shown in Kanji numbers，going from 初段（一段；first DAN）to 十段（tenth DAN）in ascend－ ing order．Everyone starts with 新人（newbie；no rank）， and if you pass the 十段 rank，you are awarded the high－ est rank called 天鳳位（TENHOU－I）．Since the inception of

TENHOU in 2006，there have been only 9 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.

## 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 exam－ ple，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＂ $30 / 60 \mathrm{pt}^{\prime}$ means that she has earned 30 points since she became 7 級 and that she needs 60 points in total to be promoted to 6 級．

When you rise or fall in rank，your points will be re－ set to a default value．For куu rank players，the default value is 0 points．For dan rank players，the default value is different depending on ranks．For example，the de－ fault points for 六段 players are 1200 points．When they get 1200 more points and reach 2400 points，they get pro－ moted 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 ОКА），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 1st or 2 nd place．If you come in 1st place，you will gain the following points regardless of

1 Points you earn or lose in East－Only games are two－thirds of those in East－ South games．
your rank．

- 45 points in the 一般（IPPAN）room
- 60 points in the 上級（JOUкуu）room
- 75 points in the 特上（токијои）room
- 90 points in the 鳳凰（houou）room

If you come in 2nd 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 3rd place． The points you lose when coming in 4th 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 4th place； 1 級 players lose $15 \times 2=30$ points；初段 players lose $15 \times 3=45$ points，$\ldots$ ，and 十段 players lose as many as 180 points if they come in 4th place．

Notice how severe the punishment is for coming in 4th，and it gets severer and severer as your rank goes up． This is one of the distinctive features of tenhou．Avoid－ ing the 4th place tends to be players＇top priority in TEN－ ноч games．This is in contrast to standard mahjong games， where the reward for coming in 1st usually outweighs the cost of coming in 4th，thanks to the OKA system．${ }^{2}$

## 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－> - 入場条件 / 特南嗆赤四段 R 1800 以上
> •段位pt変動 $/$ 五段
> 1位+75 2 位+30 3 位+0 4 位-105
> - Rate変動
> 卓の平均かか高いほど大きく上昇
hand side of the main page．Then，you will see some－ thing 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 1st place，+30 for 2 nd place， 0 points for 3rd place，and -105 for 4th place．
${ }^{2}$ Recall that，although теnнои does adopt the ока 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 ока in EMA games，the reward for coming in 1st is much smaller than that in standard games．

When you have earned enough points for promo－ tion 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 two 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

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, $\Delta R$, 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 1 st, +10 for $2 \mathrm{nd},-10$ for 3 rd , and -30 for 4 th;
- $\bar{R}$ 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 $n \leq 400, \mathrm{G}$ 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
3 In case you are curious, the highest R I have reached as of December 2015 is 2106.
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（JOUкуu；upper－level room）

You can play here if（1）your rank is 1 級 or higher or（2）you buy a two－month membership（ $¥ 1080=€ 8$ $=£ 6) .{ }^{4}$ 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 play－ ers who do not defend at all，do meaningless dama／un－ reasonable Riichi，and make serious mistakes in maxi－

[^1]mizing tile efficiency．In my impression，games at EMA tournaments most resemble games in the IPPAN and JOUKYU rooms．

## 3．特上（Tokujou；advanced room）

Requirements to play in this room are pretty demand－ ing．You have to have a 四段 or higher rank and a 1800 or higher $R$ ．The latter requirement is particularly diffi－ cult to satisfy for intermediate players．As I wrote above， achieving the rank of 四段 is not that difficult，but satisfy－ ing the $\mathrm{R}>1800$ condition requires that you take mahjong rather seriously．Since weak players are shut out from the токијоu room，games in токијои are qualitatively differ－ ent from those in the joukyu and ippan rooms．Games in this room feel similar to those you＇d experience at regu－ lar 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）．Sat－
isfying 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 токujou- or лоикуu-level players. What is remarkable about games in the houou room is that you will be surrounded by three other hououlevel 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. ${ }^{5}$

### 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

5 Perhaps the highest-level leagues in professional mahjong associations in Japan have higher-quality players, 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.
side of the main page．${ }^{6}$ The upper half of the player statis－ tics 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（up－ per half）back from when I had a 二段 rank．Let me ex－ plain how to read these statistics．

> Your Player Name有効期限:2015/11/17

Entire period全期間／段位戦 4人打ち（4－player gamhes）
二段 565／800pt R1987

|  | 1 | 対戦数 40 | 和了率． 298 win rate |
| :---: | :---: | :---: | :---: |
| 2nd place | 2 位率 325 | 平均得点 +21.6 | 放銃率． 115 |
| 3rd place | 3 位率． 075 | 平均順位 1.77 | 副露率． 298 |
| 4th place | 4 位率． 100 | 平均收支 | 立直率． 19 |
| nkruptcy | 飛び | 平均祝嵄 |  |

Below a player name is the expiration date of my paid membership（17 November，2015）．When I started play－ ing tenhou on 17 September，2015，I bought a 60－day mem－ bership so I can play in the Joukyu room．${ }^{7}$ If you have

6 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．
7 I found that playing in the ippan room is not very fun for me．
just created a tenhou account，the expiration date may be shown as today＇s or tomorrow＇s date，meaning that your ID may be deleted if you don＇t play any games．When you play two or three games，it will turn into＂－－／－／－ ＂，meaning that your ID will not be deleted for another 180 days．If you don＇t play any game for 180 days，your account may be deleted．

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 1st place $50 \%$ of the games，2nd place $32.5 \%$ ，3rd place $7.5 \%$ ， 4 th place $10 \%$ ，and gone bankrupt $7.5 \%$ of the games． Ideally，you＇d want your 1st place rate to be greater than your 2nd place rate，your 2nd place rate greater than your 3rd place rate，etc．

The middle column provides the following informa－ tion．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 $\left(\frac{1 n+2 n+3 n+4 n}{4 n}=2.5\right)$ ．Therefore，any values below 2.5 in－ dicate that you are，on average，winning more than los－ ing．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．${ }^{8}$

Second，放銃率（houju rate；feed 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

8 The denominator includes hands where no one won．

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 feed rate，on average）in order to in－ crease 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 feed rate （win rate－feed rate）should be at least 10 percentage points．That is，if you have a high feed rate，you need your win rate to be higher．Likewise，if you have a low feed 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 Chow／Pung／Kong di－ vided by the total number of hands you have played．Fi－ nally，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 $^{9}$ has a table that summa－ rizes the average values of these statistics among players with different ranks（under the heading that reads 段位戦

9 http：／／goo．gl／suyQ5


Figure 2．1：Average hand－performance statistics
Note：These graphs show the hand－performance statistics reported in a table on the ranking page（http：／／goo．gl／suyQ5）as of 20 December， 2015.

4 人打ち平均戦績）．You may want to compare your statis－ tics 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 feed rates（放銃率）for different ranks．Notice that the av－ erage 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 feed rate is steadily decreasing after players move from the күu 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 feed rates on average is re－ markable，considering that they are facing stronger op－ ponents 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 feed 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 los－
ing 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 above，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）${ }^{10}$ ，喰アリ赤 means with open tanyao and red fives．

10 Likewise，般 is short for 一般（IPPAN），特 is for 特上（токијоu），鳳 is for 鳳凰 （Houou）．

|  | －月間／上南喰〉り赤 |  |  | $\checkmark$ |
| :---: | :---: | :---: | :---: | :---: |
|  | $17+11+3+$ | $4=35$ 戦 | R1987 | 3382位 |
| Cumulative 通算 |  |  | 平均 | Average |
| Scores | 得点＋ 727 | 106位 | ＋20．7 | 5位 |
| Placement | 順位 470 | 80位 | 1.82 | 3位 |
|  | 収支 | －－－ | － | －－－ |
|  | 祝儀 | －－－ | － | －－－ |
|  |  | 総合 | 194 | 12位 |
| 1st place4th place | トップ 率． 485 | 8位 | 凉率． 800 | 1位 |
|  | 5久率 ． 114 | 89位 |  |  |

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 1st place in 17 games， 2nd place in 11 games，3rd place in 3 games，and 4th 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 $\mathrm{R}=1987$ 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 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 place－ ment 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（1st place rate），ラス率 （4th place rate），and 連対率（1st or 2nd place rate）for 上南喰アリ赤 games this month．

### 2.4 Viewing the games

## 2．4．1 Replaying the games（牌譜）

теnhou 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 win－ dow（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．Click－ ing 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 the games（観戦）

You can watch games played in the 特上（токujou； 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 out-

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.
come．The best choices are those that lead to the best out－ come，on average．An evaluation of our choices thus re－ quires a probabilistic（i．e．，statistical）assessment of differ－ ent options．For example，consider the following hand．


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

－Discard the $\Rightarrow$ you wait for 瑥夏（2 kinds－4 tiles）
Which discard choice is better？Although both of the two choices yield a 2－way wait，waiting for 祭 圜 is much better than waiting for 四罳，probabilistically speaking．

 tiles．${ }^{2}$ With the 臅 wait，on the other hand，you have

2 Of course，the number of winning tiles could be smaller than eight if some of them have already been discarded．
already used up two tiles of 置 and two tiles of 漛 your－ self，leaving at most four winning tiles．It is clearly better to choose the 圆䍚 wait over the 㬂圆 wait，because that will give you a higher probability of winning this hand．

It is possible that，after you decided on the 圆 wait， your opponents end up not discarding 䅼or at all，while discarding lots of 瑥 風．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 ba－ sic principles of tile efficiency in this chapter．In doing so，I introduce several key terms we use in later chap－ ters．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 dis－ cussions in English．

### 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
属

Dots (Circles)
Pinzu


Bamboos Souzu

| 筧 | \$ | \$ \$ | \$8 |  | \$8\$ \$\$ |  | 8 | \& \& 8 <br> 흉 8 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |

We further distinguish number tiles into Simples (tanyao hai; tiles between 2 and 8) and Terminals (1s and 9s). 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
 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

Honor tiles

Dragon tiles


Some Honor tiles are value tiles (fanpai); we get one fan 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 Melds（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 Melds（mentsu）and one Head（atama；Final Pair）．${ }^{4}$

## Melds can be grouped into two kinds－Runs（shuntsu；

Chow）and Sets（котsu；Pung）．${ }^{5}$
－Run（Chow）is a set of three consecutive number tiles：

－Set（Pung）is a set of three identical tiles：e．g．，偊偊偊，眑聫葵。

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；chirtoitsu（Seven Pairs），кокushi musou （Thirteen Orphans），and nagashi mangan（All Terminals and Honors Discard） do not require four Melds and one Head．
5 Technically speaking，there is a third type of Melds，namely Kong（a set of four identical tiles）．We treat Kong as a variant of Set．See Section 9.3 for discussions of Kong．

### 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 a 聯 or a 開. We


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


 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

|  |  |  | （89）（8） | （8）（8） （8） （8） （8） （2） （8） | $\begin{aligned} & \$ \\ & \$ \end{aligned}$ | 8 $\$ 8$ $\$ 8$ $\$ 8$ 8 | \＄ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |

This hand accepts all the tiles that the 1－Away hand above accepts（
 these tiles gets drawn．

A hand can also be 3－Away，4－Away，5－Away，or 6－ Away from Ready．${ }^{7}$ In practice，however，there is not much point in distinguishing 3－Away hands from 4－Away

[^2](or worse) hands. You thus need to be able 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 Ready, it waits for: 遌門

Tile acceptance is virtually minimized when the hand 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. ${ }^{8}$ There-

8 Melding (calling Pung or Chow) is not always possible. For example, the 2Away hand above can accept a if you draw it, but you cannot call Pung or Chow on a
fore，in choosing a discard from a 2－Away hand，we should try not to make for a 1－Away hand with too small tile ac－ ceptance．

## Advancing your hand

To win a hand，we need to advance our hand by re－ ducing 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．

2－Away vs．1－Away


What would you discard？
Discarding the $[1 /$ makes the hand 2－Away，whereas dis－ carding either a 偊 or the 聞 makes the hand 1－Away．You should thus discard a 萬 or the 瞤 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．，less than 2 kinds）．

kinds－12 tiles）when it becomes 1－Away．

## 3．2．4 Proto－Runs（tantsu）

Of the two kinds of Melds，it is easier to complete a Run than to complete a Set．There are only four tiles of the same character，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 Proto－Run（taatsu）．There are three types of Proto－Runs，summarized in Table 3．1．

Table 3．1：Types of Proto－Runs

| Name | Japanese | Example | Wait | Acceptance |
| :---: | :---: | :---: | :---: | :---: |
| side wait | RYANMEN | 产罾 | 产 | 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）Proto－ Run can accept twice as many tiles as a closed－wait（KАN－ CHAN）Proto－Run or an edge－wait（PENCHAN）Proto－Run
can. Therefore, building side-wait Proto-Runs is the key to advancing a hand. Winning tiles of side-wait ProtoRuns are often denoted with a hyphen in the middle,


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

A closed-wait Proto-Run can evolve into a side-wait Proto-Run in just one step. For example, a Proto-Run (: can become a side-wait one if you draw a and discard the (3.


