Reading Multi-Sided Waits v 0.6.2

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Preface

It's not an uncommon scenario in mahjong to have to analyze a hand with many tiles of a single suit. Half-flush (*honitsu*) hands have a frequency of about 5% in online Riichi Mahjong play; full flush (*chinitsu*) hands a frequency somewhere around 0.6% (depending on the level of play). Even outside of these hand patterns, complex, multi-sided waits will also occur naturally as you develop your hands.

It's also not unusual to feel intimidated by having to analyze a dense single-suit hand on the fly in the middle of play. It can feel like there are too many ways that tiles could possibly be arranged to quickly sort through. Even when you play through a mahjong client that provides guidance on your waits, you've probably ended up surprised at tiles that you could drop to achieve broader waits. And if your hand isn't in a ready (*tenpai*) state, you might feel lost on what tiles will help you develop your hand.

However, there are ways to systematically break a hand's structures down, rather than resort to random rearrangement or overly exhaustive memorization. Understanding the rules explained in this guide, along with a healthy amount of practice, will help you advance towards being a master at untangling complex waits in your own mahjong hands!

This guide is organized into four chapters. In the first chapter, we will go through the general rules by which complex waits get built up. Then, in the second chapter, we will see how we can use those rules to guide us towards deconstructing hands to discover their waits. In the third and fourth chapters, we will look at hands that are one step away from being ready (*iishanten*), and see patterns by which they advance to become *tenpai*.

Chapter 1:
Constructing Multi-Sided Waits

Before we get to the main business of showing how to break down complex hands, we need to start with understanding how a hand's waits can get built up. Starting from all of the basic ways that a hand can be completed as a base, we can see how additional sequences (*shuntsu*) or triplets (*ankou*) can build on those bases to generate a diverse library of multi-sided wait patterns.

Basic Wait Patterns

Ignoring the irregular hands Seven Pairs (*chiitoitsu*) and Thirteen Orphans (*kokushi musou*), there are five basic ways in which a standard hand of four sets (of three tiles each) and a pair can become complete. You're probably already familiar with these, but it doesn't hurt to check the fundamentals.

A hand with four sets can be completed by pairing up the final lone tile: a *tanki* wait.

Single (*tanki*)

If a hand has three sets and two pairs, then we have a *shanpon* wait, completing by upgrading one of the pairs into a triplet.

Dual pair (*shanpon*)

Lastly, hands with three sets and one pair can also complete by forming a sequence using the two remaining tiles. Most of the time, you'll try to build your hand towards a two-sided *ryanmen* wait, where the tiles on either side of two consecutive tiles will complete the hand. If those tiles include a 1 or 9, then one of those sides is impossible to fill, resulting in an edge *penchan* wait. Finally, when you're waiting on a tile that acts as the middle of a sequence, that's a closed *kanchan* wait.

Two-Sided (*ryanmen*)

Edge (*penchan*)

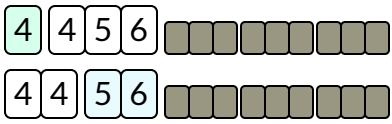
Closed (*kanchan*)

General Rules for Sequence-Based Wait Extensions

The basic waits give way to additional waits if they interact with a nearby sequence or triplet. Sequence-based extensions are straightforward: when they add a wait tile to a hand, it is always a three-tile difference, or *suji*, to an existing wait. These extensions can happen in a number of different ways.

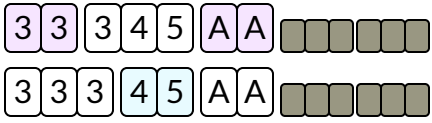
First of all, when the end of a sequence matches an existing wait, it adds a *suji* extension in the sequence's direction. By shifting the sequence's elements to complete the original wait, the remaining tiles form a group with a *ryanmen* shape to add a new wait.

tanki → *aryanmen*



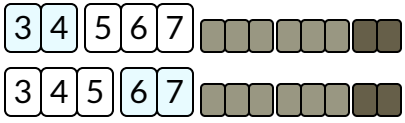
Waits: 4-7

shanpon → *entotsu*



Waits: 3-6-A

ryanmen → standard *sanmen*

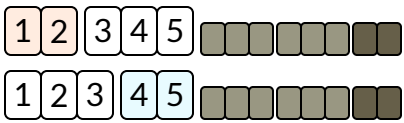


Waits: 2-5-8

You might see the last wait above referred to as *sanmenchan*. *Sanmenchan*, as a general term, can just mean any three-sided wait. So e*ntotsu* is also a *sanmenchan* type wait, as are any of the other three-sided waits that you will see throughout the guide. However, since the *ryanmen* + sequence wait is pretty much the generic idea of a *sanmenchan* wait, the term on its own often refers to this tile shape. For the sake of disambiguation, I'll call this wait pattern "standard *sanmen*" or just "*sanmen*" in this guide.

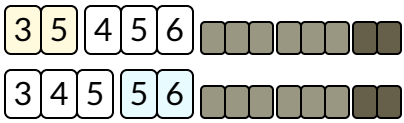
Sequence extensions apply to *penchan* and *kanchan* waits as well, but essentially resolve into just *ryanmen* waits. This may not be particularly useful information in the current context, but will be good to remember once we get to deconstructing hands, and you end up with one of those base waits in your analysis.

penchan ⟶ *ryanmen*



Waits: 3-6

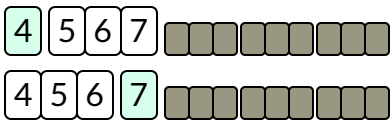
kanchan ⟶ *ryanmen*



Waits: 4-7

Sequences can also add waits when they are adjacent to *tanki* or *shanpon* wait tiles. The case for *tanki* shapes is straightforward:

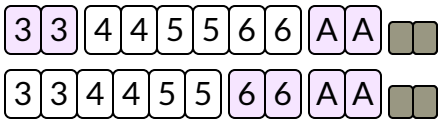
tanki ⟶ *nobetan*



Waits: 4 7

The adjacency extension is trickier for *shanpon* waits: it requires two identical sequences (*iipeikou* shape) to add a *suji* extension.

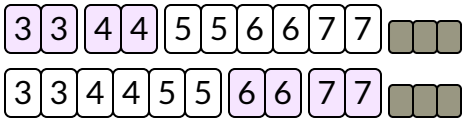
Triple *shanpon*



Waits: 3 6 A

This extension becomes more potent when the *shanpon* pairs are also in sequence, resulting in a four-sided *shanpon* wait.

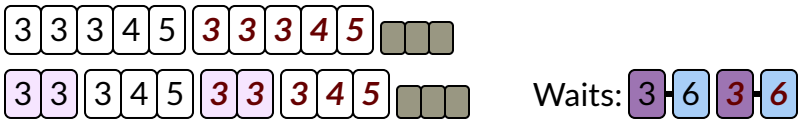
Quadruple *shanpon*



Waits: 3 4 6 7

Notice that no extension occurs when there is a sequence that is simply adjacent to a *ryanmen* wait tile.

One side note to close out this section: since *shanpon* waits can be on pairs that are in different suits, it is also possible for *entotsu* extensions to result in additional waits in multiple suits (depicted below with the semibold italic values).

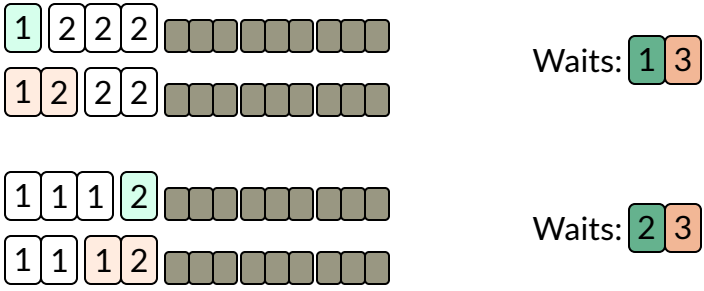


General Rules for Triplet-Based Wait Extensions

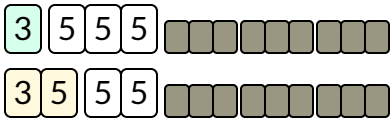
Triplets are where waits get more interesting; you could say that triplets are the real heart of multi-sided wait reading. In contrast to the wait extensions created by sequences, when triplets add waits, they do so on tiles that are not *suji* to the original waits.

The most common triplet extensions come when a triplet is one or two tiles away from a *tanki* wait tile. By splitting the triplet into a pair + lone tile, that extra tile can be associated with the *tanki* wait tile to add a *penchan*, *kanchan*, or *ryanmen* wait.

tanki ⟶ *pentan* (*penchan* + *tanki*)

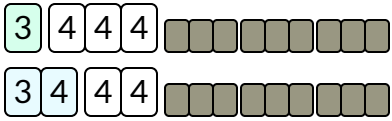


tanki ⟶ *kantan* (*kanchan* + *tanki*)



Waits: 3 4

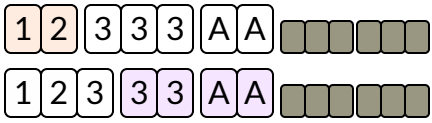
tanki ⟶ *ryantan* (*ryanmen* + *tanki*)



Waits: 2-5 3

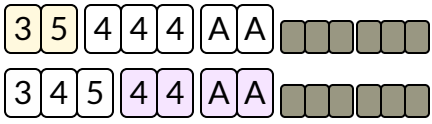
When a triplet's value matches a wait from a *penchan*, *kanchan*, or *ryanmen* wait, this exposes a *shanpon* wait. Since the triplet matches the wait, the result is just a *shanpon* wait in the *penchan* and *kanchan* cases, and is equivalent to an *entotsu* combination in the *ryanmen* case. As with sequence extensions to *penchan* and *kanchan* waits, these patterns can be useful to keep in mind when teasing apart complex hands.

penchan ⟶ *shanpon*



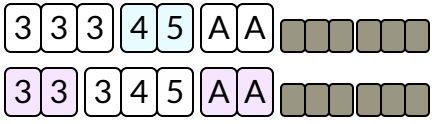
Waits: 3 A

kanchan ⟶ *shanpon*



Waits: 4 A

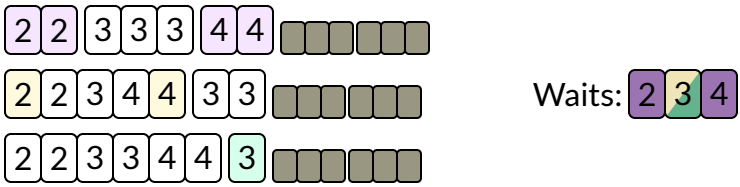
ryanmen ⟶ *entotsu*



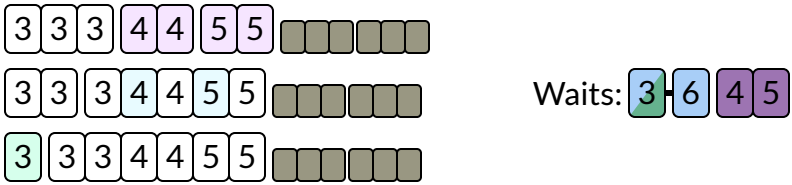
Waits: 3-6 A

As for triplet extensions to *shanpon* waits, this occurs when the triplet completes a three-tile sequence with the two pairs. This primarily adds *penchan*, *kanchan*, or *ryanmen* waits when we break the triplet into a pair + lone tile. However, we can also allow the triplet to contribute two tiles to completing two sequences, leaving the remaining tile to be interpreted as a *tanki* wait. These multiple interpetations can be useful for identifying additional waits in hands with more tiles in the critical suit.

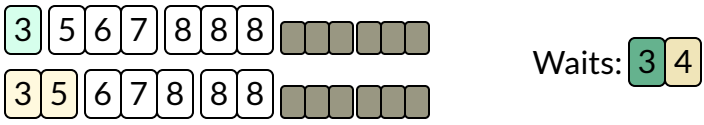
Gap *shanpon* + inside triplet



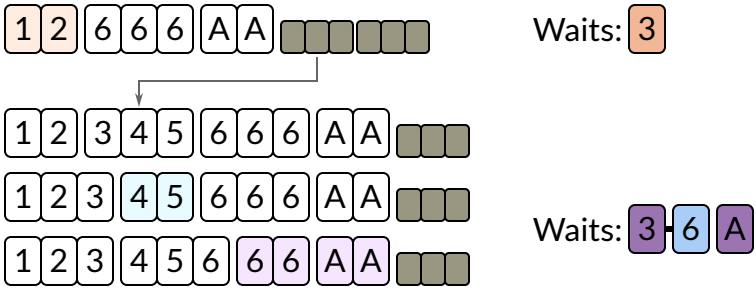
Sequential *shanpon* + triplet



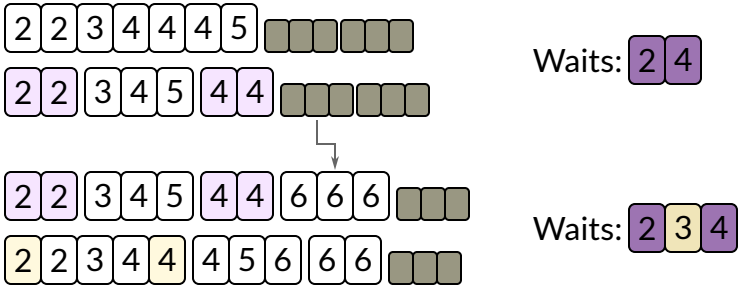
There is one additional property to how triplets are able to add waits to a hand that's a bit tricky: an adjacent sequence can 'carry' a triplet's influence across a *suji* gap. In the following example, the 888 triplet is far from the *tanki* 3. However, the 567 sequence carries the triplet's influence to the *suji* 5; the one-tile gap from 5 to 3 adds the *kanchan* 4 to the list of waits.



This 'carry' property doesn't really show itself on *penchan*, *kanchan*, or *ryanmen* waits since the requirement that the triplet match a wait means that an adjacent sequence just extends the hand's waits on its own. In this case, the triplet extends from the wait added by the sequence, rather than the original wait.



On the other hand, the carry property does apply to *shanpon* waits. Without both the 666 triplet and the adjacent 345 sequence in the following example, we don't get the additional *kanchan* 3 wait to add onto the *shanpon* 24 base. Unlike the uncarried case (see 2233344 on the previous page), however, there is no *tanki* interpetation for the added wait.



Complex Wait Patterns in Seven-Tile Groups

Technically, knowing the general rules for how sequences and triplets extend and add waits is enough to start deconstructing hands to identify their waits. However, it's a good idea to take some time to familiarize yourself with the variety of seven-tile patterns that exist. First of all, it will help you understand the general rules and interactions for wait extensions. Secondly, if you get as far as memorizing these patterns, it can cut down the amount of time required to identify waits in a complex hand, and avoid needing to break things down to the absolute basic waits.

Let's start with the class of seven-tile patterns that involve the combination of two sequences around a *tanki* base.

nobetan + *nobetan* = *sanmentan*

nobetan + *aryanmen*

aryanmen + *aryanmen* = standard *sanmen*

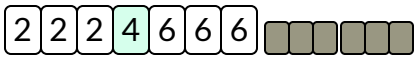
As per the general rules, the sequence-based extensions only add *suji*-gap waits to the original base. Having two sequences on the same 'side' of the base is no better than just having one sequence extension. Additionally, notice that you can read the last example as a standard *sanmen* with an additional pair of the middle tile.

A standard *sanmen* pattern also ultimately results when we start with an *aryanmen* pattern and extend it by a sequence off of the far end of its pair.

aryanmen + sequence = standard *sanmen*

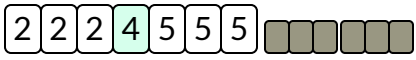
Next, let's look at patterns which include two triplets.

kantan + *kantan* = *kantankan*



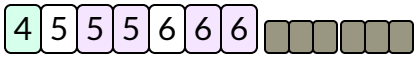
Waits: 3 4 5

kantan vs. *ryantan* (opposite sides)



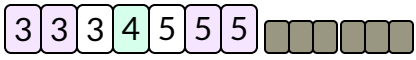
Waits: 3 6 4

kantan + *ryantan* (same side)



Waits: 3 6 4 5

ryantan + *ryantan* = *tatsumaki*

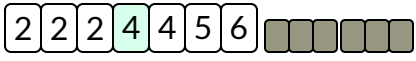


Waits: 2 5 3 6 4

Notice in the latter two patterns that there are some disguised *entotsu* patterns from which *shanpon* interpetations can be made. The *kantankan* and *tatsumaki* patterns are also often called sandwich patterns due to the symmetry about their *tanki* bases.

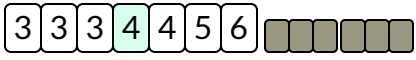
Naturally, there are many seven-tile patterns that involve one sequence and one triplet. Let's look at the *aryanmen* combinations first.

aryanmen + outside *kantan*



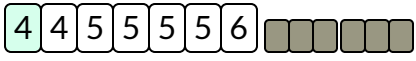
Waits: 3 4 7

aryanmen + outside *ryantan*



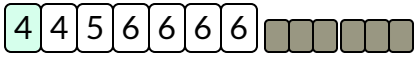
Waits: 2 5 4 7

aryanmen + inside *ryantan*



Waits: 3 6 4 7

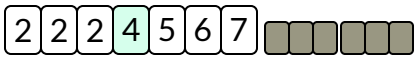
aryanmen + inside *kantan*



Waits: 4 7 5

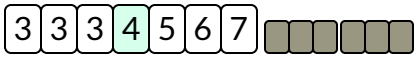
The *nobetan* combinations are very similar to the *aryanmen* combinations.

nobetan + *kantan*



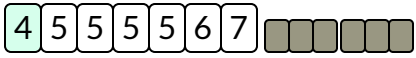
Waits: 3 4 7

nobetan + outside *ryantan*



Waits: 2 5 8 4 7

nobetan + inside *ryantan*

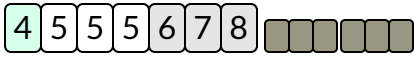


Waits: 3 6 4 7

The expected "inside *kantan*" combination is just *ryantan* to the opposite-side *tanki* wait; this is why the 6 wait in the last pattern can also be interpreted as *kanchan* (via 456 + 5557). Additionally, notice that the "outside *ryantan*" pattern includes a standard *sanmen* wait, one more wait tile than the *ryanmen* obtained with an *aryanmen* base.

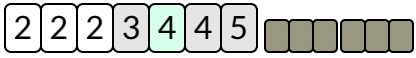
There are also a few offbeat seven-tile patterns to familiarize yourself with. In each of these, the sequence (in gray) does not interact directly with the original *tanki* tile, but instead adds a *suji* extension to a wait that comes from the starting triplet + *tanki* combination.

ryantan + *sanmen* extension



Waits: 3 6 9 4

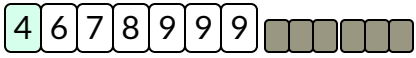
Inside *tanki* (*nakabukure*) + *kantan*



Waits: 3 6 4

And to round out the *tanki*-based patterns, we have the case where a triplet and adjacent sequence can form a remote *kantan* on a *tanki* tile.

Remote *kantan* via intermediate sequence



Waits: 4 5

Finally, seven-tile patterns with a *ryanmen* or *shanpon* base are somewhat fewer in amount. But you might expect that to be the case, considering that if you have two tiles dedicated to a *ryanmen*, the other tiles should be composed of one set and one pair; with four tiles dedicated to the base *shanpon* wait, there's only room for one more set to make seven tiles. There's only so many extensions that will actually work. You've actually already seen these patterns earlier in the guide; for completeness, here they are again:

ryanmen + sequence = standard *sanmen*

ryanmen + triplet = *shanpon* + sequence = *entotsu*

Gap *shanpon* + inside triplet

Sequential *shanpon* + triplet

All in total, that's twenty-two different seven-tile patterns (really just twenty since the standard *sanmen* structure appears three times) that result in complex, multi-sided waits. Should a seven-tile group not line up with one of these patterns, it will end up being a simpler wait with an unconnected set or two, or not actually *tenpai* at all (*noten*).

Chapter 2:
Deconstructing *Tenpai* Hands

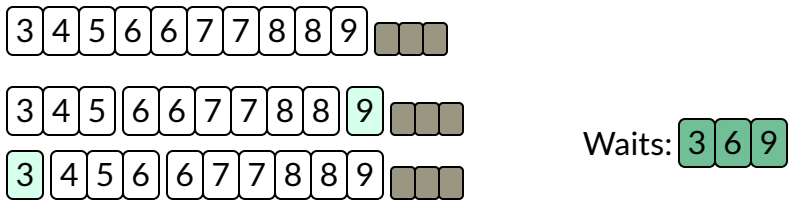
Considering that multi-sided waits come about from connecting completed sequences and triplets to basic waits, it stands to reason that a good way of analyzing a complex collection of suited tiles is to try pulling out sequences and triplets from the group to see if it resolves into an easier problem to analyze. This is true in principle, but it helps to have a systematic plan of attack in order to reduce how much effort it will take to find your hand's waits.