On the other hand, it requires two steps for an edge-wait Proto-Run to evolve into a side-wait Proto-Run. For ex-
 you draw a first and then a

# draw a 風 drawa圆 

## Value ranking of Proto－Runs side wait＞closed wait＞edge wait

Tile versatility
Some tiles are more versatile than others．For exam－ ple，number tiles are more versatile than Honor tiles be－ cause Honor tiles can never form a Run．Moreover，we can rank order the versatility of number tiles based on the types of Proto－Runs they can form．

Number tiles between 3 and 7 are the most versatile． This is because each of them can form a Proto－Run with four kinds of number tiles．For example，can form a Proto－Run with（0），这，连，and 閭．Two out of the four possible Proto－Runs will be side wait．

2s and 8s are less versatile．They can form a Proto－ Run with only three kinds of number tiles．For example，
（can form a Proto－Run with（0），and eq．Only one out of the three possible Proto－Runs is side wait．

Terminals（ 1 s and 9 s ）are the least versatile．They can form Proto－Runs with only two kinds of tiles．For exam－ ple，© can form a Proto－Run only with and ：None of the two possible Proto－Runs 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 Proto－Runs．For example，a closed wait Proto－Run can become a side－wait one only if we draw a become a side－wait one only if we draw a 選．However，a closed－wait Proto－Run 屇 can become a side－wait one if we draw a or a Clearly，国祭 is more versatile than

——Versatility ranking of closed－wait Proto－Runs

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

### 3.2.5 Pairs (toitsu)

A set of two identical tiles is called a Pair (tortsu). Pairs can perform several different roles. A Pair can be the Head (Final Pair) of a hand, a Proto-Set (a candidate for a Set), or a component of chitoitsu (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 Meld, 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
 (11 kinds-38 tiles), the wait will be significantly improved. For example, if we draw a a discard the 四, the hand becomes:

## 

 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 when 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: 景景. 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 a 偊 and discarded the 北，as follows．

2．Hand with two Pairs


This hand is also 2－Away，but it has two Pairs：偊偊 and渞．Each of these Pairs is now functioning as an effec－ tive candidate for a Set．Whenever one Pair becomes a Set，the other Pair becomes the Head．Drawing a 偊 or a will advance this hand from 2－Away to 1－Away．

Moreover，whereas the hand with one Pair was able to accept two tiles of in，the hand with two Pairs can ac－ cept four tiles（two of and two of 偊）．The probability of drawing any one of four tiles is obviously higher than the probability of drawing any one of two tiles．In gen－ eral，for each additional Pair in a hand，tile acceptance increases by two．

What if a hand has three Pairs？Suppose we draw a

雪，as follows．
3．Hand with three Pairs
高 㥥 萬 俉

（2 ［ （ivi I 8
$\$$ \＄\＄\＄

 | \＄8 |
| :--- |
| \＄8 |

Draw
 hand has three Pairs．However，keeping three Pairs in a hand is inefficient．Recall that each additional Pair in－ creases tile acceptance by two tiles．In this case，keeping a Pair of ${ }^{\text {mim }}$ means that the hand can accept two additional tiles of 關．However，doing so comes at a cost．Keeping three Pairs by discarding the means the hand can no longer accept 開（ 2 kinds－8 tiles）The net tile accep－ tance gain will be negative．Similarly，keeping three Pairs by discarding the 䜕means the hand can no longer accept㬂（4 tiles）．Again，the net tile acceptance gain is nega－ tive．Therefore，discarding a 雿 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 Pung or Chow），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. ${ }^{9}$

## 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 Pung, having three Pairs is actually better than having two Pairs. This is because the hand will become a two-Pair hand after we call Pung once. For example, consider the following hand.

Two Pairs vs. three Pairs

Dora
What would you discard?
We would definitely intend to call Pung on a 中. Anticipating that, we should discard the 䜕 in this case to have

9 What if there are four or more Pairs? Whenever a hand has four Pairs, it is 2-Away from Ready for chirtoitsu (Seven Pairs). It may be faster to pursue chirtoitsu than pursuing a standard hand in such cases.
three Pairs rather than discarding a 偊 to have two Pairs． After calling Pung on a 中，we will have a choice between discarding the 㬂 or the

In either case，the hand will have two Pairs after calling Pung．

Value of Pairs：open hand

$$
3 \text { Pairs > } 2 \text { Pairs }
$$

## 3．2．7 $\quad$ Perfect $n$－Away

Perfect 1－Away
When a 1－Away hand has two side－wait Proto－Runs 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 Chow, calling Pung, or drawing a tile to complete a Run or a Set, and no matter how a hand becomes Ready, the final wait can always be side 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 Proto-Runs and three Pairs, as follows.

Perfect 2-Away (20)

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 an example that illustrates how we can apply the tile efficiency logics we have learned so far．Consider the following 2－Away hand．

Advancing a hand 1


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 葛，固，or開。 Which one should we choose？

Recall that a closed－wait Proto－Run of 57 is stronger than a closed－wait Proto－Run of 24 or an edge－wait Proto－

 become a side－wait Proto－Run relatively easily．On the other hand，the［iti part and the midill part are both weak；the first can become a side－wait Proto－Run only if we draw a ${ }^{\text {Hitill}}$ ，and the second one will never become a

 a Meld rather than making them into weak closed－wait Proto－Runs．
 sulting in the following hand．

Advancing a hand 2

What would you discard？
Now that we have a side－wait Proto－Run 偊窠，we should discard the 薥。

Let＇s say we draw a 11 ，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

from our perspective，and so we will eventually discard them both．The question is which one we should dis－ card first．Recall that a 4 is more versatile than an 8 ．This means that the in this hand may later become danger－ ous for the opponents；we should thus discard the $\begin{aligned} & \text { 開 } \\ & \text { now }\end{aligned}$ rather than later．

Let＇s say we draw a ${ }^{\text {®日 }}$ after that，resulting in the fol－ lowing hand．

Advancing a hand 4


Draw
What would you discard？
The hand is now Ready．We should discard a Riichi．If we win on a 風，we can claim Riichi，pINFU，and sanshoku（Mixed Triple Chow），giving us 7700 points．${ }^{10}$

10 We will discuss scoring and yaku more extensively in later chapters．

### 3.3 Complex forms

The three basic types of tile blocks we have covered so far - Melds (Runs and Sets), Proto-Runs (side wait, closed wait, and edge wait), and Pairs - form the basis of any standard mahjong hands. ${ }^{11}$ When a hand has some tiles that do not belong to any of these three forms, we treat them as floating tiles. For example, the 䜕 and the率 in the following hand are both floating tiles.

Hand with floating tiles


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

11 Standard hands are those with four Melds and one Head. Non-standard hands are снітогтsu (Seven Pairs) and кокushi musou (Thirteen Orphans).

### 3.3.1 Three-tile complex forms

There are two kinds of three-tile complex forms double closed block and Proto-Run plus one.

Double closed (ryankan) block
When two closed-wait Proto-Runs are combined, we have a double closed block (ryankan). There are five different patterns in each suit, as follows.


Each block accepts as many as 2 kinds-8 tiles. For exam-
 as many as the number of tiles an isolated closed-wait Proto-Run can accept.

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

## What would you discard？

Before drawing the 回，the hand was already in a very good shape．It was perfect 1－Away，accepting any of
 we should keep the and discard the 䜕instead．

Notice that，if we keep the 图，we have a double closed
 be split into（an an card the 䜕，the hand is still 1－Away from Ready，accept－
 the 萬 to keep the double closed form is that the hand can always be pinfu when it is Ready．On the other hand，dis－ carding the means that the hand may become a yaku－ less hand when drawing a 䜕 or a allil．

Double closed blocks are particularly useful when a hand is relatively far from Ready（2－Away or worse）．As a hand advances，however，its usefulness diminishes be－
cause this block requires three（not two）tiles even though it is not a complete Meld．Moreover，it will ultimately become a single closed－wait Proto－Run when this block remains incomplete when the hand is Ready．Therefore， we should not rely too much on a double closed block． For example，consider the following two hands．

## 

Draw

$$
\begin{aligned}
& \text { Draw }
\end{aligned}
$$

Both are 1－Away from Ready and both hands contain a double closed block in Bamboos．Maintaining the dou－ ble closed form in these cases will not be ideal．It is true that，if the hand becomes Ready by drawing a $\begin{aligned} & \text { 曽 } \\ & \text { or }\end{aligned}$
 hand．However，if the first hand becomes Ready by call－ ing Pung on a 中 or the second hand becomes Ready by drawing a 偊 or a 圑 first，they only make for a closed－wait Ready hand．

Therefore，if we draw a tile next to the Head，creating a side－wait Proto－Run，we should keep it and break the double closed form instead．In the first example above，
 we should keep it and discard the instead．In the sec－ ond example above，as we draw a that creates a side－
 ［instead．

Proto－Run plus one
As we saw with the first example in Section 3．2．8，we
 made up with one Proto－Run plus one floating tile（厲萬 + 厲）．${ }^{12}$ Depending on the type of Proto－Runs，we can classify Proto－Run plus one forms into three groups，as summarized in Table 3．2．

A Proto－Run plus one can accept two additional tiles that an isolated Proto－Run cannot．This is because these blocks can now be a candidate for a Set as well as for a Run．

Table 3．2：Types of Proto－Run plus one forms

| 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 |

Breaking a Proto－Run plus one can be inefficient．For example，if we break a closed wait plus one form into an isolated Pair（i．e．，discard the ๕nom in ），the tile acceptance decreases from 6 to 2 ；it can accept only （1 kind－2 tiles）．Similarly，if we break it into an isolated Proto－Run（i．e．，discard a from（i刃e），the tile accep－ tance decreases from 6 to 4 ；it can accept only（ 1 kind－4 tiles）．With this in mind，consider the following hand． Proto－Run plus one


## What would you discard？

Discarding a 蕮 or the 䜕 to break the Proto－Run plus
one 厲畡偊 is inefficient with this hand．Discarding a 䜕 decreases tile acceptance by two，and discarding the 䜕 decreases tile acceptance by four．Moreover，discarding the 萬 leaves three Pairs in this hand，which should be avoided．Discarding a［II is much more efficient．

Sometimes we have to make a choice between multi－ ple Proto－Run plus one forms，just like we did with exam－ ples in Section 3．2．8．Consider the following hand．What would you discard？

## Multiple Proto－Runs plus one



What would you discard？
There are two Proto－Run plus one forms in this hand：罥置䆞 either an isolated Pair or an isolated Proto－Run，because the other parts of this hand are more or less self－sufficient． Which one should we choose？

When choosing between which Proto－Runs plus one to break，priority should be given to the weaker one．Since
the side－wait Proto－Run is much stronger than the closed－wait Proto－Run 贎窠，we should prioritize the lat－ ter and maintain 罥置窠．In other words，the side－wait Proto－Run is so strong that we do not need to pro－ vide a cover by maintaining the＂plus one＂tile On the other hand，the closed－wait Proto－Run 噶風 is weaker so we should cover it by keeping another 罨 as a back－up． You should thus discard a

## 3．3．2 Four－tile complex forms

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

Stretched single block（nObetan）
A set of four consecutive tiles such as（\％）ee ie is called a stretched single（nOBETAN）block．Stretched single blocks are very useful both when a hand is Ready and when a hand is 1－Away or worse．

When a stretched single block is in a Ready hand，that part forms the wait of the hand．For example，the follow－
ing hand is Ready，waiting for 偊罨。

Ready hand with a stretched single block


In a Ready hand，the stretched single block can be thought of as a candidate for the Head（萭 or 罥）and a candidate for a Run（偊赜罨 or 偊偊喁）．For example，if we win this hand on a 萭，the 偊 becomes the Head and 萭燤罥 be－ comes a Run．

Another important role that a stretched single block can play is to work as a candidate for two Runs．When a hand is 1－Away or worse，we usually count on a stretched single block to produce two Runs．For example，consider
 have a side－wait Proto－Run in addition to a complete Run © © \＆ side－wait Proto－Run 䗦 in addition to a complete Run




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

Table 3．3：Types of stretched single blocks

| Form | 3－way | 2－way | 1－way | Pair | Acceptance |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | 围㝢 | 風薥 | 6 kinds－20 tiles |
|  | 富 | 寓氧罵 | 㬂 | 萬偖 | 7 kinds－24 tiles |
|  | 萬萬 | 薥賃 | 罔鹋 | 國窗 | 8 kinds－28 tiles |
|  | 围薥 | 賭寓 | 㬂究 | 蜀萭 | 8 kinds－28 tiles |
| 軥窝氭氭 | 蜀 | 宣風萬 | 䦸 | 置 䍖 | 7 kinds－24 tiles |
| 资氭萬萬 |  | 薄萬 | 贎 瑀 | 㝢萬 | 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 blocks are the most valuable of all four－tile blocks，and we should not lightly break such blocks 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 block


What would you discard?

It is true that discarding the 偊 or the 澫 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 Proto-Runs will be closed-wait or edge-wait ones. We should rather discard the III to keep the 3456 block, which we can expect to produce a side-wait ProtoRun later. The resulting tile acceptance ( 6 kinds- 20 tiles) is not much smaller, either.

Four-tile complex forms
Try to keep a stretched single block 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 block (nakabukure)
When we have a floating tile in the middle of a Run
 Bulging float blocks are quite good at producing sidewait Proto-Runs. Any bulging float blocks from 2334 through 6778 can accept four kinds of tiles to produce a
 for example. It can produce a side-wait Proto-Run and
 mind, consider the following 2-Away hand.

Hand with a bulging float block
 What would you discard?

Discarding a 羃 to break the bulging float block is not ideal. Although doing so increases tile acceptance temporarily, the hand will be filled with closed-wait ProtoRuns. Alternatively, you should discard the to maintain the bulging float block.

That being said, when this block remains incomplete
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 block




Draw

What would you discard？
 makes the wait of this hand pretty bad．It is waiting for a㯰，but we are already using two of it in the hand，leaving only two winning tiles．We should rather discard a 罨 to wait for a 北．

Four－tile complex forms
Try to keep a bulging float block until a hand becomes 1－Away．

## Skipping block

When we have a floating tile two tiles away from a Run，we have a skipping block．For example，in a block
 in a skipping block is more valuable than an isolated 高，
because it increases the kinds of tiles the block can accept to produce a Proto－Run or a 3－way side－wait block．Table 3.4 summarizes all the skipping blocks and the tiles each form can accept．

Table 3．4：Types of skipping blocks

| Form | 3－way | 2－way | 1－way | Pair | Acceptance |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | － |  | 萬 | 4 kinds－14 tiles |
|  | 三萬 |  | 萬贎萬 | －萬 | 5 kinds－18 tiles |
| 鰅俉寓萬萬 | 贎 | 产 | 㬂囀瑀 | 产 | 6 kinds－22 tiles |
| 贎荀萭瑀 | 俉 | 隼 | 萬 窠 卆 | 罩 | 6 kinds－22 tiles |
| 荁萭萬萬 |  | 瞩 㝢 | 啚 寓 | 伯 | 5 kinds－18 tiles |
| 萬萬单俉 |  | $\begin{array}{\|l\|l\|} \hline \text { 澫 寓 } \\ \hline \end{array}$ | 啚萬 | 俉 | 5 kinds－18 tiles |
| 㬂三贎窠 | 隼 | 卆 | 偊 瑀 | 寓 | 6 kinds－22 tiles |
| 萬贎偪萬 | 窠 | 萬 | 萬 䓊 卆 | 氭 | 6 kinds－22 tiles |
| 贎俉澫萬萬 | 寓 |  |  | 車 | 5 kinds－18 tiles |
| 偪奄寓巣 |  | 萬 |  | 杂 | 4 kinds－14 tiles |


able than an isolated 偊, consider the following hand. Hand with a skipping block


Draw
What would you discard?
We should keep the : we drew and discard the 團 instead. This is because the is a part of a skipping block


As we can see in Table 3.4, skipping blocks 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.