Identifying Waits in Hands Without Closed Triplets

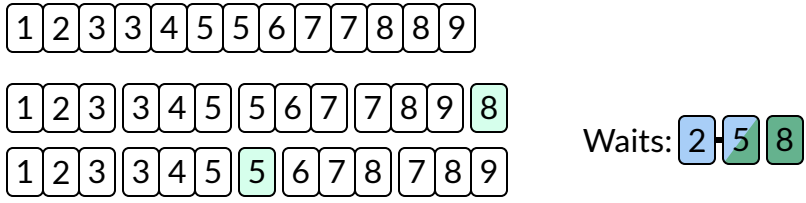
Hands without any triplets (or, more precisely, without triplets in the critical suit) are fairly straightforward to untangle. Once a set of base waits is found, any additional waits should be a *suji* gap difference. So the overall strategy is to set aside sequences until the waits are found in the remaining tiles, then re-introduce the set-aside sequences to perform extensions.

The tricky part of the procedure is figuring out which sequences to set aside. There can be multiple ways of using a tile in a sequence, and some decompositions can lead to finding *tenpai* waits, while others will result in a seemingly *noten* situation.

A standard approach is to try removing sequences from the outside first (closest to 1 or 9) then move inward. In the following example, pulling sequences from either end results in identifying the same *sanmentan* 369 waits.

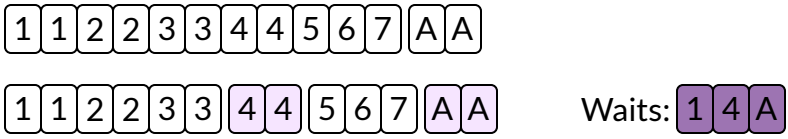


In this example, pulling out sequences reveals a *nobetan* 58 wait, which gets extended to include a *ryanmen* 2 wait.

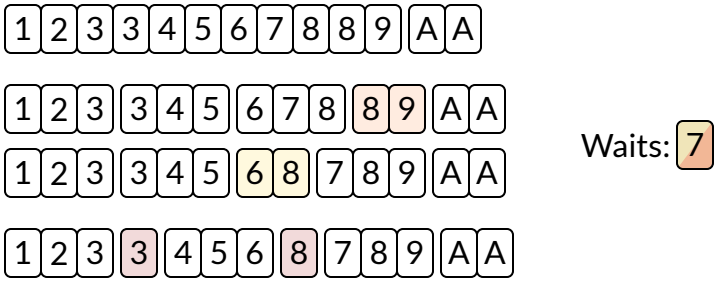


You might have noticed in the previous example that pulling out sequences only naturally exposed the *tanki* waits, and not the *ryanmen* wait. Non-*tanki* waits are more difficult to spot because they require four tiles to manifest. For *shanpon* waits, this is evident in the two pairs, while for *penchan*, *kanchan*, and *ryanmen* waits, you need not just the two tiles that create the wait, but also a separate, completed pair.

If we have an off-suit pair, this means we know that a *tanki* wait is impossible. If the hand is in *tenpai*, there will be two tiles in the critical suit to form the base wait. In this example, we get a base *shanpon* 4A wait, while the *iipeikou* shape adds an extension 1.



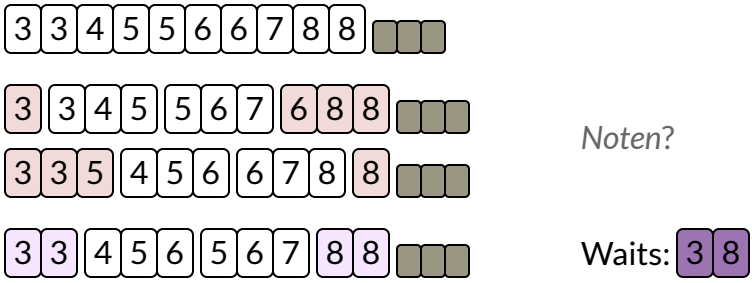
And in this hand, we can pull out sequences to obtain a *penchan* or *kanchan* 7 wait.



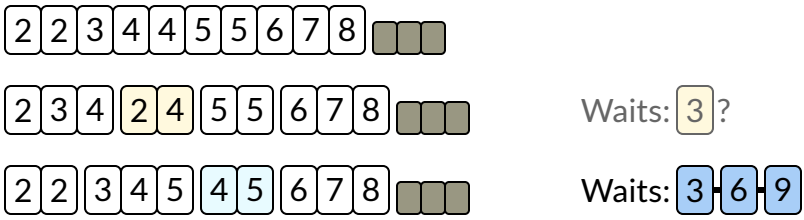
Note above that one way we could have pulled out sequences could have left out floating 3 and 8 tiles. We need to shift the 456 sequence down to 345 in order to make a group between the originally-floating 8 and the newly floating 6.

In all the previous examples, the shifting of sequences moves loose or critical tiles by a *suji* gap. This fact can help you deduce which shifts are worth testing, and which ones will not be fruitful. If just removing sequences doesn't return a base wait, try to identify a pair that can be isolated, and shift the remaining tiles to form a second two-tile group.

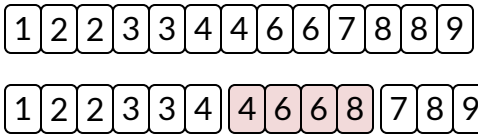
In this example, trying to pull sequences from either side will fail to return a base wait. It is only when we shift the pulled-out sequences toward the center that we can identify a *shanpon* 38 wait.



Some experimentation may be required to ensure that the best base wait is identified. In this hand, pulling one sequence from each side suggests a *kanchan* 3 wait. However, if we slide the pair from 55 to 22, and the sequence from 234 to 345, we get a *ryanmen* 36 wait that extends to include 9 (standard *sanmen*).



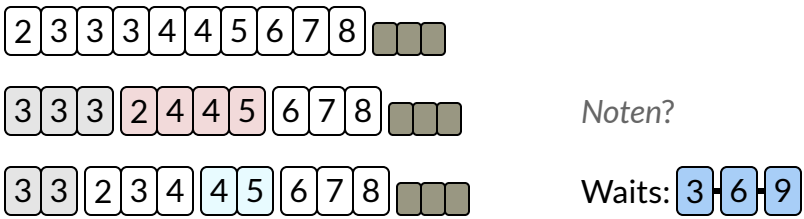
Of course, it is also possible that a hand is just *noten* overall. Such is the case for the following hand: there's no shifting that we can do to create any additional sets or connected groups. However, from the breakdown we can perform, the 66 pair enables any drawn tile within two distance from the floating 4 and 8 tiles to achieve *tenpai*. But don't neglect to recognize that the 123 sequence extends from the 4 to also allow tile acceptance on 1! (More on *iishanten* hands in Chapter 3.)



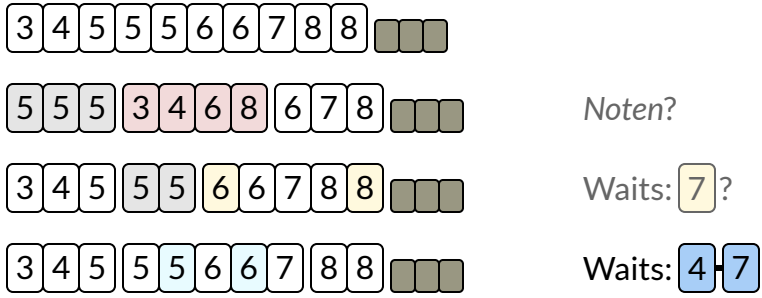
Identifying Waits in Hands with a Single Closed Triplet

When the critical suit has a single triplet of tiles in it, the standard thing to try is to set the triplet aside, then check if the remaining tiles are in *tenpai*. If the remaining tiles are *noten*, then it must be the case that, if the hand does have *tenpai* waits, the triplet will need to be broken up in some way. On the other hand, if the remaining tiles are *tenpai*, then the triplet can be compared to the base waits that are found, and additional waits can be inferred using the earlier general rules as a guideline.

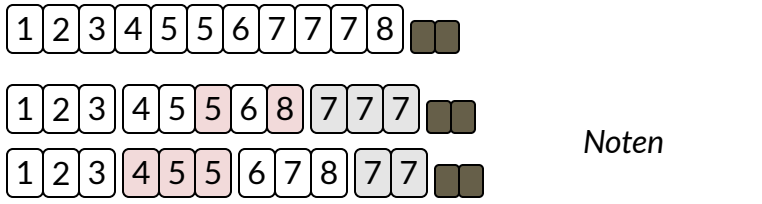
For example, the following hand is *noten* after setting aside the 333 triplet. Therefore, we try splitting it up as a pair and sequence component, and identify a *ryanmen* 36 wait, which extends to include 9 (standard *sanmen*).



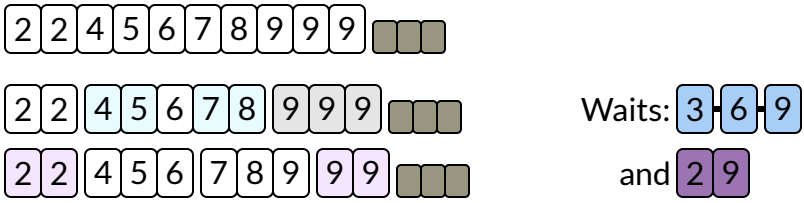
When we remove the 555 triplet from this example, we again see a *noten* remainder. Isolating a 55 pair reveals a *kanchan* 7 wait. However, we need to recognize that we can also use the 5 tiles in three different sequences, which exposes the final *ryanmen* 47 wait.



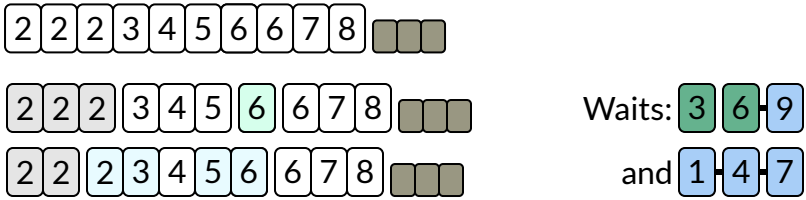
And there are plenty of hand shapes that just end up being *noten* overall. In the following example, we are *noten* either way we split the triplet, but can accept any in-suit tile from 3-9 or upgrade the pair into a triplet to get into *tenpai*.