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

Table 3．5：Five basic waits

| Name | Japanese | Example | Wait | Acceptance |
| :---: | :---: | :---: | :---: | :---: |
| side wait | RYANMEN | 氭罵 | 䦸－鼼 | 2 kinds－8 tiles |
| pair wait | SHABO |  | ［ ${ }_{\text {8 }}$ | 2 kinds－4 tiles |
| closed wait | KANCHAN |  | 霹 | 1 kind－4 tiles |
| edge wait | PENCHAN | （－3） | \％ | 1 kind－4 tiles |
| single wait | TANKI | 㥥 | 裏 | 1 kind－3 tiles |

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 rel－ atively 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 block 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 as a regular single wait．

Table 3．6：Stretched single wait and semi side wait

| Name | Example | Waits | Acceptance |
| :---: | :---: | :---: | :---: |
| stretched single wait | 男萬贎俉 | 䦸緟 | 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 a noticeable one．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 exam－ ple，the following hand has no yaкu 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 a 0 ，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 ). ${ }^{13}$


When we have a side-wait Proto-Run 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 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: (a)

13 We will cover methods of scoring and minipoints calculations extensively in Chapter 6.

|  | 俉 | 萬 | （4） | （4） | （3） | （3）${ }_{\text {（4）}}$ | 域 | \＃ | ${ }^{\text {E }}$ | 中 | 中 | 中 | 中 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |

If we win this hand by drawing a as single wait：＋＋（0）which will give us 40 mini－ points．If we treated the wait as side wait：（0）＋＋（\％）we would get only 30 minipoints．Of course，if we win this hand on a ®，$_{\text {®，}}$ we cannot think of the wait as side wait（be－ cause 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
Table 3．7：Regular 3－way side wait

| Example | Wait | Acceptance |
| :---: | :---: | :---: |
|  |  | 3 kinds－11 tiles |
|  |  | 3 kinds－11 tiles |
|  |  | 3 kinds－11 tiles |

When a side－wait Proto－Run is combined with an ad－ jacent Run，we get a regular 3－way side－wait pattern．There are only three of this kind，summarized in Table 3．7．
Example Wait Acceptance


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

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-

Table 3．9：Some irregular waits（Set and a floating tile）
Example Combination Wait Acceptance

| 禹氭氭䭪 | single and edge | 庽 芲 | 2 kinds－7 tiles |
| :---: | :---: | :---: | :---: |
| （3）亩亩亩亩 | single and closed | （\％）${ }^{\text {20］}}$ | 2 kinds－7 tiles |
|  | single and side |  | 3 kinds－11 tiles |

way stretched single block；none of the waits embedded in this block qualifies as side wait．In the second pattern， if we win on a 国，the wait must be interpreted as single wait；if we win on a 蕰，the wait must be interpreted as side wait；and if we win on a 厲，we adopt whichever in－ terpretation that generates a higher score．In the third pattern，winning on a［䍡 allows us to claim single wait if dong 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 3．10：Some irregular waits（Set and a Proto－Run，Pair，or a four－tile block）

| Example | Wait | Acceptance |
| :---: | :---: | :---: |
|  | 萬 萬 啚 | 3 kinds－5 tiles |
|  | （3）${ }^{\text {\％}}$ | 3 kinds－5 tiles |
|  |  | 3 kinds－6 tiles |
| 俉俉俉寓董莗南南 | 俉－瑀 南 | 3 kinds－7 tiles |
|  |  | 3 kinds－9 tiles |
|  |  | 3 kinds－9 tiles |
|  | 噶 稲 瑀 | 3 kinds－10 tiles |
|  | ＊ | 3 kinds－11 tiles |

When a Set is combined with a Proto－Run，Pair，or four－tile block，we get even more complicated waits．Ta－ ble 3.10 summarizes only a few representative examples．

### 3.5 Glossary

Simple tiles (tanyao hai) are tiles between 2 and 8 .
Terminal tiles are 1s and 9s.
Honor tiles (jifai) 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 1 fan 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; shuntsu) is a set of three consecutive number tiles.

Set (Pung; котsu) is a set of three identical tiles.
Kong (kantsu) is a set of four identical tiles.
Proto-Run (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 Proto-Runs and two Pairs.

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

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

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

Skipping block is a four-tile block 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 Proto-Runs, the value of having two Pairs in a hand rather than three, and the value of stretched single or bulging float blocks, 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

1 Recall that, on regular (slower) tables at 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.
bulging float block 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. The core idea of the five-block method is deceptively simple; we first identify five tile-blocks in a hand - four Melds + one Head, or their candidates - and try to complete each block.

### 4.1 Finding a redundant tile

We all understand that a standard hand ${ }^{2}$ must have five blocks of tiles - four Melds 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?


[^3]To figure out which tile is the least useful in this hand， let＇s divide the hand into tile－blocks，as follows．


Notice that，although we do not know which block is going to be the Head and which blocks are going to be four Melds 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，a Pair of 葻，a Proto－ Run 風䦸，and a Set of 中 are all self－sufficient；we keep them as they are．Our discard choice should thus be from
 now compare these two closed－wait blocks．While the 迷 is being useful in its block，enabling the hand to accept a ，the is completely redundant；the hand can accept a without having the ©．Therefore，the ideal discard is the

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
 wait Proto-Run, which is too weak compared with the other blocks. Likewise, if we discard the 練, 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
 exactly three tiles and so we should not choose a discard from this block. On the other hand, the © \&idiai 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.

Let's see another example.
3 Basically, any block that is weaker than a side-wait Proto-Run is a weak block.


Dora

We can easily see that there is one block in Cracks，two blocks in Dots，and a Pair of White Dragons，giving us four blocks．This means that we need to have only one more block in Bamboos．Therefore，we divide the hand as follows．


Since we should not create a block that is too weak，dis－ carding the 萬 or 偊is not an option．Notice that the block in 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 毗，leaving or 四 as a discard candidate．Given that 開 has a higher chance of creating a side－wait Proto－Run，we should dis－ card the $\begin{aligned} & \text { 閭．}\end{aligned}$ ．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.


This makes it clearer that, just like the previous example, the 澫 is creating a redundant closed-wait Proto-Run, so we should discard it. Also, discarding the 蓉 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 偊．Sup－ pose also that seems live in the wall．Or，suppose the㬂－澫 tiles seem too dangerous to discard against an op－ ponent．Then，we might want to divide the hand in the following way instead．

（4．4）
That is，we aim to make the Pair of 㬂 the Head of this hand，and we seek to have two Runs in Dots．If we
 a block like this can be split into（1） the discussion of double closed block in Section 3．3．1）．
 make two Runs in Dots．The block in Dots 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 five tile-blocks?


With the draw of a ${ }^{\text {in }}$ ，we now have a 3－way side－wait block in Bamboos．嘼 or till could be our back－up can－ didate for the Head，in case we draw another 偊．Since there is sanshoku（Mixed Triple Chow）of 345 ，we dis－ card a ${ }^{\text {曷．}}$ ．

Exercise 2
What would you discard？
How do you divide the hand into five tile－blocks？



Before we drew a \& , the Dots tiles were (a) + © + \&凅, so the was simply a floating tile. Now that we have another ®ٌ, the five-block configuration changes accordingly. The ideal discard is a © , as this has become redundant.

Exercise 3
What would you discard?
How do you divide the hand into five tile-blocks?



There are two＂side wait plus one＂blocks，偊置罨 and
 this point，however，we cannot determine which one will be which，so we should keep them as they are． One of the two 寞 has become an obvious redundancy so we should discard one．

Exercise 4
What would you discard？
How do you divide the hand into five tile－blocks？


## 

The 兆 is obviously redundant, but the : is also use-
 Honor tiles can be used as a safety tile (see Chapter 8), we discard the

Exercise 5
What would you discard?
How do you divide the hand into five tile-blocks?

Draw Dora

This is a bit difficult, as there are so many closed-wait Proto-Runs. 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 Dots has four tiles, so we discard one from this block. Since ๕ is Dora, we discard the leaving the double closed block around DORA: ©

Exercise 6
What would you discard?
How do you divide the hand into five tile-blocks?



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 Dots and two blocks in Bamboos, we only need one block in Cracks, hence a 罨 is redundant. If we discard a 贎, the hand can be made Ready with 11 kinds- 34 tiles. If we discard : or or in, the hand can be Ready only with 6 kinds-19 tiles.

Exercise 7
What would you discard?

Draw


Do not discard the［lll just because it forms a closed wait or because discarding it gets us tanyao（All Sim－ ples）．Avoiding closed wait too much and being hung up on tanyao are two pathologies common among in－ termediate players．

The block in Bamboos is actually a very good shape； this is a stretched single plus one，which can become either two Runs immediately（if we draw a 䩗），one Run plus one side－wait Proto－Run（if we draw any of開開），or one Run plus the Head（if we draw a 眆 or a（ilit）．Note also that we need both and 圈，because this part may become the Head if we get two Runs in Bamboos；when we get the Head in Bamboos，we will treat this part as a side－wait Proto－Run．We thus discard the 偊．

### 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 tileblocks, 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 a perspective of tile efficiency，discarding the風 block means that we lose the ability to accept both and
 block，we can still accept 鬥．We should thus choose be－
 sirable from a perspective of hand value（it is a red five） as well as safety（discarding 四蛹 is much safer than dis－
 criteria collectively suggest that we should discard 風開．

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.
萬

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 the 圆, as we already have six tile-blocks and we won't need any more floating tile.

However, as it stands, the hand has no yaкu 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 Cracks as a single block，hoping to get at least one Meld or the Head out of it．We thus discard a IIII now，then another 四 in the next turn．Depending on what tile gets drawn，our five－block configuration will be different．
 will then have the following．


We will discard the 偊 as a first step toward reducing the number of tiles in the Cracks block to three．We can now see that this hand has a potential of getting sanshoкu of 345 as well as pinfu and tanyao．

On the other hand，if we draw a 寞 and then a 偊，we
can expect to have two Melds in Cracks so we will discard the 圆。


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 five tile-blocks?


The hand currently has six blocks so we need to get rid of one. The Run so we should get rid of this one. We should dis-
 leave the possibility of pinfu. If not, we discard the next, and then a 偊.

Exercise 9
What would you discard?
How do you divide the hand into five tile-blocks?



We were planning to discard the 偊臅 block because this was the weakest block among the six blocks in this hand．However，as the draw of a 罩 has made the in block the weakest block．We thus discard a ．

Exercise 10
What would you discard？
How do you divide the hand into five tile－blocks？

The hand currently has six blocks so we need to get rid of one．Comparing the two closed－wait blocks 偊㬂 and（2）the 偊偊 block is more valuable because it is adjacent to a Run．If we draw a 噶，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 $a$ ．We should discard the（arst，not because if we draw a

Exercise 11
What would you discard？
How do you divide the hand into five tile－blocks？



Now that we have a 3-way side-wait block in Bamboos, we should get rid of one block. Comparing a
 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 a 潾.

### 4.4 Building a block

When a hand has less than five blocks, we need to build a new block, possibly from a floating tile we already have in a 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．


We should thus compare the four floating tiles 慻䀠中兆 in terms of their capabilities to grow into an independent block．Of these four tiles，苜 is the strongest candidate， because it can form a side－wait Proto－Run with two kinds of tiles，圊 and 四．Any Simple tiles between 3 and 7 are a strong floating tile because of their ability to form a side－ wait Proto－Run．Terminals（ 1 and 9）will never become a side－wait Proto－Run，and 2 and 8 can become a side－wait Proto－Run 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，由 and 兆．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 the 中 rather than the北。

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


From a pure perspective of tile efficiency，the discard choice
 three will maximize tile acceptance．The block configu－ ration behind that decision is as follows．


However，doing so will almost guarantee that the hand ends up having a low score and／or a bad wait．Alterna－
 to produce two Runs，the to form a Run，and the tiles in Cracks to produce one Run，as follows．


We should thus discard the for now, anticipating to discard the Pair of 圈 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 five tile-blocks?

Red


§§\$
$\$ \$ \$$

|  | $\$$ |  |
| :--- | :--- | :--- |
| $\$$ | 8 | 8 |
| $\$$ | 8 | 8 |

If we were to simply maximize tile acceptance，the dis－ card choice should be either 圕 or 鹋．However，that would make the block in Cracks too week．Breaking the（e）or very strong．We should therefore discard the 風 to get rid of this edge－wait block．This will temporarily re－ duce 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 five tile－blocks？

$$
\begin{aligned}
& \text { Red }
\end{aligned}
$$



Discarding a \＆or a will make this hand 1－Away，so our choice is between these two options．Notice that the 偊偊block is weaker than the other four．As a back up，we should keep two $\AA$ to maintain the bulging float block in Dots for now，hoping to get two Runs
 of the 偊偊 block．We should thus discard a 园．If we draw any of 圈葍偊，we should do Insta－Riichi．

Exercise 14
What would you discard？
How do you divide the hand into five tile－blocks？

Red


As we drew another 偊，the block in Cracks is now a decent shape．This can become one Meld and the Head with a draw of 偊偊㬂䓝．Therefore，we should discard a ${ }_{\infty}^{\infty}$ to break the bulging float block．

## 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 3-fan 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 (more on this in Chapter 10) to improve the placement, 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 yaku.