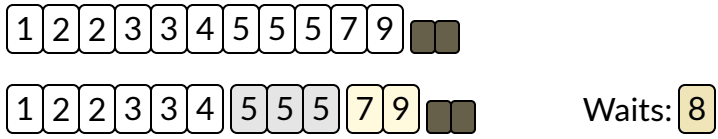
Let's move on to examples where, after setting aside the triplet, the remaining tiles form a *tenpai* state. In this first example, setting aside the 999 triplet resolves to a standard *sanmen* 369 wait. But since the triplet matches one of the waits, it adds a *shanpon* 29 wait to the hand.



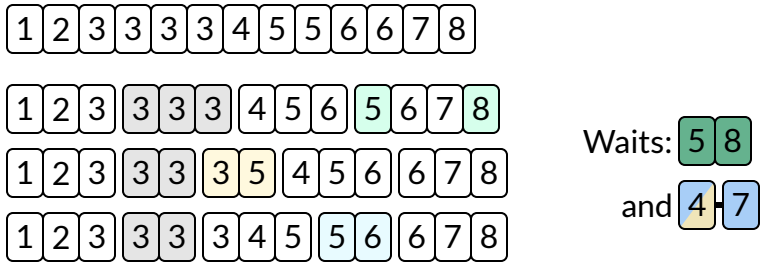
This example is particularly fruitful in terms of waits. Setting aside the 222 triplet resolves to a *tanki* 6 wait that extends to 3 and 9 waits (*nobetan* + *aryanmen*). Since the *tanki* 3 is adjacent to the triplet, this allows us to then add the *sanmen* 147 to our waits.



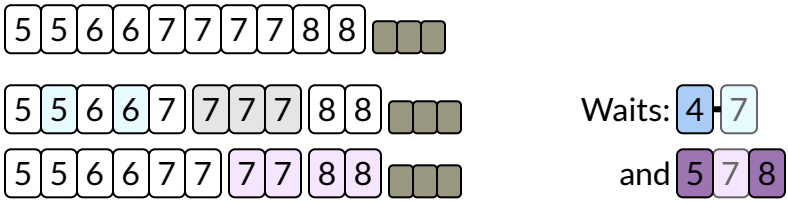
As a contrast, in this example the 555 triplet is *suji* to the *kanchan* 8 wait, and so does not add any wait extensions.



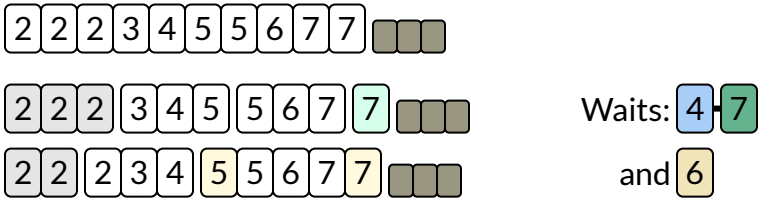
If a hand contains all four tiles of the same value, you should still treat three of them as a triplet when identifying waits. In this example, pulling out a 333 triplet returns a *nobetan* 58 base wait. This implies an additional *kantan* 4 wait from the gap to the triplet; the connected 456 sequence then extends it to a *ryanmen* 47 wait.



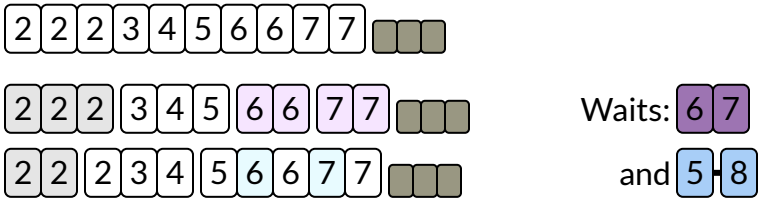
Having all four tiles of a single type in-hand will block waiting on that tile, but it can still be used to enable additional waits. The example below has a *ryanmen* 47 base when we set aside a 777 triplet. An *entotsu* shape adds a *shanpon* 8 wait; an *iipeikou* shape adds another *shanpon* 5. For both *shanpon* waits, when they become a triplet, it is actually the 77 that forms the hand's pair!



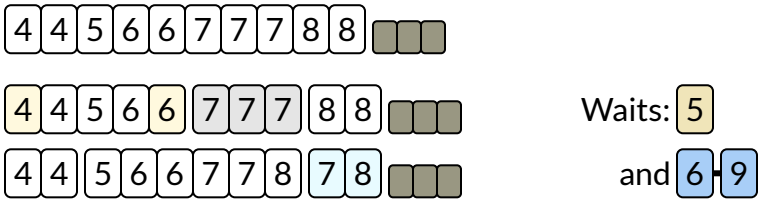
The next two examples revisit the tricky property of sequences to carry a triplet's influence across a *suji* gap. In both hands, the *suji* 5 is 'activated' by the 345 sequence adjacent to the 222 triplet. In this first hand, this is two tiles away from the *tanki* 7 wait, which adds the *kanchan* 6 wait. (Recall that it will not interact with the *ryanmen*-type 4.)



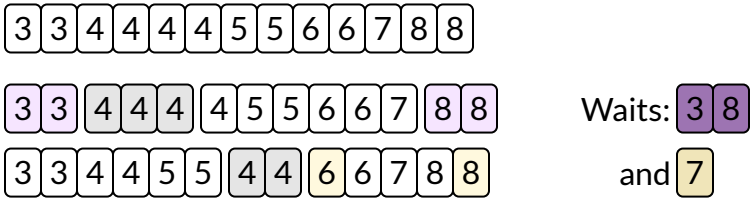
In this second hand, the 'activated' 5 is in sequence with the *shanpon* 67 values; this adds a *ryanmen* 58 wait to the hand.



Finally, it's important to note that the general rules for wait additions have some exceptions. In this hand, setting aside the 777 triplet reveals a *kanchan* 5 wait. The relationship between the 5 and 7 would not suggest any additional waits under the general rules, but splitting the 7 tiles across multiple sequences ends up adding a *ryanmen* 69 to the list of waits.



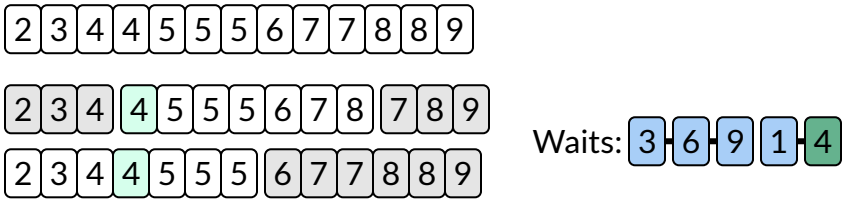
Setting aside the 444 triplet in this hand, we observe a *shanpon* 38 wait. The gap between pairs would not normally result in any additional waits to be generated. However, the fact that we can create an *iipeikou* shape by setting apart a 44 pair means that splitting up the 4 tiles allows for a *kanchan* 7 wait to work out.



Even if we don't see how the general rules for wait extensions apply, we can still be systematic about finding waits. First, look at the hand with the triplet taken out in full. Then try dividing the triplet into parts and see how they align with the hand's other elements. By organizing a hand's elements carefully, you can ensure that you've explored all possibilities for a hand's waits.

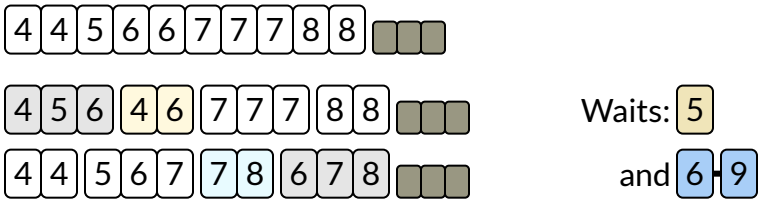
Another way of analyzing a complex hand is to try to pull out one or two sequences instead of the hand's triplet. When you get down to seven tiles, you can use the patterns from the last section of Chapter 1 to obtain a set of preliminary waits. These waits can then be extended by *suji* implied by the set-aside sequences.

For example, we could approach this hand by pulling off the two sequences on the opposite sides of the hand. The remaining seven tiles suggest a *ryantan* + *sanmen* extension with waits of 3469. The set-aside 234 sequence then connects with the *tanki* 4 to add a 1 to our list of waits.



We could also arrive at the same answer by pulling out two sequences from the right side of the hand. This time, we have an *aryanmen* + outside *ryantan* base giving 1346 waits, with the 678 sequence adding the *suji* extension to 9 as an additional wait.

This approach can sometimes require testing multiple sequence pull-outs, however. Revisiting the first exceptional case, replicated below, we will get a different wait depending on the sequence we choose to pull out. If we stopped at testing only one of the sequences, we would have missed one or two waits.

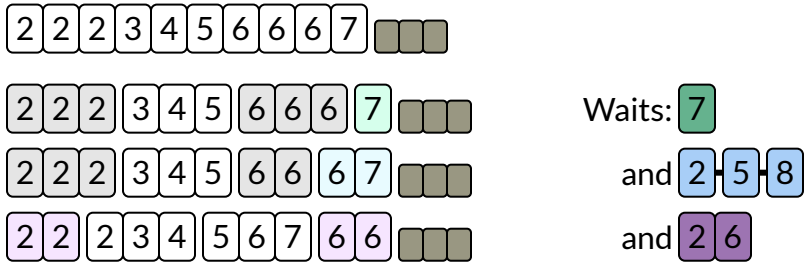


Regardless of how you approach hand decomposition, I want to reiterate the potential value in memorizing the seven-tile patterns from the last part in Chapter 1. It's also a good idea to memorize the "triple *shanpon*", "quadruple *shanpon*", and the exceptional patterns from the previous page as well. Having this knowledge built-in to your memory will help speed up your pattern recognition and improve your accuracy for reading waits in real game scenarios.

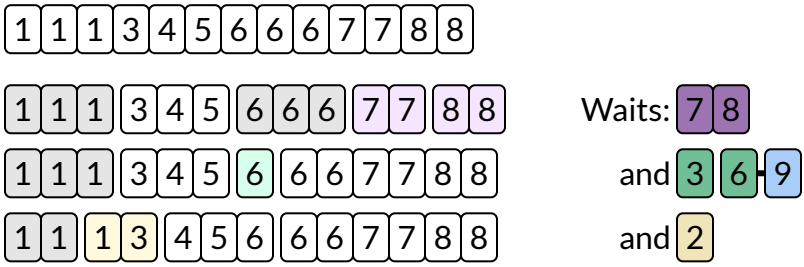
Identifying Waits in Hands with Multiple Closed Triplets

When a hand has multiple triplets, it presents additional layers of analysis compared to if it only has one. Start by pulling out all of the triplets from the hand, then analyze the remaining tiles. As before, if the remaining tiles are *noten*, then we know that some number of triplets need to be split up in order to find any potential waits, and we can explore those possibilities systematically. When the remaining tiles are *tenpai*, you can compare the set-aside triplets to the base waits in order to find extensions. Depending on the hand, some triplets will not extend waits on the original base waits, but will instead extend waits on the base waits' extensions in a chain.

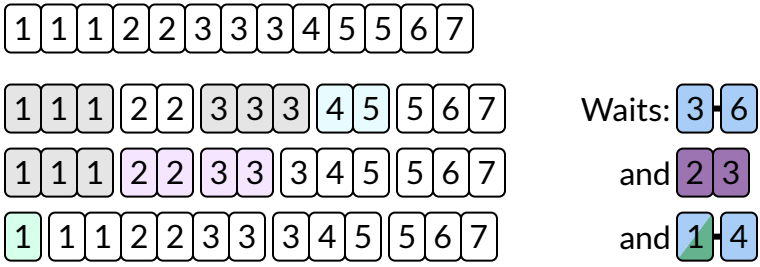
Let's see this in action through examples. In the following example, pulling out the 222 and 666 triplets reveals a *tanki* 7 wait as a base. Since 6 is adjacent to 7, this adds a *ryanmen* 58 wait, which is extended to include 2 (standard *sanmen*). And, since the 222 triplet matches that wait, we can infer an *entotsu* pattern and can further extract a *shanpon* 26 wait.



Setting aside the triplets in this hand gives us a base *shanpon* 78 wait. Since the 666 triplet forms a sequence with these pairs, this adds an *aryanmen* 69 wait; since the 6 can be taken as *tanki*, there is an additional *nobetan* extension to the *tanki* 3. Furthermore, this 3 chains to the nearby 111 triplet to generate a *kanchan* 2 wait.

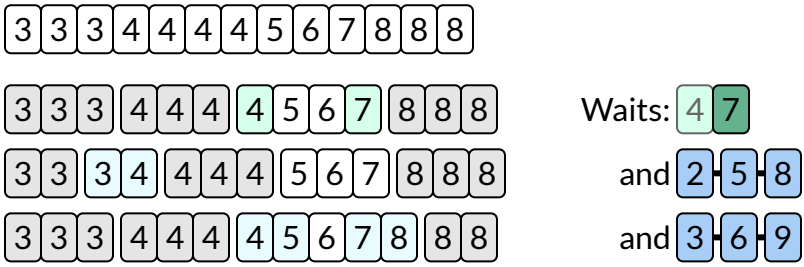


And in this example, we start with a base *ryanmen* 36 wait from setting aside the two triplets. Since the 333 triplet matches one of the waits, this pulls out a *shanpon* 23 wait. And finally, since the *shanpon* pairs are in sequence with the 111 triplet, this adds an *aryanmen* 14 wait, with 1 on the *tanki* side.

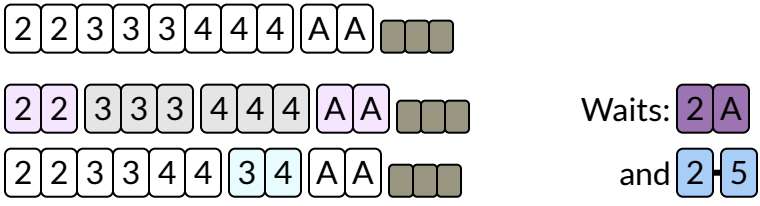


The previous examples demonstrate a property of the general rules, that waits added by triplets generally chain in a *tanki* ▸ {*penchan*, *kanchan*, or *ryanmen*} ▸ *shanpon* ▸ *tanki* cycle. There are exceptions to the general rules (as you will see in later examples), and this cycle doesn't take into account the *suji* waits gained from sequence-based extensions. But it can be a fair sanity check when you're trying to keep track of where you are in your hand analysis.

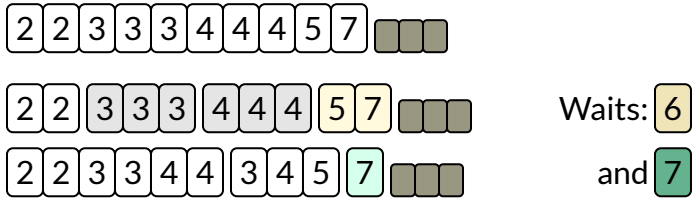
When we pull out the three triplets from this hand, we observe a *nobetan* 47 wait. Since all four copies of the 4 tile are in use, it isn't a 'real' wait, but we can still use it to extend our list of waits. Since 4 is adjacent to the 333 triplet, it generates *sanmen* 258 waits. Additionally, the adjacency between 7 and the 888 triplet adds *sanmen* 369 waits to the hand. Ultimately, the 444 triplet doesn't contribute anything to the hand except block the 4 wait!



When multiple triplets are adjacent to one another, you will need to be aware of the possibility for them to be split into multiple shared sequences. In this example, the base wait from setting aside the triplets is a *shanpon* 2A. We don't get any additional waits from splitting just one triplet at a time. In an exception to the general rules, it's only when we split up both into two sequences that the remaining tiles form an additional *ryanmen* 25 wait.

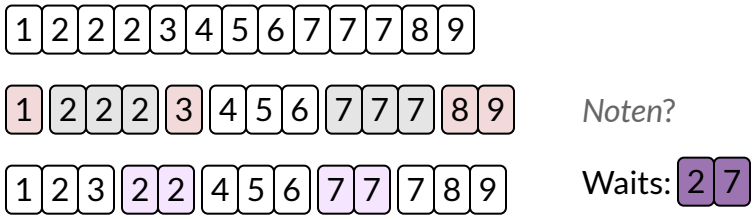


And in this variation, we have a *kanchan* 6 base wait after setting aside the two triplets. There are no standard extensions from here, but since the 5 is in sequence with those triplets, we can create three sequences from them, resulting in an additional *tanki* 7 wait.

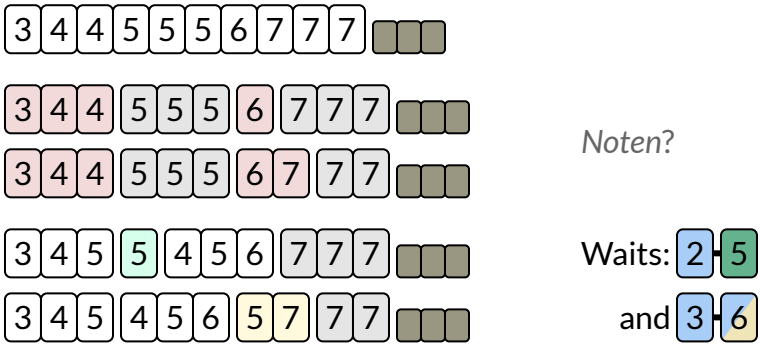


If you're on the memorization mindset, it can be worth your time to add this and the previous ten-tile pattern (or the eight-tile 22333444 decomposition into 223344 + 34 that is common to both examples) to your mental library of base patterns.

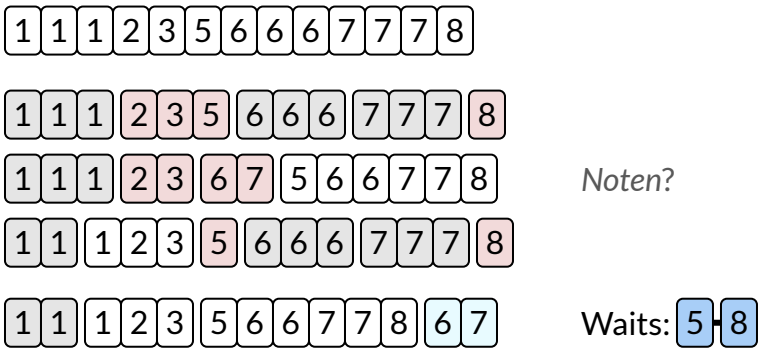
Let's finish this section up with a few examples where setting aside the triplets results in a *noten* remainder. When this occurs, we know that at least one triplet must be split up in order to obtain a *tenpai* formation. In this example, splitting either triplet into a pair + lone tile reveals a *shanpon* 27 relationship between the two.



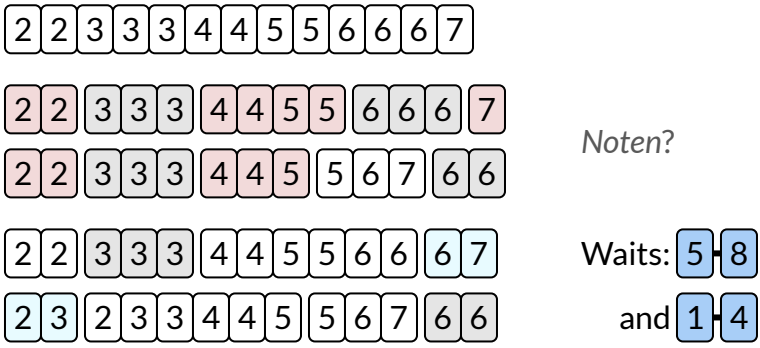
This hand also starts as *noten* after setting aside the triplets. When we split up only the 777 triplet, we don't get any forward progress. Fortunately, splitting up the 555 triplet reveals an *aryanmen* 25 wait. Since the *tanki*-side 5 is two tiles away from 7, we can infer a *kanchan* 6 wait; since we have a 456 sequence, this extends into a *ryanmen* 36 wait.



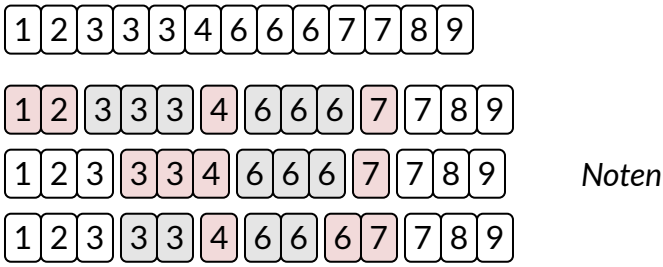
Setting aside all three triplets in this next hand also results in a *noten* remainder. Additionally, splitting up any one or two triplets will not return a *tenpai* remainder. It's only when we break up all three triplets that we see that we just have a *ryanmen* 58 wait.



This hand completes its waits in an exception to the general rules. The first step of setting aside both triplets returns a *noten* remainder. The lone 7 suggests splitting up the 666 triplet first. If we let the 666 tiles contribute to two 456 sequences, this results in a *ryanmen* 58 wait. If we had split it up as a 66 pair + lone tile instead, we wouldn't find any waits. However, if we split the 333 triplet into multiple sequences, we can use that 66 pair split to add a *ryanmen* 14 wait to our list.