## 5.1 sanshoku (Mixed Triple Chow)

5.2 Ittsu (Pure Straight)
5.3 pinfu (Pinfu / Peace)
5.4 honitsu (Half Flush)
5.5 тоitoi (All Pungs) and chirtoitsu (Seven Pairs)

## 5．1 How to get sanshoku

Sanshoky（Mixed Triple Chow）is an elusive yaku． Even when we make our hand Ready for sanshoкu，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 Proto－Run 罥㬂 as the final wait． We will get sanshóu only if we win the hand on a 偊；if we win on a 窉，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 Proto－Run 偊賽instead，sANSHOKU is confirmed；but， a closed wait of 臅 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．

$$
\begin{array}{ll}
\text { 5.1.1 Floating } & \text { 5.1.5 Lining pairs } \\
\text { 5.1.2 Switching } & \text { 5.1.6 Golden } \\
\text { 5.1.3 Double closed block } & \text { 5.1.7 Crashing a Meld } \\
\text { 5.1.4 Stretched single } &
\end{array}
$$

## 5．1．1 Floating

SANSHOKU 1


## What would you discard？

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

That being said，keeping a floating tile this way is a risky strategy．What if an opponent calls Riichi after we discard the 北？We will have to discard either the 圕 or the窝 against the Riichi－ed player when this hand becomes Ready．To make things worse，if we draw a first，we will have to discard the potentially dangerous 圕（instead of 北）with no benefit of getting sanshoкu．
 arises．Consider the following hand．


Should we discard the 窝 and have a closed－wait hand in hopes of getting sanshoku，or should we discard the 高 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 the 偊 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．${ }^{1}$

SANSHOKU：floating
Keeping a floating tile to aim for sanshoku is risky． Give it up and pursue tile efficiency if a hand already has 2 fan or more．

[^4]
### 5.1.2 Switching



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 the 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 the and discard a 盞 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 Proto-Runs: and
 proach sanshoku of 234 . Keep in mind that we should give up on sanshoku and do Insta-Riichi if we draw any
 above to improve the placement in South-4).

On the other hand, if we draw a or a first, the
2 For a definition of perfect 1-Away, see Section 3.2.7.
hand will be 1-Away from Ready for sanshoku. For example, with a draw of a ®日, the hand becomes the following.


Draw
We should discard the and then to aim for SANSHOKU of 234. We are switching from one Proto-Run to to nother Proto-Run è to approach sanshoku.

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 sanshoкu 1-Away hand. You should not pursue sanshoku if switching requires reverting a 1Away hand to 2-Away.

### 5.1.3 Double closed block




Draw

## What would you discard?

As we have two blocks in Cracks and another two blocks in Dots, we only need one block in Bamboos. Our choice is thus between (a) keeping a side-wait Proto-Run maximize tile efficiency and (b) keeping a double closed


If the hand has at least one dora or some yaku (such as tanyao), we should give up sanshóu 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 badwait yaKu-less hand if we draw a 罝 first. If we give up on sanshoku sooner and choose the side-wait Proto-Run ,

### 5.1.4 Stretched single



## 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 the 罥 to have a stretched

 sANSHOKU of 567.


Draw
 sANSHOKU of 678.


Draw

### 5.1.5 Lining Pairs

SANSHOKU 5


Draw

## What would you discard?

As we have one block in Cracks and two blocks in Bamboos, we need to have two blocks in Dots. More specifically, we need the Head and a Meld (preferably a Run) in Dots. We therefore view the tiles in Dots not as a collection of three Pairs but as a collection of one Pair and two side-wait Proto-Runs

From a pure tile efficiency perspective, discarding a and discarding a 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 a first. If we then draw a 圆, we will get the following hand.


Discarding a makes this hand Ready, but it is just a pinfu-only hand. On the other hand, suppose we had



We can make this hand Ready for pinfu and sanshoku of 456 by discarding a

Note that pre-committing to sanshoкu of 456 by discarding a If we do that, the hand becomes the following very weak hand.


This hand relies too much on the possibility of drawing
 be a yaKu-less and/or bad-wait hand.

## 5．1．6 Golden



Draw

## What would you discard？

If we keep the 偊 and discard the 開，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 2－fan yaku in Riichi mahjong．Drawing a or a makes the hand Ready for ittsu，whereas drawing a 偊 or a 萬 makes the hand Ready for sanshoku of 789．The following are ex－ amples of golden 1－Away．


## 5．1．7 Crashing a Meld

## SANSHOKU 7




Draw

What would you discard？
Notice that the hand can be made Ready for pinfu if we discard a we need an expensive hand，we could take a rather high－ handed approach and crash an already complete Run by discarding the $⿴ 囗 ⿰ 丿 ㇄$ good a 1－Away hand it becomes．


If we draw a ＋pinfu＋sanshoku＋iipeiko（Pure Double Chow）．Draw－ ing a lill also gets us tanyao＋pinfu＋sanshoku，and drawing any of ：$\AA$ gets us at least tanyao＋pinfu， and possibly irpeiko as well．

## 5．2 How to get ittsu

Ittsu（Pure Straight）is another popular 2－fan yaku． As we will see below，even when ittsu appears to be a pos－ sibility，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 follow－ ing．

$$
\begin{aligned}
& \text { 㬂 ニ 㥥 }
\end{aligned}
$$

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

#  

\section*{| 九 |
| :--- |
| 萬 |}

Draw

## What would you discard？

From a pure tile efficiency perspective，the best discard choice is the 蕅．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 when we are ahead of the game in South－ 4 and don＇t need an expensive hand．${ }^{3}$

We should rather treat the 萬 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 Cracks to have ittsu， so we need one block in Dots and another block in Bam－ boos．Recall the principle that each block should have at

3 We would still want to have at least one yaku in a hand so that we can win it without calling Riichi．
most three tiles，which suggests we discard one tile from the block in Bamboos．The choice now boils down to dis－ carding a 閍 or the ．Recall also that the value of Pairs is maximized when there are two Pairs in a hand．We should thus discard the

## 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 Cracks，for exam－ ple．Even when we draw a 萭，we would want to dis－ card the 偊 to have a double closed block 偊置窠 and a Run 風畣萬 rather than trying too hard to pursue ittsu． With this in mind，consider the following hand．



Draw

What would you discard？
Although we see a remote possibility of ittsu in Bam－ boos，pursuing it requires we fill in three closed－wait Proto－


It would be more realistic if we discard the 潾 and the III；we would consider the tile－blocks in Bamboos as a col－
 redundant Terminal tiles：圈罒，rather than considering it as a collection of three closed－wait Proto－Runs．

### 5.2.3 Run + side-wait Proto-Run

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

When we have a combination like these, a draw of a 偊 or a 偊 (left example), a © or a or a (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 Proto-Run 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 Proto-Run 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 Proto-Run 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 Cracks, it is about time to give up on ittsu. Discarding the 萬 allows the hand to accept 9 kinds- 25 tiles; if we stick with ittsu and discard a 罨, the hand can accept only 4 kinds-10 tiles.

Moreover, although the hand is 2-Away from Ready, it is 3-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 Proto－ Run．Consider the following 1－Away hand．
ittsu 4



Draw Dora

What would you discard？
If we discard the 偊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 a 厲，we have a confirmed ittsu hand． Which option should we choose？

If we compare tile acceptance counts for the two sce－ narios，the option of confirming side wait is slightly bet－ ter（ 6 kinds－ 18 tiles vs． 5 kinds－ 16 tiles）．However，do－ ing so means we give up on ittsu that is already here． Moreover，giving up on ittsu means that we can never call Pung or Chow with this hand because there is no yaku in the hand．On the other hand，the second option allows us to call Pung on any of 圆晀 or call Chow on a

偊．Even though the kinds and the number of acceptable tiles are smaller，the second option would be more effi－ cient if we take melding into account．

## 5．3 How to get pinfu

Although pinfu is only worth 1 fan，the requirements to claim pinfu are rather demanding．The key to getting pinfu is to build side－wait Proto－Runs 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
 significantly reduces our chance of getting pinfu．If we aim for pinfu we should discard the edge－wait Proto－Run澫萬 and keep the two floating tiles，which we hope may grow into a side－wait Proto－Run．

Suppose we discarded the 偊，then we drew a 圆，af－ ter which we discarded the 㘣．Now the hand is 1－Away again，this time with two side－wait Proto－Runs．Suppose further that we drew a 国．

PINFU 2


Draw
What would you discard？
We should keep the 国 as a safe tile and discard the 關．It is true that keeping the 䦬 has an advantage；if we draw a罒，we will get a 3－way side－wait block in Bamboos．Even a draw of a 四 improves this hand slightly．This is be－
 overlap of the waiting tiles；both blocks wait for a 綥．It



However，keeping the 㽧 comes at a cost．Even when
 possibly against an opponent＇s Riichi．Therefore，once we get a 1－Away with two side－wait Proto－Runs（side＇ $\mathbf{n}$＇ 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 ex－
 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 3 fan，it is OK to keep it instead of a safety tile． Consider the following hand．
pinfu 3

What would you discard？

Keeping the 西 is safer，but keeping the 墻 leaves the pos－ sibilities of getting ittsu and having DORA，possibly at the same time．In this case，we would rather discard the 回．

## 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


The hand has a potential to have pinfu，so we should do not discard any of 萭區四 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 㸚 cannot be the Head of pinfu． We should discard the 爽 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 2 fan even when we meld 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 ноnitsu. Assuming you are

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


We can count on the two Pairs of FANPAI，東柬 and 中中，
 to be another two blocks，yielding four blocks in total． In addition，we can reasonably expect either of the two floating tiles眖 or 偊 to produce the fifth block．There－ fore，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 and a closed－ wait Proto－Run $\sqrt{\square}$ ．We can go for honitsu without much hesitation．

Even when we have a side-wait Proto-Run 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 Proto-Run 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.

## 

## 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.

$$
\begin{aligned}
& \text { honitsu } 3
\end{aligned}
$$

What would you discard?

This hand is worth 5200 points without honitsu (Seat Wind + Green Dragon + red five), so you should discard the 㬂 to maintain a side ' n ' side 1-Away status. If 甬 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 Pung on a $\square$ just now, deciding what to discard.

HONITSU 4


## What would you 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 Cracks. If you discard the first then the next, the opponents might (correctly) guess that you are pursuing honitsu in Cracks. In particular, the Left player may stop discarding tiles in Cracks that you could call Chow on. You should
 nents cannot know if you are collecting Cracks or Dots. They will eventually find out that you are collecting the Cracks, but you should delay that as much as possible.

## 5．4．3 Melding

When you start melding with а нолitsu 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 Chow of ${ }_{\text {\＆}}^{\infty}$ or a Pung of 北；you may end up with a very cheap（2000 points）нonitsu－only hand．Suppose you managed to call Pung on a 畨，resulting in the following hand．

Calling Chow on a $\unrhd^{\circledR}$ or Pung on a 北 is still not ideal． The only melding you should do is to call Chow on a to have the following hand．


Notice that the two floating tiles 囬 国 allow us to en－ vision two possibilities of getting a 7700 hand．On the one hand，if you draw a 固 or call Pung on a 北，you get honitsu＋Green Dragon＋chanta（Outside Hand），as follows．


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


### 5.5 How to get тоitoi / chirtoitsu

### 5.5.1 Toitoi vs. chitioitsu

When pursuing chirortsu (Seven Pairs), you may find yourself standing at a crossroad between chirrorrsu and тогтоі (All Pungs). Specifically, what should we do when one of the Pairs in a 1-Away chirmorssu 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 the that we drew, the hand is 1-Away from Ready for chittoitsu, accepting (3) (3 kinds-9 tiles). On the other hand, if we keep it and discard the [il instead, the hand is still a 1-Away chirtoitsu hand, albeit with smaller tile acceptance. However, doing so makes the hand also 2-Away from Ready for тогто and possibly su anko (Four Concealed Pungs).

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

Toitoi vs. chirtortsu
Choose chirtoitsu 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 䜕, the Pair of 鹋 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 chirtoitsu. If not, you can go for тоітоі.

In addition, you may also want to take into account the second and the third conditions. Specifically, without having a Pair of value tiles (fanpar), you may end up with a тoitoi-only hand (2600 or even 2000 points). With one

Pair of value tiles, you can aim for 5200 with тогтог; 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 Pung on a $\square, 5$ then get another Pung on a 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]
### 5.5.2 Standard hand vs. chiitoitsu

Another kind of crossroad is between chirtoitsu 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 a 䜕, we now have five Pairs in the hand, making it 1-Away from Ready for chirtoitsu. 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 Proto-Runs, it makes more sense to view it as a standard hand rather than as a chirtoitsu hand. To figure out what tile to discard, let's apply the five-block method.


Since we already have five tile-blocks in Simple tiles, the Pair of 北 is redundant. Discarding a 北 means we are giving up on chirtortsu, 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 impeiкo as well. The expected hand value will actually be higher if we give up on chitтоitsu.

On the other hand, when a hand has few side-wait Proto-Runs 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 Proto-Run, 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 снітоітsu or тогтол with
a hand like this．Let＇s apply the five－block method to fig－ ure 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
 more valuable than others because of their low versatili－ ties．On the other hand，迅區匪 cause these tiles have high versatility for the opponents．
 we draw a red 罍（in which case the hand is 1－Away from Ready for chittoitsu）．

## 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, if you play online, scoring is automatically done once you win a hand. 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.

## Step 1: Count the number of fan.

First, you need to figure out how many fan a hand has. If a hand has 5 or more fan, 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 4 or less fan, 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 fan (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 only in exceptional cases. This involves an exact calculation of minipoints in Step 2 above.

### 6.2 Basic scoring

## 1. Counting the number of fan

Step 1 in score calculation is counting the number of fan 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 fan 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 fan counts one after another in a few seconds. Try to identify all the yaku of your opponent's hand before

1 In my impression, roughly $75 \%$ of the hands we encounter can be covered by the basic methods.
they get displayed automatically.

## Scores for limit hands

When a hand has 5 or more fan, 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 fan count, we utilize Table 6.1. This is something you need to memorize.

Table 6.1: Scores for limit hands

| FAN | 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+ FAN is scored as a SANBAIMAN with the revised EMA rules. |  |  |  |  |  |

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 1.5 times the corresponding scores for non-dealer in all limit hands. Finally, scores for тsumo (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 4 or less fan, 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.

[^6]1. CHIITOITSU $\Rightarrow$ always 25 minipoints
2. A hand has one or more Kong $\Rightarrow$ Don't bother.
3. тоITOI $\Rightarrow$ almost always 40 minipoints
4. Pinfu

- ron $\Rightarrow$ always 30 minipoints
- тSUMO $\Rightarrow$ always 20 minipoints

5. Closed hand without PINFU

- ron $\Rightarrow$ almost always 40 minipoints
- tsumo $\Rightarrow$ almost always 30 minipoints

6. Open hand $\Rightarrow$ almost always 30 minipoints

Figure 6.1: Six most observed patterns

You can use this Figure as a flowchart. You first check if the hand is a chirtortsu (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 Kong. 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 case. Third, you check if the hand is тотто (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 (chimtoitsu, Kong, and тогтоі), 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 (тsumo). 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 is almost always 40 minipoints (RON) or 30 minipoints (тsumo). 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

3 Note that we are only talking about open тогто here. A closed tortor 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).
three cases. We will then discuss cases 1 and 3 (chirtoitsu and тогтог), 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-tortoi hand without Kong, 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-тогто hand
without Kong, 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 are sometimes slightly bigger than the corresponding ron scores. For example, 1 -FAN tSumo (300-500) gives you $300+300+500=1100$, which is slightly bigger than 1-FAN RON (1000).

Table 6.2: Scores for 30 minipoints

| FAN | 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 |  |  |

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
fan. Moreover, if we memorize the tsumo scores for nondealer, 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

| FAN |  | 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.

- 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 nondealer - $13,26,52$ - 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 1-fan row. This is because you get 20 minipoints only when you get pinfu + tsumo (hence we have at least 2 fan). Even though this is a special case, PINFU + тsumo 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

| FAN | 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 fan to get a certain score is one fan smaller for 40 minipoints than for 20 minipoints; that is, to get 400-700, we need 2 fan with 20 minipoints, whereas we only need 1 fan with 40 minipoints.

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

The final case we cover as part of the basic scoring is scores for a chitoitsu hand. As chitoitsu 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

| FAN | 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 chittoitsu is itself a 2-fan yaku, the scoring table only starts with 2 fan for ron and 3 fan 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 relatively 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.

## 15555555555555555

## Notes on pinfu tsumo

A very common mistake among European players (or among beginners in general, for that matter) is to claim 1000-2000 for Riichi + pinfu + tsumo (mistaking 3 fan-20 minipoints for 3 fan- 30 minipoints) or claim mangan for Riichi + pinfu + TSUMO + DORA (mistaking 4 FAN-20 minipoints for 4 fan-40 minipoints). If you have trouble wrapping your head around why pinfu + тsumo 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 тsumo also generates 2 minipoints. Therefore, logically speaking, pinfu must not be claimed when you win it by тsumo. 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 тsumo, you are allowed to claim тsumo only, giving you 1 fan- 30 minipoints ( 20 base minipoints +2 minipoints for tsumo $=22$, rounded up to 30 minipoints), which gives you 300-500.
(continued on next page)

## 5050605050505050505

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 ( 1 fan-30 minipoints). At the same time, they thought that the score for pinfu + tsumo should be lower than that for a "proper" 2 fan- 30 minipoints hand (e.g., tanyao + tsumo). Therefore, they decided that pinfu + tsumo should be placed in between these two - 1 fan-30 minipoints (tsumo only; 300-500) and 2 fan- 30 minipoints (tanyao + tsumo; 500-1000) - giving it the score of 400-700. Therefore, the score for Riichi + pinfu + tsumo (3 fan-20 minipoints; 700-1300) is higher than Riichi + tsumo (2 fan30 minipoints; 500-1000) but lower than Riichi + tanyao + tsumo (3 FAN-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 Kong 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 Kong 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 Kong.

Table 6.6: Minipoint contributions from a Set and a Kong

|  | Tile | Minipoint |  |
| :--- | ---: | :---: | :---: |
|  |  | Open | Concealed |
| Set | Simple | 2 | 4 |
|  | Terminal/Honor | 4 | 8 |
| Kong | Simple | 8 | 16 |
|  | Terminal/Honor | 16 | 32 |

Finally, we add minipoints for the following, if any.

## Dragon tiles <br> 2 <br> Pair seat Wind tiles <br> 2 prevailing Wind tiles 2 <br> Wait closed, edge, or single 2

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 pair 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

[^7]following hand．


The hand is waiting for 圂－圔．If we win by ron on a 偊， we get no minipoint for the wait and so this hand has 30 minipoints（base $20+8$ for a concealed Set of Hon－ ors +2 for an open Set of Simple $=30$ ）．However，if we win this hand on a 䜕，we get additional 2 minipoints for
 as 偊偊蜀＋㬂寞．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 the case of 50 minipoints，sum－ marized 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 (chirtoitsu), summarized in 6.5. Recall that the score for a 1 fan- 50 minipoints hand should be the same as that for a 2 fan- 25 minipoints hand.

Table 6.7: Scores for 50 minipoints

|  | RON |  | TSUMO |  |
| :--- | ---: | ---: | ---: | ---: |
| FAN | RON |  | Non-dealer | Dealer | Non-dealer | Dealer |
| :--- |
| 1 |

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 (nondelaer) $\rightarrow 34$ (dealer) $\rightarrow 45$ (non-dealer) $\rightarrow 68$ (dealer).

Table 6.8: Scores for 70 minipoints

| FAN | 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 |  |  |  |

## 110 minipoints

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

Table 6.9: Scores for 110 minipoints

| FAN | RON |  | TSUMO |  |
| :--- | ---: | ---: | ---: | ---: |
|  | Non-dealer | Dealer | Non-dealer | Dealer |
| 1 | 3600 | 5300 | - | - |
| 2 | 7100 | 10600 | $1800-3600$ | $3600-\mathrm{all}$ |
| $3+$ | 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 a 中，she gets 20 （base）+10 （closed hand ron）+4 （Pair of seat \＆prevailing Wind tiles）+4 （open Set of Honors）+32 （concealed Kong of Terminals） +32 （concealed Kong of Terminals）$=102$ ，rounded up to 110 minipoints．The score for 1 fan－ 110 minipoints is 5300.

If she wins by ron on a 困，on the other hand，she gets more fan（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 困 （4）．Since the score of 2 fan－ 100 minipoints hand is the same as that of 3 FAN－ 50 minipoints hand，she 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 fan (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 a tional yaku, menzen tsumo (Fully Concealed Hand), with 30 minipoints: $20+8+2$ (тsumo) $=30$. You thus get 5001000 тsumo $=2000$ points.

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

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

Draw
If you discard the（2）the wait is－（2 kinds－7 tiles）． If you discard the 迏，however，you get a 3－way wait：區－
 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 a 㬂，the hand is still 1 faN－40
 three tiles of 圕 within the hand are treated as a concealed Set，giving you 4 additional minipoints： 20 （base）+10 $($ closed ron $)+8$（Set of $\Phi)+4$（Set of $๕$ ๕ $)=42$ ，rounded up to 50 minipoints．You thus get 1 fan－50 minipoints＝ 1600 points．If you win by тsumo，you get 40 minipoints
so you will get 700－1300 $=2700$ points ．
Let＇s say you draw a 偊．What would you discard？



Draw

If you discard the 䜕，the wait is 偊－㬂．Let＇s think about the scores for each winning tile．

Scoring 3

What are the scores？

If you win the hand by ron on a 薯，you get an additional yaku，ifpeiko（Pure Double Chow），giving you 2 fan－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 澫 as a Set any more．You get 2 fan－ 30 minipoints if you draw a 偊 $(500-1000$ тsumo $=2000)$ ，whereas you get 3

FAN－30 minipoints if you draw a 罵（1000－2000 TSUMO＝ 4000）．

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

$$
\begin{aligned}
& \text { Draw }
\end{aligned}
$$

Discarding the 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 fan counts did not change at all．However，you get increased minipoints be－ cause you now have the concealed Set of 这 back again． You will get 2 fan－50 minipoints $=3200$ points if you win by ron on a 瑥．If you draw a 踽，you will get 3 fan－40 minipoints，giving you 1300－2600 тsumo $=5200$ points．

Let＇s say you draw another 比．What would you dis－ card？


The best discard is 㘣, which makes this hand a тorror (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 тoitoi 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 5 fan (toitoi, san anko, and Red Dragon); it is mangan regardless of minipoints.

### 6.4 Scoring tables

Table 6.10: Scores for non-dealer

| minipoints | $1_{\text {FAN }}$ | 2 FAN | 3 FAN | 4 FAN |
| :--- | :---: | :---: | :---: | :---: |
| 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 | $1_{\text {FAN }}$ | $2_{\text {FAN }}$ | 3 FAN | 4 FAN |
| :--- | :---: | :---: | :---: | :---: |
| 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 | 4,400 | 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 Riich?

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.

- 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 exchange tiles any more; you cannot play defense nor improve the wait / scores.
- You get one fan. You may further get 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.
- 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 really is a low-risk \& high-return offense tactics. Moreover, Riichi could also work as a defense tactics. 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 fan 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 fan 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.

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 (InstaRiichi). 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


Dora

You should do Insta－Riichi with a pinfu－only hand．It is true that this hand will have tanyao if you draw a 窝 and discard the 㘣，but waiting for that to happen is simply in－ efficient．Even after you replace the 葛 with a 蔥，you will lose tanyao anyway if you win the hand on a 圈．Getting either ippatsu or one ura dora has a much higher proba－


## $\Rightarrow$ Insta－Riichi，discarding a 国！

Bad wait，one DORA


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 4 kinds of tiles（萭蠋㬂糔），but drawing one of those would take about 8 more turns，on average．${ }^{1}$ Since this is a yaku－less hand，you cannot win it by ron while waiting in DAMA for another 8 turns．Moreover， even when the wait gets improved，this hand will never become pinfu anyway，so the score will not be improved．

## $\Rightarrow$ Insta－Riichi，discarding the 目！

1－Away from sanshoku



Dora

It is true that there are some tiles that can improve the hand value and／or the wait of this hand．For example，
 Triple Chow）．If you draw any of 偊罥趡，the hand will have pinfu．However，since the hand already has one fan （red five），you should do Insta－Riichi．
$\Rightarrow$ Insta－Riichi，discarding the 困！
1 This rough calculation is based on an assumption that the probability of draw－ ing an arbitrary tile is $\frac{1}{34}=$ about $3 \%$ ．

##  <br> Dora

You would want to win this hand on a 偊（rather than on a 㯰）so that you can claim sanshoкu．However，waiting for a 偊 without Riichi is absurd．The worst case scenario is to draw a 眶 while waiting in DAMA，in which case you only get 400－700．If you Riichi and draw a 萬，you will get at least 700－1300．With one ura dora or ippatsu you will get 1300－2600．

## $\Rightarrow$ Insta－Riichi，discarding the ！

Riichi－only

Dora
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．

$$
\Rightarrow \text { Insta-Riichi, discarding the [⿴囗⿰丿⿺⿻⿻一㇂㇒丶𠃌⿴⿱冂一⿰丨丨丁口灬! }
$$

You should do Insta-Riichi even when waiting for dora.

## $\Rightarrow$ Insta-Riichi, discarding a

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.


Dora
Calling Riichi by discarding a 圊 makes for a good wait
 On the other hand，calling Riichi by discarding the leaves the possibility that the hand has an additional YAKU （White Dragon），although the wait is not as good（点 $\square$ ； 2 kinds－4 tiles）．Which one should we choose？

In cases like this，you should aim for high scores by discarding the Discarding the and winning on a $\square$ would double the hand value（Riichi＋White Dragon $=2600$ versus Riichi－only＝1300），but the probability of winning on a $\square$ would not shrink below half of the prob－ ability of winning on 圈－園．

## $\Rightarrow$ Insta－Riichi，discarding the ！

Here is a simple rule of thumb：when the minimum（guar－ anteed）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 FAN (roughly) doubles the hand value until it reaches 5200.

More expensive hand


DORA
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 and do Insta-Riichi by discarding the

Expensive hand


Dora
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.

$$
\Rightarrow \text { Insta-Riichi, discarding a }
$$



Dora

Calling Riichi by discarding the 偊 gives you Riichi－only with a good wait，whereas calling Riichi by discarding the 䜕 gives you Riichi＋sanshoku with a bad wait．Since Riichi－only is short of 5200 ，you should value scores over wait．

## $\Rightarrow$ Insta－Riichi，discarding the 㘣！

Good wait vs．ITtsu

Dora
Calling Riichi by discarding the 䡒 gives you only Riichi ＋pinfu with a good wait，whereas calling Riichi by dis－ carding a 葛 gives you Riichi＋ITTSU with a bad wait． Since Riichi＋pinfu is short of 5200，you should value scores over wait．

$$
\Rightarrow \text { Insta-Riichi, discarding a 䜕! }
$$

Discarding a 偊 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 the 围（Riichi＋PINFU + two red fives $=7700$ with a very good wait）．
$\Rightarrow$ Insta－Riichi，discarding the 偊！

Let＇s summarize what we have learned．
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 $\geq 5200$ ．

### 7.2.3 Chitoitsu waiting for dora

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

Chittoitsu 1

Dora

You should not shy away from Riichi with a chirtoitsu 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 chitoitsu 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 chitoitsu hand). Even when you win by ron, it will be haneman with either ura dora or ippatsu.

$$
\Rightarrow \text { Insta-Riichi, discarding the 開! }
$$




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 the 開. Aim for haneman or baiman rather than being content with 6400.

## $\Rightarrow$ Insta-Riichi, discarding the 葍!

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

Riichi judgement for chirtoitsu
Riichi any chirtoitsu hand if waiting for dora!

### 7.2.4 Chitcoitsu not waiting for Dora

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

## Do Insta-Riichi with chirtortsu (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.

> An example of a suis-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) chititoitsu. ${ }^{2}$ The criteria do not change when your hand already has two dora and waits

[^8]for a non-dora tile.