And in this final example, we have a hand that is simply *noten*. Neither 'side' of the hand has the tiles to create a fully *tenpai* wait. However, breaking down the hand shows that any tile from 2-9 will allow us to bring the hand to *tenpai*.



Chapter 3: Tile Acceptance in *Iishanten* Hands

While it is fine enough to be able to read *tenpai* hands, most hands will not start in that state. So while this guide is not about tile efficiency or hand progression (and will generally sidestep these topics), we can still take a look at how to read hands that are one step away from *tenpai* (*iishanten*). Knowing how to approach *iishanten* hands can help quicken your decision making when you get an opportunity to reach *tenpai*. To start, let's look at how hands build tile acceptance to advance from *iishanten* to *tenpai*.

Basic *Iishanten* Patterns

There are four general patterns for a standard hand (again, ignoring the irregular *chiitoitsu* and *kokushi musou*) to be in *iishanten*, each with different characteristics for reaching *tenpai*.

Floating *iishanten*

In the generalized diagram, each of the Xs and Ys represent a two-tile block of related tiles: an additional pair, a *penchan*, *kanchan*, or *ryanmen*. Completing one of those blocks will bring us into *tenpai*. If one of those blocks is a pair, then we can also upgrade the rightmost pair into a triplet to achieve *tenpai*.

This standard two-*ryanmen* floating *iishanten* pattern requires us to complete either 23 or 78 block to reach *tenpai*, waiting to complete the other *ryanmen* block.

In this less-standard floating pattern, we can complete the 23 sequence group to leave a *shanpon* AB wait, or complete either AA or BB pair as a triplet to have a *ryanmen* 14 wait.

In the tile acceptance list, 'good' waits with at least five available or unused tiles (e.g. *ryanmen*, *nobetan*) will have light shading, while other waits with fewer available tiles (including basic *shanpon*, *tanki*, *penchan*, and *kanchan*) will be unshaded.

A key point to note for both examples is the fact that the Z tile is not related to either incomplete block — a floating tile. This tile will always need to be discarded when the hand reaches *tenpai*. As a result, floating *iishanten* hands will tend to have a smaller tile acceptance than other patterns.

Complete *iishanten*

We can increase our tile acceptance if the floating tile forms a compound block (Xs in the general diagram above), such as 223 (*ryanmen* + pair), 224 (*kanchan* + pair), or 246 (*kanchan* + *kanchan* = *ryankan*). Now, all tiles are contributing to the hand's ability to reach *tenpai*, resulting in a slightly expanded tile acceptance compared to floating *iishanten* hands. We will need to discard a tile from the compound block when we move into *tenpai*, but now we have multiple options for a tile to drop.

For example, the 668 block in this complete *iishanten* hand can be completed in two different ways, from drawing or calling 6 or 7, either one resulting in a *ryanmen* 14 wait. Conversely, completing the 23 block means we can choose either a *shanpon* 6A or *kanchan* 7 *tenpai* wait.

Accepts: 1 4 6 7 A

When both incomplete blocks include a *ryanmen* shape, this pattern is also called perfect *iishanten*, since any advancement to *tenpai* will leave at least a *ryanmen* wait. For example, in this perfect *iishanten* hand, drawing one of 1469 completes a sequence; discarding a 2 returns a *ryanmen* wait on the incomplete block. However, we can also draw 2 or A to complete a triplet; we then discard 3 to leave a *ryanmen* 69 wait.

Accepts: 1 2 4 6 9 A

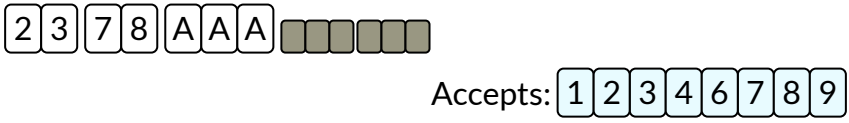
One terminology note here, the Japanese term *kanzen iishanten* (完全イーシャンテン) is mostly used to refer to just perfect *iishanten* patterns, though it can also be synonymous with the broader category of complete *iishanten* as well. For clarity, this guide will be using both 'complete' and 'perfect' terms as defined above, where perfect *iishanten* is a special case of a complete *iishanten* hand where any advancement to *tenpai* can leave an incomplete *ryanmen* block as a final wait.

Headless *iishanten*

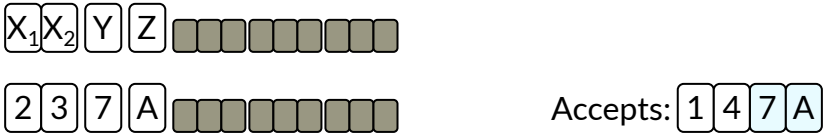
Another way we can achieve *iishanten* is with three complete sets and two incomplete, non-pair blocks. (This pattern gets its name from the fact that the hand's pair is also called its 'head'. Without a pair, a hand is therefore 'headless'.) This pattern has a wider tile acceptance than similar complete *iishanten* hands since we can now also pair up a tile in an incomplete block to reach *tenpai*. However, the general tradeoff is that if we complete a block instead, we might be left with a poorer final wait.

In the example below, we can pair up 2378 to have a *tenpai ryanmen* wait on the opposite block. But if we draw (or call) 1 or 4, we need to choose between a final *tanki* wait on 7 or 8. A similar decision applies for the 23 block if we draw 6 or 9.

However, if one of the sets is a triplet, that issue is resolved. When we draw 1469, we can drop an A tile to set AA as the hand's pair, preserving a *ryanmen* wait on the incomplete block.



A weaker form of headless *iishanten* exists where we only have one incomplete block, but two floating tiles. If we complete that block, we can only get a *tanki* wait from one of the floating tiles, even with a separate triplet in hand. Pairing a floating tile waits on the incomplete block. However, we can also draw a tile close to a floater to get a stronger headless *iishanten*; in the example below, drawing 5689 and discarding A gets us a stronger headless form.



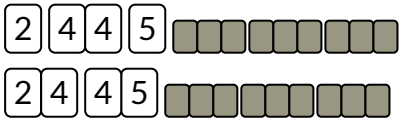
Sticky *iishanten*

The widest *iishanten* waits occur when we have three completed sets and a pair, and are just waiting for a tile to 'stick' onto one of two floating tiles to create our final block, or to upgrade the pair into a triplet to have a floating tile *tanki*. As with the headless *iishanten* shape, however, there is a strong chance for a bad final wait. Additionally, we cannot call on the floating tiles to move to *tenpai* (though we can still call on the pair to make a triplet).

In the following sticky *iishanten*, any tile within two tiles of the floating 2 or 7 will bring us to *tenpai*. However, only drawing 368 results in a *ryanmen* final wait. If we draw an A, we can also reach *tenpai* by choosing to discard either 2 or 7.

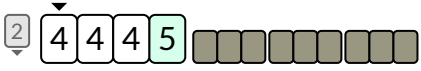
Accepts: 1 2 3 4 5 6 7 8 9 A

If one or both floating tiles are close to the pair (but not so close that they would form a *tenpai*-wait block), you can observe properties of headless *iishanten* and sticky *iishanten* together. For example, this hand can be interpreted as a sticky *iishanten* with floating 2 and 5, accepting tiles from 1-7 and giving a good wait on 346. But if we split the pair to form two headless blocks, we can also see that if we draw a 2, we can discard a 4 get a *ryanmen* wait.



Accepts: 1 2 3 4 5 6 7

Note as well that drawing 4 gives more than just the *ryanmen* wait implied by the basic sticky pattern: since we have a 444 triplet, this also adds a *tanki* 5 wait. While a hand's *iishanten* pattern types can provide some guidance on what to expect from accepted tiles, it may require additional thought to tease out the complete waits.



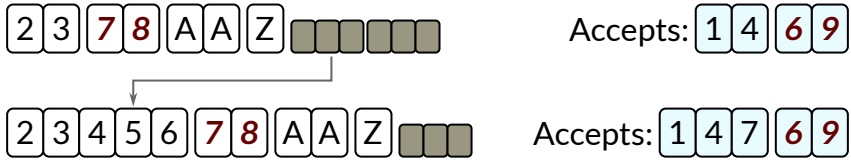
Waits: 3 6 5

Sequence-Based Extensions to *Iishanten* Patterns

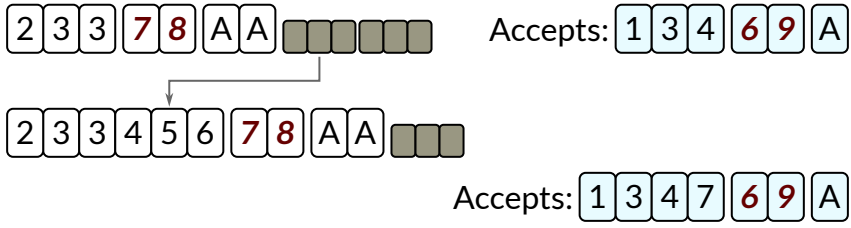
Of course, we can obtain wider *iishanten* tile acceptance when completed sets interact with incomplete blocks and floating tiles. This can also result in improved waits when we reach *tenpai*. To start, let's look at sequence-based extensions.

For floating, complete, and headless *iishanten* hands, a common compound pattern occurs when we extend a *ryanmen* block into five consecutive tiles, creating a *gorenkei* shape (e.g. 23456). You'll recognize *gorenkei* as the tile group that generates a standard *sanmen* wait in *tenpai* hands.

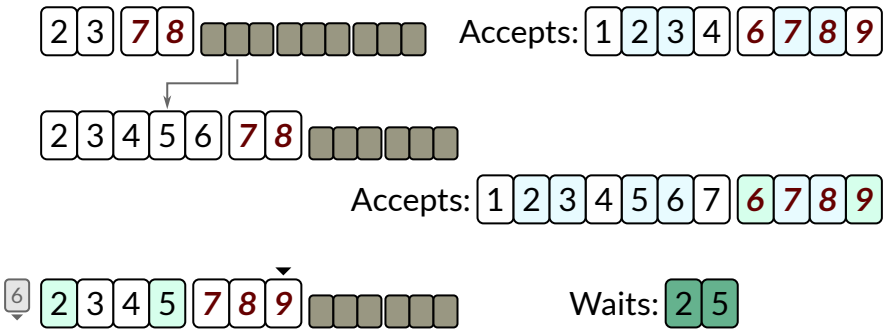
For example, in this floating *iishanten* pattern, adding a 456 sequence to the end of the *ryanmen* 23 block creates a *gorenkei* 23456 group. This adds an additional *suji* 7 to our tile acceptance. The sequence extension also naturally results in a standard *sanmen* 147 wait if we complete the ***78*** block.