Dora

If you make the hand Ready for chirtortsu, you will be waiting for a 偊, a non-4,5,6 tile. Riichi is better than DAMA in this case.

## $\Rightarrow$ Insta-Riichi, discarding a !

Chirtoitsu 4


Dora

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

Dora

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

## $\Rightarrow$ Insta-Riichi, discarding the !

Chittoitsu 6


Dora
Since you can get mangan ron or haneman tsumo without Riichi, you should keep dama with this hand (discard the (ili).

Chirtoitsu 7


Dora
With this hand, you should keep dama unless you are the dealer. However, if you have already discarded a 萬 \& a

㬂 or a 圈 \＆a 四，making for a suis－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 sin－ gle wait of $4,5,6$ ？Because of the differences in versatil－ ity，${ }^{3}$ 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 other Simple tiles．Among Simple tiles， 2 s and 8 s are better than 3 s and 7 s ，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．More－ over，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 sin－ gle 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 meaning 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 0 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.
4. 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.

In general, wait is said to be good if there are at least two kinds and more than four tiles left to win on. There-

Table 7．1：Typical wait patterns

Name
side wait
semi side wait stretched single pair wait closed wait edge wait single wait

Example Wait Kinds \＆Number

| side wait | 團蜀 |  | 2 kinds－8 tiles |
| :---: | :---: | :---: | :---: |
| semi side wait |  | （－區 | 2 kinds－6 tiles |
| stretched single |  |  | 2 kinds－6 tiles |
| pair wait |  | 偊遇 | 2 kinds－4 tiles |
| closed wait |  | 7 | 1 kind－4 tiles |
| edge wait | 偊寓 | 㬂 | 1 kind－4 tiles |
| single wait | © | © | 1 kind－3 tiles |

fore，pair 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 exam－ ple，if your opponents have already discarded all the four tiles of somehow，a side wait of
 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 chi－ itoitsu 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 Bamboos，for example，we say that Bamboos are＂cheap＂ in the board．Cheap waits are good waits．Suppose three or more of 䓢 have already been discarded by your oppo－ nents．In such situations，an edge wait of $\frac{\text { 雷 }}{}$ is not bad at all．This is because the paucity of 聞 makes it rather difficult for anyone to utilize a also a good chance that $\sqrt{\text { 毒 }}$ tiles are live in the wall．Even when an opponent draws a $a$ 毒 after you Riichi，they will have difficulty utilizing it in their hand；they have to ei－ ther discard the 毒 or completely fold．

Applying the same logic，we can see why Honor tiles make for a good wait．For example，suppose a 中 had already been discarded and you now have a Pair of 中 in your hand．Then，the opponents will have difficulty utilizing the last 中hen they draw it．In a situation like this，a Pair wait of 中（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 be－ ing discarded as much as those in the other two suits， that suit is being＂expensive＂in the board．For exam－ ple，suppose one or more opponents are pursuing a flush hand（i．e．，honitsu／chinitsu）in Bamboos．Then，even a


## 3．Trap waits

The third factor you may want to consider is whether your wait would appear safe in the eyes of your oppo－ nents．For example，when you have a closed wait of and you have already discarded a $\begin{aligned} & \text { 間，}\end{aligned}$ ，there is a good chance that your opponent is tricked into thinking that is safe． This is called a suıI－trap wait（see Chapter 8）．For another
example，suppose someone has a concealed Kong of 㬂 when you happen to have a Pair wait of 蕅 and some－ thing else．Then，the opponents may think that a 邁 may be safe to discard even when it is not．

That being said，reading the board requires some ex－ perience，and reading the opponents＇thought is even more difficult．You may want to concentrate more on advanc－ ing 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．${ }^{a}$

[^9]
### 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 Pung, 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.

Discards


Dora

This is a confirmed 7700 hand (seat \& prevailing Wind + White Dragon), and the hand value can easily go up

4 See Section 8.2.1 for a more detailed explanation.
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
 should keep the hand dama, as 開 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

5 The hand can have (a combination of) the following YAKU in addition to what's already visible: rorroi (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) with EMA rules and yakuman (48000) with tenhou rules.
are among his genbutsu. Punish a player who makes bad calls like this.

### 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 a red five), 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.

## $\Rightarrow$ Keep dama, discarding the 潨!

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


## Dora

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


Dora

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 the ๕.


Dora

This hand is worth 7700 when winning on a 萬（TANYAO ＋PINFU＋SANSHOKU），but the hand is worth only 2000 if winning on a 偊（TANYAO＋PINFU）．You should therefore do Insta－Riichi by discarding a 瑥．

When you have an expensive hand，going dama is ac－ ceptable but calling Riichi is also an option，especially when you have a good wait．Consider the following hand． Should we Riichi？

Expensive hand 4


Dora

Discarding the Illl，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 scores and/or wait, or there is at least one kind of tiles that can improve the score by at least three fan 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 condi-
tion 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．For example， consider the following hand．

Since calling Riichi by discarding the 㘣 gives you Riichi－ only with a bad wait，you may want to refrain from Ri－ ichi．However，if you discard the 䜕，the hand can be
 when you luckily draw a $\begin{aligned} & \text { 間，the hand is still only Riichi }\end{aligned}$ + PINFU，albeit with an improved wait．

A more sensible choice here is to discard the 閪 ${ }^{\text {a }}$ and revert the hand to 1－Away，as follows．

6 As I mentioned before，when there are four kinds of tiles that can improve your hand，it will take（on average） 8 turns to draw one of them．


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 the 䜕．Specifically，there are four kinds of tiles that can improve the score by at least three fan．
－If you draw a III，the hand is Ready for junchan（Ter－ minals in All Sets）＋sanshoku－mangan without Riichi and haneman with Riichi．You may want to go Riichi in this case because your previous discard
 is also OK ．
－If you draw a 閭，the hand is Ready for pinfu＋JUN－ CHAN＋SANSHOKU－hANEMAN without Riichi．You may still want to Riichi．It would be a shame to win this monster hand on a 聯，but doing so without Ri－ ichi is the worst．
－If you draw a 罨 or a 窗，the hand is Ready for pinfu ＋ittsu－ 7700 with Riichi．You should definitely Ri－ ichi．Going dama with this hand is absurd．

For another（less exciting）example，consider the fol－ lowing hand．



Dora

Suppose this is the 5th turn in a hand．The choice is be－ tween（1）discarding the 偊 to make this hand Ready or （2）discarding the 罾 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 the 偊 without calling Riichi．If，according to your read－ ing of the board，a closed wait of is good enough（e．g．， none of has been discarded yet，but lots of other tiles in Bamboos have been discarded），do Insta－Riichi．Waiting in DAMA with a yaku－less hand is generally a bad move．If you discard the 㬂 just to keep the hand Ready，the hand cannot be won by ron，and it can be improved only if you draw a 膶．It makes no sense to have such a hand．${ }^{7}$

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．

If you want to wait and improve the hand, you should discard the 毗 to revert the hand to 1-Away. If you draw

 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 (㝢). 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 the or
 kinds-21 tiles), the hand becomes pinfu with a semi side
 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 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, 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. Melded Ready hand

Knowing whether or not an opponent has a melded 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 it).

### 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); pair 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.

$$
\begin{aligned}
& \text { Dora }
\end{aligned}
$$

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 Pung on a 蕅

尿. 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.

Red



Dora

Specifically，it will be a side－wait Ready hand only if you draw a first．If you draw a 偊一㬂 first（which has a much higher probability than drawing a 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 opponents．

For another example，consider a chirtortsu hand．A chirtortsu hand will always have a bad wait．This means that you should in principle fold if an opponent calls Ri－ ichi when your chittortsu 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 Chap－ ter．Strictly speaking，genbutsu tiles of player $X$ refers
to those tiles discarded by $X$ herself. 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 for X , but not necessarily safe for the other two players. There are three kinds of tiles that are $100 \%$ safe for all of your opponents.

- The tile that was just discarded by the 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 選 are visible to you（among the discards or in your hand）．Then，none of your oppo－ nents can win Thirteen Orphans unless you discard a In such situations，a fourth Honor tile is $100 \%$ safe．That is，a 諫 is $100 \%$ safe for everyone if all the other three tiles of 困 are visible to you．

The third kind，absolute＂no chance＂，needs some ex－ planation．Let me just give you an example here．Sup－ pose all four tiles of © ，all four tiles of $\because$, 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 sujı and кавe（blockade）theories．I will introduce these two theories in turn．

## 8．2．2 Understanding sujı

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 wait is worse than side wait．However，according to some statistics，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．An－ other reason is that players seek to retain side－wait Proto－ Runs over closed－or edge－wait Proto－Runs when choos－ ing tile－blocks to maximize tile efficiency．

Sujı defense is a defense tactics to avoid dealing into a side－wait hand．A sujı is a three－tile interval that cor－ responds to the wait of a side－wait hand．For example， when a hand has a side－wait Proto－Run 偊偊，the wait is
 sujı．There are 6 sujı in each suit，giving rise to 18 sujı in total．All the six sujı and their corresponding side－wait Proto－Runs are summarized in Table 8．1．

When a 笫 is among a player＇s genbutsu，we say 偊 and 偊 are sujı tiles．Sujı tiles are safer than non－sujı tiles

Table 8．1：Six sujı
suji Proto－Run suji Proto－Run

| 1－4 suji | 㬂萬 | 4－7 suji | 隼窠 |
| :---: | :---: | :---: | :---: |
| 2－5 suji | 愚贎 | 5－8 suji | 蚐眞 |
| 3－6 suji | 贎俉 | 6－9 suji | 萬萬 |

because the furiten rule prohibits a player from calling RON on a 偊 when a 踽 is her GEnbutsu and her wait is 偊－罥．Likewise，when a 萬 is among a player＇s genbutsu，偊 and 萭 are suji tiles and thus they are safer than non－suji tiles；when a 窝 is among a player＇s genbutsu，圕 and 萬 are sujı tiles and thus they are safer than non－sujı tiles．

Although 畽 makes 㬂 a suji tile，the opposite is not true；偊 in itself does not make 㽚 a sujı tile．罡 is no safer than other tiles just because a 偊is among genbutsu． What 偊 negates is the possibility of the 莗－臅 side wait， but the 㽪一萬 side wait is still a possibility．罥 becomes safer only when both a 㬂 and a 墻 are among a player＇s genbutsu．Table 8.2 summarizes combinations of gen－ butsu tiles and tiles that are made safer by them．

Table 8.2: suıı tiles


Suji trap
Keep in mind that sujı defense works only against sidewait hands. Since players will call Riichi even when their wait is worse than side wait, we cannot rely too much on sujı. When you wait for a tile that is a suıı tile of some tiles you have discarded yourself, we say you have a suiltrap wait. In particular, when your wait is a sujı tile of the Riichi declaration tile, we say it is an immediate suıi-trap wait. An immediate suir-trap Riichi is a rather common occurrence in Riichi mahjong primarily because of double closed block (e.g., 135, 246, 357, etc.). Consider the following hand.


Dora

If you call Riichi by discarding the 窝，the hand waits for圕，which is a sujı tile of 窎（immediate suII－trap Riichi）．

In general，the reliability of susi is higher for tiles dis－ carded earlier in a hand．That is，suII tiles of early dis－ cards tend to be safer，whereas sujı tiles of those tiles that are discarded later are more dangerous．In particular， suif tiles of the tile discarded upon Riichi is at least as dangerous as non－sujı tiles．${ }^{1}$

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


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

There are three tiles in the discard that create suıı tiles．
－The 罥 makes 偊 and 偊 sujı tiles．


Note that the 萬 and the do not create any sujı tiles
 of 踽 are relatively safe，whereas suji tiles of 閏 ${ }^{(1)}$ are rather
 is that players tend to keep double closed block such as
 the following 1－Away hand．


We would discard a reather than the 閪．Then，if we draw first，we do Insta－Riichi by discarding the 閪， creating an immediate suji－trap wait．

## 3．Understanding tile blockade（каве）

Another defense tactics to identify safer tiles is to uti－ lize a tile blockade（каве；wall）．When chunks of a num－ ber tile are visible to you，we say these tiles form a block－ ade；they block a formation of Runs that contain that tile． Suppose all four of 㬂 are visible to you，either because they have been discarded or they are in your hand．Then， none of your opponents can have a 偊－罥 sujI wait，mak－ ing 亶 relatively safe．This is because no one can have a Proto－Run 偊喁 in this 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 sujı wait that contains the tile that forms a blockade．In the example above，圕 is a no－chance tile thanks to a blockade of 偊．

No chance tiles are safer than a non－sujı tile，but keep in mind that pair 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
note．For example，when we have a blockade of 偊，偊 is safe regardless of whether 罨 is among genbutsu．Note also that 㽪 is not necessarily safe just because we have a blockade of 偊，for a 罝－偊 SUJI wait is still a possibility． Of course，when all four of 偊 are visible to you and a 鹛 is among a player＇s genbutsu，then 罥 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 block－ ade of 3 makes 1 and 2 safer．How－ ever，blockade of 4 makes only 2 and 3 safer，as it negates 2－5 and 3－ 6 waits that contain 4 ，but it does

Blockade Safe tiles

| 萬 | None |
| :---: | :---: |
| $\stackrel{\text { 禺 }}{=}$ | $\rightarrow$ |
| 萬 | 遇 |
| 氭 | 寓氭 |
| 噶 | 萬氭 |
|  |  |
| 俚 | 萬萬 |
| 蝺 | 氭緟 |
|  |  |
| 遇 | 閩荀 |
| 萬 | 莴 |
| 莆 | None |

Table 8．3：Blockades not make 1 any safer．Similarly，a blockade of 5 makes only 3 and 7 safer，negating 3－6 and

4－7 sujı waits．
A blockade can negate non－suıı waits as well．For ex－ ample，if all four of 罿 and all four of 䜕 are both visible， then a closed wait of 㽪 is impossible．An opponent has to have a pair wait or a single wait if she were to win on a 贎．If，additionally，all three of 罾 are visible to you as well，then the fourth 㽪 is $100 \%$ safe．Waiting for a 踽 in this situation is simply impossible．

A blockade can also negate certain yaKu，which de－ creases the chance that an opponent has an expensive hand．For example，when all four of 偊 are visible to you． Then an opponent cannot have ittsu（Pure Straight）in Cracks．This information can help us decide whether to discard a non－suJI 萭 or a non－suII 閩．The chance of deal－ ing into an opponent＇s hand is equal，but the chance of dealing into an expensive hand is lower with the 萬．A blockade of 偊 also negates SANSHOKU of 123,234 ，or 345 ． This information can help us decide whether to discard a non－suji or a non－suII 開．Again，the chance of deal－ ing 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－sujı 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 a 偊 is among his discard． Then，because other players are likely to discard a 偊 if they have one，this tile may become an incomplete block－ ade later on．However，an incomplete blockade formed this way is not very reliable．When all three players are being defensive and the fourth偊is still invisible，then it is highly likely that the Riichi－ed player has it．One－chance tiles would become almost as dangerous as non－sujı 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 her winning tiles is a one－chance tile and appears safe．

When we have two incomplete blockade of consecu－ tive number tiles，we say they form a＂double one chance＂ situation．For example，if three of 偊 and three of 偊 are both visible，an opponent has to have the fourth 偊 and the fourth 偊 to have a 両－㽪 sujI wait，which is highly un－ likely．Therefore，double－one－chance tiles are safer than a single one－chance tiles．

Tile blockade：Safety ranking
No chance $>$ Double one chance $>$ One chance（earlier turns）$>$ One chance（later turns）$\simeq$ Non－sujı

## Combining blockade and susi

When we have a blockade of㬂 and a 偊 is among a player＇s genbutsu，we can deny not only a 偊－罥 sujı wait but also a 蠋－萭 sujı wait，making 罨 safe．Com－ bining the blockade and susi the－ ories 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 on the next page provides a ranking of tile safety．

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 Thir－ teen Orphans is not possible（i．e．，there are some Ter－ minals or Honors that are already exhausted），they be－ come $100 \%$ safe．Fourth tiles mean that three of that tile

Table 8.5: Safety ranking
Rank

100\%
AAA
AA
AA-
A+
A
BBB
BB+
BB-
B
CC
C
DDD
DD
D

Genbutsu
Fourth sujı Terminal; Fourth Honor tile
Third suıı Terminal; Third Honor tile
Second suji Terminal
Second valueless Wind tile; First suıı Terminal
Second Honor tile
Sujı 4,5,6; No-chance tile
Sujı 2, 8
Sujı 3, 7; One-chance tile (earlier turns)
First honor tile
Non-sujı Terminal
One-chance tile (later turns)
Non-suji 2,8
Non-suif 3,7
Non-sujı 4,5,6
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-sujı 4,5,6 tiles are the most dangerous because they can be caught by two different sujı waits. For example, 4 can be caught by a $1-4$ sujı and a $4-7$ suis, mak-
ing 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 sujı 2,8 tiles because 4,5,6 make for bad candidates for pair 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 (ветаоri).


### 8.3.1 What to discard when you get stuck

When you cannot identify safety 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.


This opponent discarded a 偊 in the 2nd turn, which is
relatively early．This suggests that she is not very likely to have a 喁－罨 sujı wait．If she had a tile block 萬㔷偊，she would probably have kept it and discarded something else．This line of argument is obviously not $100 \%$ reli－ able．However，if you compare 营 and 偊 in the current example，䙷 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.


So far, only 2 out of 18 sujı have been denied by the discards (窝-萭 and are considering whether to discard a (0). Assuming that the Riichi-ed player has a side-wait hand, the conditional probability of dealing into her hand with a (a) is only $\frac{1}{16}$
at this point. ${ }^{2}$
However, as the hand proceeds, the number of live sujı waits will decrease, making it more and more dangerous to discard a non-suis tile. Suppose that the hand proceeds and the Riichi-ed player's discard is as follows.


Since as many as 16 sujı waits have already been denied,
 [潩). Then, the conditional probability of dealing into her hand with a given that she 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.

2 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 a is a bit greater than this joint probability because of the possibility of pair wait and single wait.

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 Riichi player who calls Riichi only when they have a good-wait hand, you can rely heavily on sujı 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 she has a good wait or a bad wait. This is because she would not shy away from Riichi even with a bad-wait hand. You cannot rely too much on sujı theories in such situations.

### 8.4 Defense against melded hands

### 8.4.1 Guessing if an opponent has a Ready hand

To defend against a melded 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 melded hands
Assume an opponent has a Ready hand in any of the following situations.

1. She has three or more melded Sets / Runs.
2. When she is doing a flush hand, she starts discarding tiles in the suit she is supposedly collecting.
3. She keeps discarding the tile that she 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 melded hands. If you can easily see that an opponent's hand is tanyaoonly or fanpai-only, there is no need to defend against them.

Melded hands with DORA
An obvious case of an expensive melded hand is one with dora tiles. For example, if an opponent has a melded Set of dora, clearly she has a 4 -fan (or higher) hand. Also, if you play with red fives, scores get expensive quite easily. For example, suppose the dealer has the following melded 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 tile in Bamboos. You should fold when you draw an unwanted tile in Bamboos.

Value tiles
Melded Sets of value tiles also make for an expensive hand.


Dora

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.



Dora

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 live in the board.
8.4.3 Identifying dangerous tiles against melded 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 melded 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 melded hands.

For example, consider the following.


This opponent probably has а тоітоі (All Pungs) hand (otherwise, it would be cheap so you can ignore it). If it is toitor, sujı theories and blockade theories are completely useless (remember, they are useful against sidewait 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.


In a situation like this, one possibility is that the opponent has a pair-wait hand with value tiles on the one hand and dora tiles on the other, as follows.


Especially when you are facing a "reliable" opponent, there would be a good reason (such as having two dora tiles) why she rushed by melding a side-wait Proto-Run first.

### 8.4.4 Discard upon Chow

We can sometimes identify tiles that are relatively safe or relatively dangerous against a melded hand by paying attention to what an opponent discarded upon calling the last Chow or Pung. Consider the following three cases.

Case 1 Chow $\rightarrow$ Discard a tile in the same suit
An opponent who had a melded Set of 眑 called Chow on a : and discarded a ¿®.

and discarded a
In this case, it is unlikely that this opponent has a wait in
 are relatively safe.

Case 2 Chow $\rightarrow$ Discard a tile in a different suit
An opponent who had a melded Set of 橉 called Chow on a ${ }^{\circ}$ and discarded a


## and discarded a

In this case, this opponent's wait is very likely to be in the neighborhood of the the last discard, 菛. In particular,
 closed wait of in also a possibility.

Case 3 Pung
An opponent who had a melded Set of 圈 called Pung on a : and discarded a


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 Chow or Pung．In Case 1，the opponent has the following perfect 1－Away hand before the last Chow．
萬

Then，after calling Chow on a the opponent discards a ๕，making the neighborhood of ๕ relatively safe．

On the other hand，in Case 2，the opponent has the following perfect 1－Away hand before the last Chow．

Then，after calling Chow on a the opponent discards a 䦎，making the neighborhood of 開 dangerous．In this




Finally，in Case 3，the opponent has the following per－ fect 1－Away hand before the last Pung．


Then，after calling Pung on a the opponent discards a 聞，making the wait unrelated to 䦎．Notice that，if the opponent calls Chow on a 䒰 with this hand and discards a ${ }_{\mathbb{H}^{7}}^{7}$ ，the neighborhood of the last discard becomes dan－ gerous（just like Case 2）．Similarly，if the opponent calls Chow on a with this hand and discards a borhood of the last discard becomes safe（just like Case 1）．

## Discard upon Chow

－Chow $\rightarrow$ discard a tile in the same suit $\Rightarrow$ the neighborhood of the last discard is safe
－Chow $\rightarrow$ discard a tile in a different suit $\Rightarrow$ the neighborhood of the last discard is dan－ gerous
－Pung
$\Rightarrow$ 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.
sujı is a three-tile interval that corresponds to the wait of a side-wait hand. There are six sujı: 1-4, 2-5, 3-6, 4-7, 5-8, and 6-9. See Section 8.2.2.
sujı tile is a tile that is made safe against side wait when a certain tile(s) is among an opponent's genbutsu.
 [il are safe against a side-wait hand.
sujı trap is when the wait is a sujı tile. When this happens, the wait is either pair wait, closed wait, edge wait, or single wait.
blockade (каве; 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 Proto-Run 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 Proto-Run that includes a tile that is blocked.

## Chapter 9

## Melding judgement

### 9.1 To meld or not to meld?

Melding decisions - to call Pung/Chow/Kong 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. ${ }^{1}$

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


You should not call Pung in this situation. Even after calling Pung, the hand is still 2-Away from Ready with a couple of bad waits, as follows.

1 As we learned in Chapter 7, the other big sin is meaningless dama.


萬
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 $\square$ than about winning the hand.

Slow but expensive hand


This time, you can call Pung on the $\square$ then discard the比. 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 meld it. When you see a high score potential, you can meld even with a slow hand.


Dora

## An opponent discarded a $\square$ just now.

Again, you can call Pung on the $\square$ then discard the This hand is cheap and it will be 2-Away after the Pung, 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. ${ }^{2}$

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.


The Left player discarded a ${ }^{\text {in }}$ just now.

Do not meld with a hand like this, at least until the 12th turn or so (the third row in the discard). Although calling Chow on the ${ }^{\text {B }}$ it 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 a game-deciding hand with a realistic possibility of getting MANGAN or HANEMAN. ${ }^{3}$

Fast and expensive hand



Dora
The Left player discarded a just now.
Calling Chow on the 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.

[^10]However, 7700 is already pretty expensive. We should thus call Chow on the 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 Pung or Chow to complete a bad-wait block in your hand it often makes sense to do so. More specifically, when you call Chow with an edge-wait or closed-wait Proto-Run to make the hand Ready, you should meld. Consider the following hand.


Dora
The Left player discarded a 䜕 just now．
You should call Chow on the 萬 and discard the 遴．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 a 聫．However，notice that the hand value is not very high anyway if you keep the hand closed．Even if you draw a 偊 and call Riichi，the hand value is 2600 if you win on a 类 or 1300 if you win on a

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
 Ready without melding is not very high，either．

If you can eliminate a bad wait and make the hand Ready，meld！

## 9．2．2 Improving the waits

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 to a good－wait 1－Away．

Improving the waits

The Left player discarded a 䜕 just now．
The hand is already Ready，waiting for 圖．However，you should call Chow on the 䜕 with 萭萭 and discard the 偊， so you can upgrade the wait to a side wait of 偊－㝢．With melded hands，it is important to think about the possi－ bilities of improving the wait and／or scores by melding further．In the current example，calling Chow on a 當一遇 or Pung on a 圈 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


Calling Chow on the $\begin{aligned} & \text { 䦗 completes a side－wait block in } \\ & \text { col }\end{aligned}$ this hand，leaving the hand 1－Away with one edge－wait and one side－wait Proto－Runs．However，this is accept－ able because calling Chow on a 圊 confirms ittsu in this hand．Getting ittsu with this hand requires that we have
 thus think of this block more as an edge－wait block rather than a side－wait block．Calling Chow on a $\begin{aligned} & \text { 聞 }\end{aligned}$ is tanta－
mount to eliminating a bad wait in this case．${ }^{4}$
Confirming yaku



Dora

The Left player discarded a just now．
If you call Pung on the and discard the 䵕，the hand is Ready．However，doing so only gives you a 1300 hand． Instead，you should discard the 開 after calling Pung to have a 1－Away honitsu hand，as follows．


You can further call Chow on any of ex en in or call Pung on a 田 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 rea－ sons why melding is not worthwhile with a cheap and

4 Note that you should discard the 偊，not the 賜，after melding．This is because

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.

Confirming yaku



Dora

The Left player discarded a 爵 just now.
This hand is both cheap and slow. Even after calling Chow on the 䍖, the hand is still 1-Away with a bad wait. However, this hand has a concealed Set of $\oplus$, which can be used as three safe tiles when someone calls Riichi. In such cases, you can meld as long as doing so advances

 doing so does not advance this hand from 2-Away to 1Away 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 Pung or Chow early may serve the same purpose.

### 9.3 Calling Kong

There are three ways to call Kong - making a concealed Kong (ankan), making a melded Kong (daiminkan), and extending a melded Set to a melded Kong (какал). I will discuss decision criteria for each of the three cases in turn.

### 9.3.1 Concealed Kong (ankan)

The benefits of making a concealed Kong includes:

- another chance to draw a tile;
- increased minipoints; and
- possibilities of getting more dora.

Conditions to justify making a concealed Kong 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 examples．）
（1）

（2）


| 三萬 | 薥 | 匐 | （38） | （\％） | （120） | （10．0．0） | （2）．0．0． | \％ | \＃ | 北 | 北 | 北 | 北 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |

（4）

| 三 | 俉 | （4） | （\％）， | （3） | （20） | （20．0．0． | \＄ | \＃ | 北 | 北 | 北 | 北 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |

（5）

（1）This hand is 1－Away，and one block has a good wait and another has a bad wait．You can call Kong．
（2）This is a perfect 1－Away hand，so you can call Kong．
（3）This is a perfect 2－Away hand，so you can call Kong． （4）This hand is 1－Away，but all the remaining blocks have a bad wait（closed wait）．You should not call Kong．
（5）This hand is 2－Away with a bad wait．You should not call Kong in regular situations．However，if you are in

South-4, and you need 2000 points to win the game, then you should Kong immediately. As the hand will have at least 60 minipoints, you can get 2000 points with one fan (White Dragon).

Kong Judgement 1
In principle, your hand needs to be close to Ready to justify making a concealed Kong.

When not to make a concealed Kong
Calling Kong 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 Kong.

- the hand is close to Ready for chirtoitsu as well;
- one of the four tiles can be used a good floating tile;
- you lose some yaku if making the Set into a Kong.