The same *suji* extensions (both in tile acceptance and *tenpai* waits) apply in this perfect *iishanten* pattern when we attach a 456 sequence to the end of the compound 233 group.

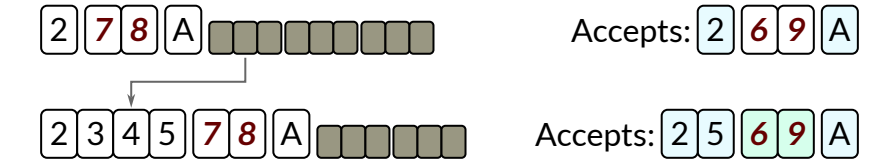


Since headless patterns can reach *tenpai* by creating a pair, a *gorenkei* extension adds even more tile acceptance. In this strong headless hand, extending the *ryanmen* 23 to a *gorenkei* 23456 shape adds not just the *suji* 7 acceptance for completing a set, but also acceptance to pair up 5 or 6. Pairing ***7*** or ***8*** now results in a *sanmen* 147 wait, and if we complete the second-suit sequence with a ***6*** or ***9***, we can also get a *nobetan* wait in the first suit by discarding a 2 or 6.

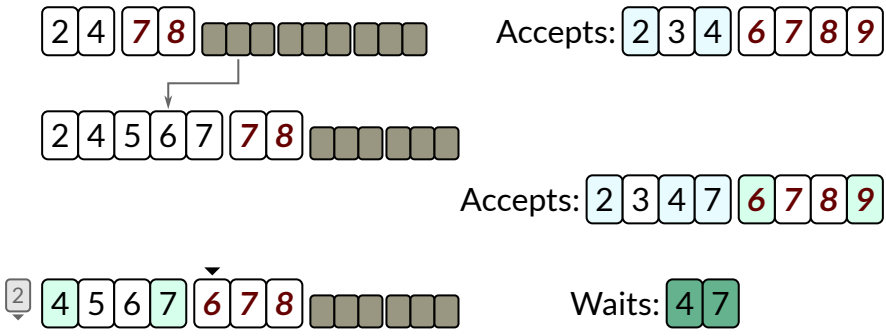


For headless and sticky *iishanten* hands, we obtain additional tile acceptance when we extend a floating tile into four consecutive tiles, or *yonrenkei* shape (e.g. 2345). You'll also recognize this tile group in *tenpai* hands as the basis for the *nobetan* wait.

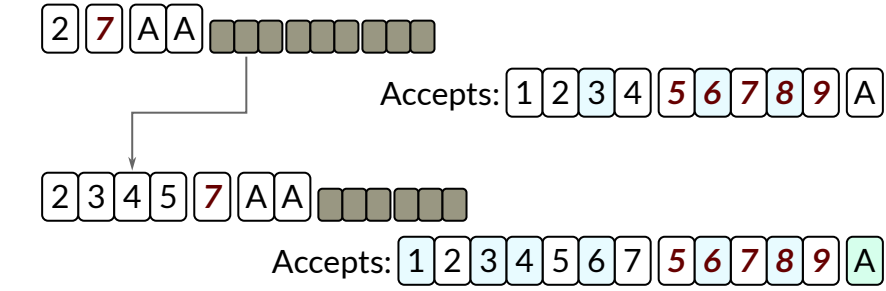
In this weak headless *iishanten* pattern, extending the floating 2 into a *yonrenkei* 2345 shape adds tile acceptance on the *suji* 5. Additionally, if we complete the second-suit sequence with a ***6*** or ***9***, we can discard the floating A tile to take a *nobetan* wait on the *yonrenkei* tiles instead of just a plain *tanki*.



If you have a strong headless pattern with a *kanchan* group, a *yonrenkei* extension can also increase tile acceptance. Tiles in an incomplete block can still be treated as floating as though the hand was a weak headless shape. In the following hand, when we extend the 4 into a *yonrenkei* 4567, we can accept pairing 7 to reach *tenpai*. This extension also gives us a *nobetan* wait if we complete the **78** block as a sequence.

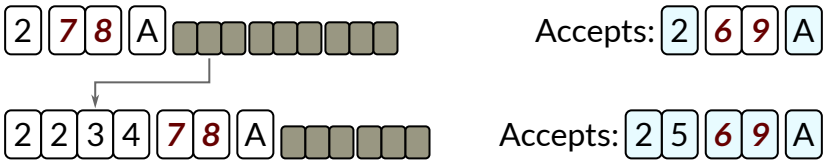


In this sticky *iishanten* pattern, extending the floating 2 into a *yonrenkei* 2345 shape provides a larger expansion of accepted tiles. The *suji* 5 acts as an additional floating tile so we can draw 567 to reach *tenpai*, and the wait from drawing 4 is also improved. There's no benefit in final wait if we draw a tile to group up with the second-suited **7**, but if the AA pair improves to a triplet, we can discard the **7** to take a *nobetan* 25 wait.

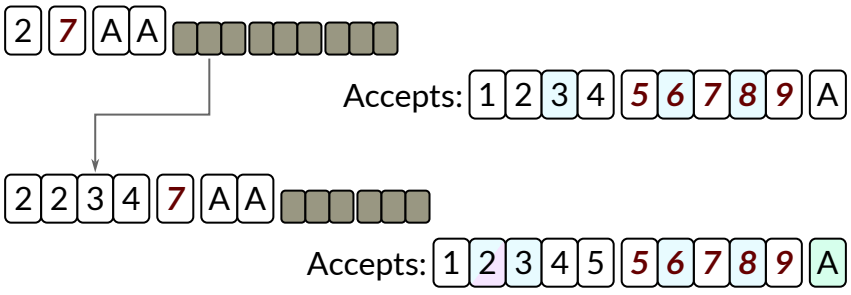


Another way of extending floating tiles is by attaching a sequence to create an *aryanmen* group (e.g. 2234). This can add floating *iishanten* properties to a hand's tile acceptance by interpreting the group as a pair + *ryanmen* block (e.g. 22 + 34).

For example, attaching a 234 sequence to the floating 2 in this weak headless *iishanten* hand adds a *suji* 5 tile acceptance to the hand and improves the waits when drawing ***6*** or ***9***. This floating *iishanten* interpretation doesn't negate its headless *iishanten* properties, so we can still accept drawing A to reach *tenpai*.

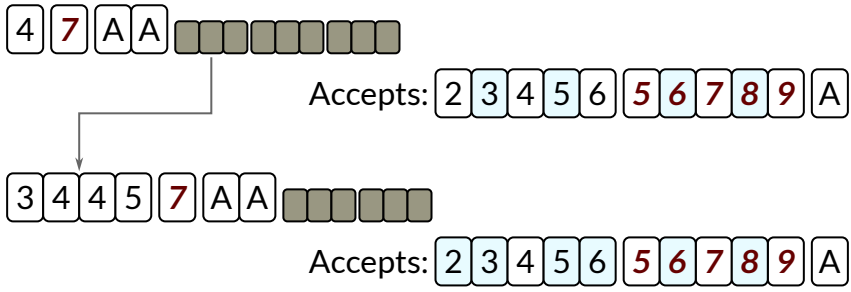


For this sticky *iishanten* hand, extending the floating 2 into an *aryanmen* 2234 also adds tile acceptance on the *suji* 5. The extension has one additional benefit, where drawing a 2 now returns an *entotsu* 25A wait instead of just the plain *shanpon* 2A.

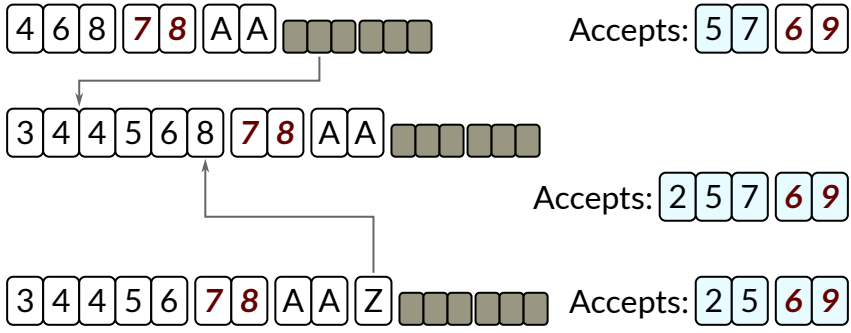


Beyond *gorenkei*, *yonrenkei*, and *aryanmen*, there are a few additional sequence-based patterns worth noting. To start, let's look at *nakabukure*: a sequence with a duplicate middle tile. As a final wait, it's worse than a standalone *tanki* since one of the wait tiles is already being used in-hand by the surrounding sequence.

Prior to *tenpai*, however, drawing into *nakabukure* can provide additional flexibility in returning good waits and shapes. In the sticky *iishanten* example below, the number of different tile values we can accept from having the *nakabukure* shape is no different than if we had a lone floating 4. We actually lose two available tiles since we're using them in the hand. On the upside, however, we find that drawing 2 or 6 can result in a good *ryanmen* wait by interpreting the hand as a 34 + 45 + ***7*** floating *iishanten*.

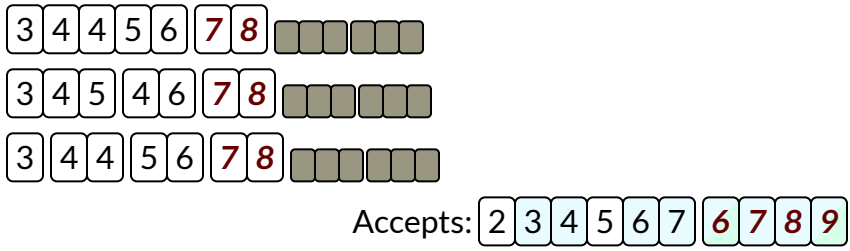


One useful compound pattern for complete *iishanten* hands is the *ryanmen-ryankan* pattern. In the first hand below, the *ryankan* 468 group is somewhat fragile, since if the incomplete ***78*** group completes first, we are left with a weaker *kanchan tenpai* wait. If we attach a 345 sequence to one of the group's waits, however, we gain two things: acceptance of the 2 tile, and an improved *ryanmen* 25 wait if we draw a ***6*** or ***9***.