It is your turn．What would you do？
If you call Kong，the hand will be 1－Away and the wait will not be terribly bad；it ca be made Ready if you draw
 of these tiles from the rinshan tile（the bonus draw after Kong）．However，the resulting hand will be either Riichi only or Riichi＋tanyao only，sometimes with a bad wait．

If you choose not to call Kong and discard the $\sqrt{\text { 闌，you }}$ can treat one of the four tiles of 罨 as a floating tile that could form a side－wait Proto－Run．The hand will be a
 Moreover，if you draw a 澫 or a 寓，the hand will be Ready for sanshoku of 456．If you call Kong，on the other hand， the hand will lose the ability to accept 偊氭㬂澫 that would otherwise make the hand Ready．Therefore，you should not call Kong at this point and simply discard the 閲．You can call Kong later if the hand becomes Ready by draw－ ing a Dots tile．


It is your turn. What would you do?

If you call Kong, you will lose pinfu. Moreover, if you draw a tile that completes one of the two side-wait blocks after calling Kong, the hand becomes a single-wait hand. You should thus discard a 羃. Then, if you complete one of the side-wait Proto-Runs first, you can discard another㬂 to make the hand Ready for PINFU.

Kong judgement 2
There are cases where we should not make a concealed Kong even when the hand is (close to) Ready.

### 9.3.2 Melded Kong (daiminkan)

Conditions to justify making a melded Kong are a little bit more demanding than the conditions to justify making a concealed Kong.

You can make a melded Kong 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．

Melded Kong？


DORA
The Right player discarded a 中 just now．
This Ready hand is currently worth 2000 points with a good wait．Calling Kong on the 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 rin－ shan tsumo in addition，it will be mangan．

Melded Kong？


The Right player discarded a 中ust now．

This Ready hand is currently 2000 points with a bad wait． Calling Kong on the 中 is not justifiable when the wait is bad．

Melded Kong？


[^11]The Right player discarded a 中ust now．
This Ready hand is currently 1000 points with a good wait．Calling Kong on the 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 a melded Set to a melded Kong（кakan）
When you draw the fourth tile of a melded Set，you have an opportunity to extend the melded Set to a melded Kong．Conditions to justify extending a melded Set to a Kong are more demanding than those for a concealed Kong but less demanding than those for a regular melded Kong．Doing so is less foolhardy compared with a regu－ lar melded Kong because you are not losing four safety tiles．At the same time，this is riskier than making a con－
cealed Kong because you may be running the risk of getting chankan (Robbing the Kong).

You can extend a melded Set to a melded Kong in any of the following situations:

- the hand is 1-Away or better with a good wait, and it has two fan 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.

Melded Set to Kong?


Dora
You drew the fourth 中 just now.
This 1-Away hand has two fan and a good wait. Calling Kong on the ${ }^{\text {中 }}$ is justifiable.


This hand has three fan and a good wait. However, since it is 2-Away from Ready, calling Kong on the 中 is not justifiable.

### 9.4 Miscellaneous tips for melding

### 9.4.1 Think ahead

When you call Pung, you have to say "Pung! [pón]"] 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 Pung or (2) another player has already called Chow 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

5 A Pung call takes precedence over a Chow call, but only if calls are made simultaneously. If the Chow call was made well before the Pung call, the Chow call should take precedence.
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 a 囬．However，you should also be prepared for melding further to improve the wait and／or the scores．If you draw or call Pung on a and discard the 偊，the wait will be upgraded to an irregular 3－way wait of 㬂－風罥．Moreover，if you draw or call Pung on the red 䜕 and discard the 偊，not only the scores get better but also the wait will be upgraded to a side wait of 偊－薯。

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．

## 9．4．2 Be ready for dora

You should also think about how to utilize dora when melding．Consider the following hand．

Utilizing DORA


You should definitely call Chow on the to make the hand Ready，but the question here is：should we Chow with \＆魚 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 a 風，you can keep it and discard the 量 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 Chow with tive of defense. Having to discard a against an opponent's Riichi is much better than having to discard a


 would be lower if you feed a 蓖 than a 庿, on average. ${ }^{6}$

### 9.4.3 Be mindful of the seating

Each time you call Pung (Kong) from the Facing player (toimen), the Left player's (камісна) turn gets skipped. Likewise, each time you call Pung from the Right player (sнімосна), 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 Pung 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

6 Of course, this is unless an opponent has sanshoku of 678.
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 Pung 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 her.

Seating-related tip 1
When your Right player is the dealer and/or the front-runner, try not to call Pung too much.

Applying the same logic, you do not want your Right player to call Pung from your Left player. This means that, if you plan to discard something that can be Punged 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南西北 to discard in the first turn．In this case，you should discard a 镭 first．If the South player calls Pung on the煵 you discard，that is so much better than if she calls Pung from the North player．Moreover，if you discard a 煵，there is a good chance that another player may do the same in the first turn as well，lowering the chance that the South player builds a Pair of 南in later turns and calls Pung．

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 fan 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 between a good-wait 1-fan hand and a bad-wait 2-fan hand, you should definitely choose the latter. After all, you are essentially comparing a goodwait 1000-point hand with a bad-wait 12000-point hand. On the other hand, when choosing between a good-wait 2-fan hand and a bad-wait 3-fan hand, you should choose the former. Increasing the (virtual) hand value from 12000 to 13900 would not be worthwhile if doing so signifi-

1 You will get -5000 points instead of -15000 points, resulting in a net gain of 10000.

## cantly 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-delaer 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 ноNitsu 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

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.
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 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 at 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 defeat). For example, suppose you are currently ranked second, and the first ranked player has 3400 more points. Then, winning a 3 FAN-30 minipoints hand (3900 points) by ron from anyone is sufficient to improve your placement. You should thus aim to have a 3-fan 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 тsumo. 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 defeat. 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 defeat will try hard not
to deal into your hand, making your hand value judgement based solely on the third possibility (direct hit) 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 寓


Draw

## What would you discard?

If you keep the 围 and discard the the hand is Ready. However, doing Insta-Riichi with the current hand is not ideal. Since the hand value is only 2600 ( 2 fan- 40 minipoints), winning it by ron from the third-ranked or fourthranked player will not improve your placement (unless you get ippatsu or ura dora). Also, getting tsumo will only give you 1000-2000 (3 FAN-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 discard－ ing the 偊．If you draw a 柬 or a 畵，you can then do Insta－ Riichi to get Riichi + sanshoku $=$ at least 5200 （3 fan－40 minipoints）．Winning it by ron from anyone is now suf－ ficient to improve the placement．If you draw a 燤 or 園， 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 тлимо

Getting the correct point differences induced by тьимо 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 fan－ 30 minipoints hand by тsumo be enough to improve the placement？What about winning a 3 FAN－ 40 minipoints（ $=4$ FAN－20 mini－ points）hand by tsumo？

To calculate the point difference induced by тsumo，

[^12]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 fan- 30 minipoints hand is: 4000 (your gain) +1000 (your rival's loss) $=5000$ points. The point difference induced by a 3 FAN-40 minipoints hand is: 5200 (your gain) +1300 (your rival's loss) $=6500$ points. In this example, getting a 3 fan- 40 minipoints tsumo is sufficient to improve the placement, but getting a 3 Fan30 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

Table 10.1: Limit hands tsumo Non-dealer Dealer

| MANGAN | 10000 | 12000 |
| ---: | :--- | :--- |
| HANEMAN | 15000 | 18000 |
| BAIMAN | 20000 | 24000 |
| YAKUMAN | 40000 | 48000 |

Table 10.3: 40 (20) minipoints tsumo Non-dealer Dealer

| $400-700$ | 1900 | 2200 |
| ---: | ---: | ---: |
| $700-1300$ | 3400 | 4000 |
| $1300-2600$ | 6500 | 7800 |

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 10.4: 50 (25) minipoints
tsumo Non-dealer Dealer

| $800-1600$ | 4000 | 4800 |
| ---: | ---: | ---: |
| $1600-3200$ | 8000 | 9600 |

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 nondealer. 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
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 impor－ tant 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 䜕


What would you discard？
You wanted to draw a 要 first so that you can have Riichi + PINFU +1 dora $=3900$ ．Winning that hand by ron from anyone would improve your placement．However，now that you drew a 橉，what should you do？

Recall that a 700－1300 тsumo would induce a 3400 point difference．Since this is a pinfu hand，getting Rimchi +

PINFU＋Tsumo is sufficient．You should thus do Insta－ Riichi by discarding the 澫．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 圔



What are you waiting for？
Winning this hand on a 类 by ron from anyone or tsumo satisfies the condition because it gives you 5200 points

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 uradora．
（тоітоі＋Green Dragon with 40 minipoints）．Winning it on a 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 a 固，either．Declaring tsumo on a gives you 700－1300，which induces only a 4000 point difference even against the dealer．

However，if you manage to draw a or a rin you should extend the melded Set to a melded Kong．Do－ ing so not only gives you a chance of rinshan tsumo or new dora but also enables you to improve the placement when drawing a 開．This is because the hand will have 50 minipoints if you тsumo： 20 for the base minipoints +8 for a melded Kong of 嵓 or or 矚 +4 for a concealed Set of 㬂 +2 for a Pair of 圈 +4 for a concealed Set of $\begin{aligned} & \text { 開 }\end{aligned}+2$ for tsumo $=42$ ，rounded up to 50 minipoints．A 2 fan－ 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, she cannot defeat you even with a haneman tsumo. Then, what you need to be wary of the most is to give her 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.

| East (you) | 39000 | South 22900 |
| :--- | :--- | :--- | :--- |
| West | 13000 | North 25100 |

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 have a mangan tsumo, for that would put him in the third place. The third ranked player (South) would need a 500-1000 тsumo or 2600 ron to get the second place, which is a realistic goal to pursue. In order for her to get the first place, she 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 she would call Chow on them, possibly with a red five (because South needs 2 fan). Recall that even giving her 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 less. 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 she is leading other players by 16000 points, which is a bit depressing. However, instead of trying to overtake her 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 +1 URA DORA which induces a 6500 point dif-
ference.

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 窝



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 South4. 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 тsumo. 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 nondealer 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 less 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 $\left({ }^{*}\right)$ to three-star $\left({ }^{* * *}\right)$. Three-star manners are more important. You should try to acquire three-star manners first, and then move on to practice two-star and three-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 bro-
ken 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 herself. 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 her 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 her.

## 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 Pung / Chow / 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 meld 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 Pung [pón], Chow [tfíi], Kong [kíy], Riichi [rítf], ron [rón], or тsumo [tsúmo], utter the word clearly so the other three players can hear you.

3-2: Vocalize before taking an action ${ }^{* * *}$
When calling Pung, say "Pung" 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 Chow *

When calling Chow, wait for 1 second before uttering the word. On the other hand, when calling Pung / Kong / ron you must do so immediately. If someone says Chow first (after taking 1 second), other players should not be able to call Pung / Kong / ron. Pung, Kong, and ron should take precedence only if calls are made concurrently. ${ }^{1}$

1 EMA rules allow a Pung call to occur even after a Chow call is made. I think this should be changed.

## 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 discard (i.e., whether or not to call Pung 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 тsumo, 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. No one is filming you, you know?

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 Melds. 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 тsumo, 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.

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.

## 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, which look like: $\quad \ldots:=$. 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 $\qquad$ and the winner gives back 1100 points with one and one $\qquad$

## 5200 tsumo

When a player gets a 1300-2600 тsumo, the most beautiful and efficient method of payment is as follows.

1. The first non-dealer (the one sitting closer to the winner) pays the exact amount with one $\square \cdot$ and three $\square$ :::
2. The second non-dealer gives the winner 1500 with one $\square$ and one :::
3. The winner gives back the second non-dealer 200 with two of the three :::: she got from the first, which ensures that the second non-dealer pays 1300.
4. The dealer gives the winner 5100 with one : $:$ and one $\qquad$
5. The winner gives back the dealer 2500 with the two she got from the two non-dealers and the one : :!: she 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 she has a Ready hand. If she wants to declare Ready, she has to show the hand and say "tenpai"; if not, say "noten" or "not tenpai" without showing her 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 she 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 should also declare noten to terminate
the game. ${ }^{4}$ On the other hand, if the second ranked player declares tenpai, the dealer should 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 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 she 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.

4 Continuing the game means she runs the risk of losing the placement bonus ( 10000 in EMA rules) and the ока points (if any).

## Chapter B

## Further readings

## B. 1 Books on Riichi mahjong

If you are a complete beginner and want to learn how to play Riichi mahjong, 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. Kindle Edition.
3. Takunori Kajimoto. 2008. Mahjong Discard Quiz. Kindle Edition.

4. Takunori Kajimoto. 2011. Mahjong Threefold Quiz. Kindle Edition.
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 some of them are very good. In particular, I find the articles by a contributor named UmaiKeiki very useful.

## Osamuko's Facebook group: https://goo.gl/EMbjwf

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 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.

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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[^0]:    6 You will notice that players sometimes get disconnected on purpose to quit playing，especially when they are losing badly．

[^1]:    4 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．

[^2]:    6 回胃開 will make this hand 1－Away for chitoitsu（Seven Pairs）．
    7 6－Away happens when a hand has no pair，in which case it takes 6 more tiles to make it Ready for chitoitsu．

[^3]:    2 Of course, non-standard hands - chitoitsu (Seven Pairs) and кокushimusou (Thirteen Orphans) - are exceptions.

[^4]:    1 We will talk more about a tradeoff of this kind in Chapter 7.

[^5]:    5 Calling Pung on a makes this 1-Away chirtoitsu hand 2-Away from Ready for тогтоI. Doing so would be acceptable if the remaining Pairs were not Simple tiles between 3 and 7 .

[^6]:    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.

[^7]:    4 This is the case with EMA rules and tenhou rules, but this is not a universally adopted rule.

[^8]:    2 It is also (theoretically) possible to have tsu iso (All Honors) chirtortsu. Do whatever you want with such a once-in-lifetime hand. I would Riichi.

[^9]:    a When waiting for an Honor／Terminal tile，you can call Riichi even when only one tile is left in the board．

[^10]:    3 Riichi + TANYAO + PINFU + IIPEIKO + DORA $=$ MANGAN RON Or HANEMAN TSUMO.

[^11]:    |  |
    | :---: | $\mathbf{\$}$.

    Dora

[^12]:    3 Drawing a 偊 creates FURITEN，but you should still do Insta－Riichi．