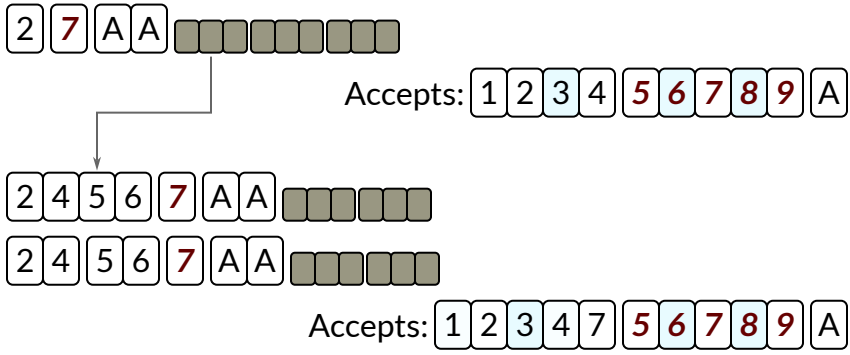


This is not to say that the *ryanmen* 34 + 456 tile pattern, excluding the 8, is bad. It still makes for a good floating *iishanten*. But the extra tile acceptance gained from having the 8 can be quite useful in a game where speed to making *tenpai* can be so important.

The 34456 tile group actually receives a large tile acceptance as part of a headless *iishanten* hand. At first glance, this might just look like a standard two-*ryanmen* 34 + ***78*** headless pattern. However, we can also interpret the hand as a *kanchan* 46 + 345 for additional tile acceptance on 6. Additionally, we can interpret the hand as floating *iishanten* with a 44 pair and floating 3, to add acceptance on 7. We can also choose between a *nobetan* 36 or *ryanmen* 47 wait if we draw ***6*** or ***9***.



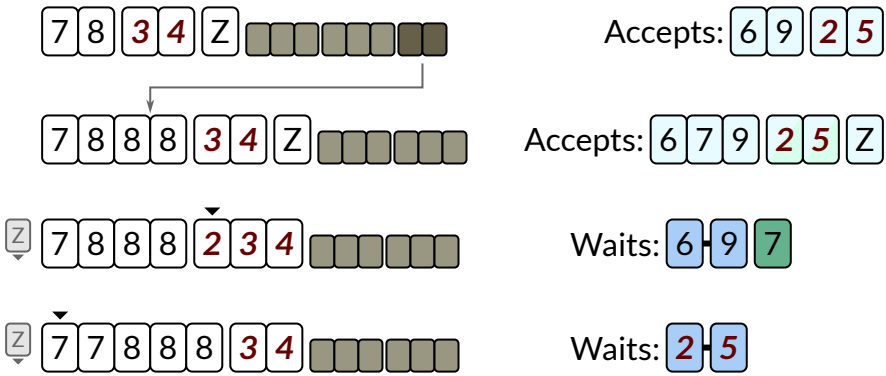
Finally, floating tiles in sticky *iishanten* hands can also interact with sequences a one-tile gap away. When we add the 456 sequence close to the floating 2 tile below, we can interpret the four tiles as 24 + 56 blocks in a floating *iishanten*. The extension isn't much, but it adds tile acceptance on 7, and if we draw a 3, we get a standard *sanmen* 147 wait.



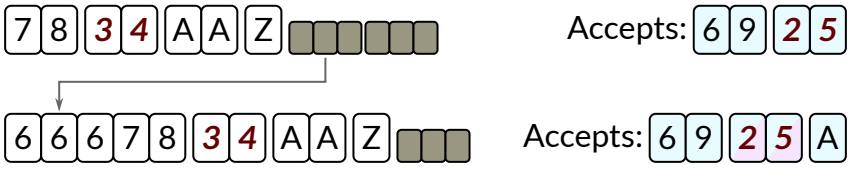
Triplet-Based Extensions to Iishanten Patterns

Triplets are more limited in expanding tile acceptance compared to sequences. However, they are a major driver in terms of obtaining complex waits once we do reach *tenpai*.

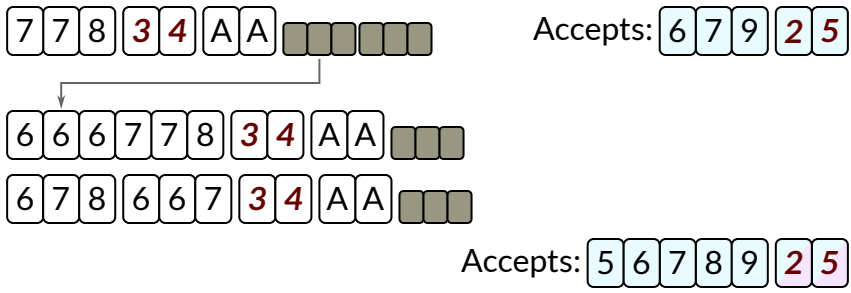
When we transform the pair and *ryanmen* 78 in this floating *iishanten* hand into a floating 7 with attached 888 triplet, completing the ***34*** block returns a complex *ryantan* 679 wait. In addition, we can pair up the floating 7 or Z tiles to reach *tenpai* like in a weak headless *iishanten* pattern, returning a *ryanmen* ***25*** final wait.



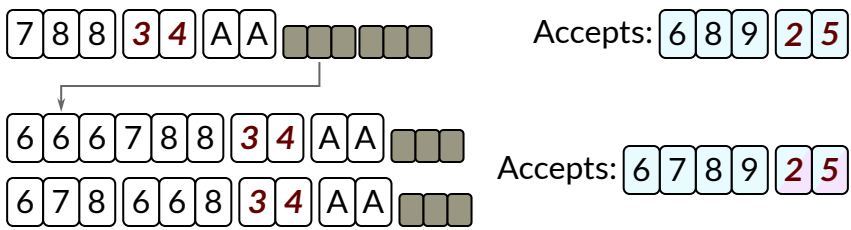
Alternatively, we can also increase tile acceptance by attaching a full 666 triplet to the 78 block. This allows us to accept A to reach *tenpai*. However, completing the ***34*** block now returns an *entotsu* 69A wait, which has one more tile type compared to the *ryanmen* 69, but one fewer possible tile available (seven vs. eight).



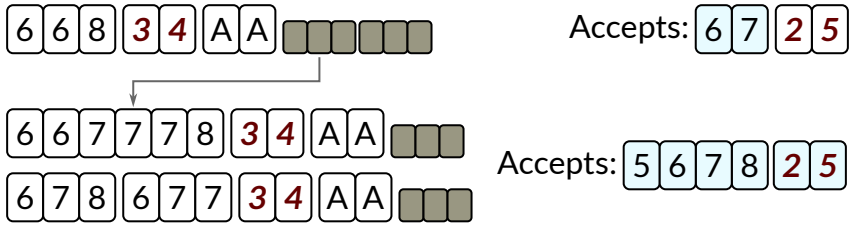
If we modify the previous example into a perfect *iishanten* hand by changing the extra floating tile into a 7, we get a larger expansion of waits from the attached 666 triplet. Since we can interpret the resulting group of tiles as a 678 sequence + compound 667 block, this lets us add acceptance on 5 and 8. If we complete the ***34*** block, we also have the option of *entotsu* 69A or *ryanmen* 58 wait (or *shanpon* 7A) depending on what tile we discard in response.



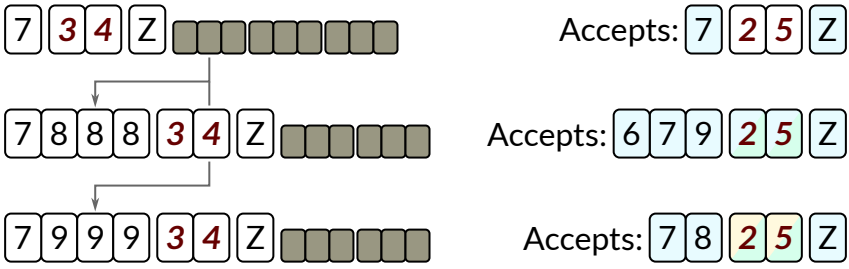
If the original compound group is 788, the 666 triplet attachment will provide a smaller expansion in tile acceptance. Since the extra compound group from pulling out the 678 sequence is a *kanchan* + pair 668, we only add acceptance of the 7 tile. Additionally, since the 666 triplet comes from an already-accepted tile type, the total number of available tiles for reaching *tenpai* does not actually change (eighteen tiles in each case, including ***25***).



Let's examine one more perfect *iishanten* variation: we can also make use of a dual perfect *iishanten* interpretation when we have a triplet in the middle of a compound *kanchan* group. In the below hand, the initial 668 group has tile acceptance on 67, while the 777 triplet adds tile acceptance on 58.

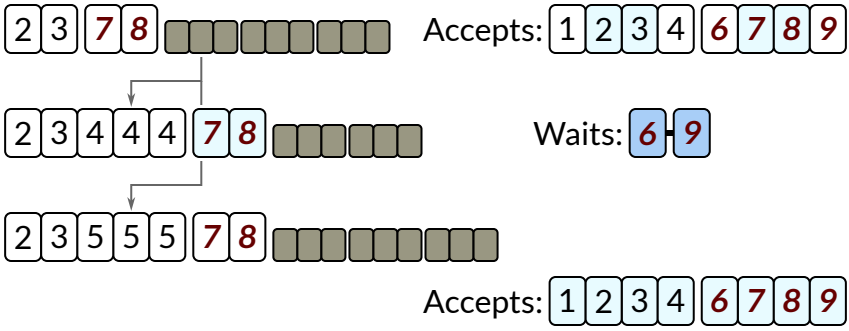


Now, let's look at triplet extensions to headless *iishanten* hands. In the first weak headless hand below, completing the ***34*** block leaves just a *tanki* wait on either 7 or Z. But with the 888 triplet adjacent to the 7, we can add tile acceptance on 69 and a greatly improved *ryantan* 679 wait from completing the ***34*** block.

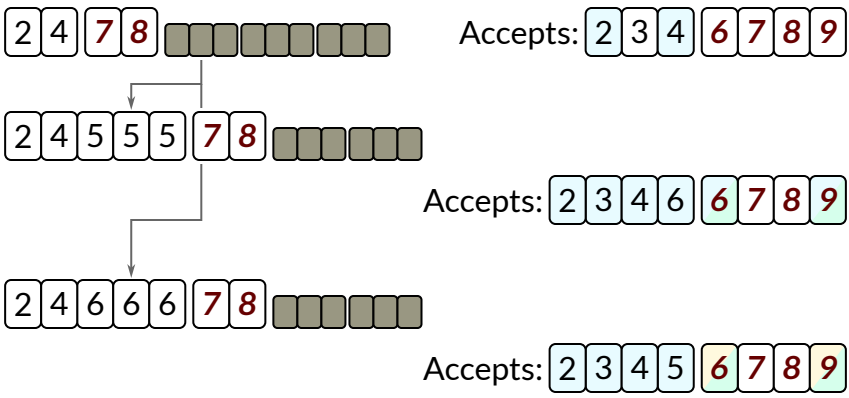


If we have a one-tile gap between the triplet and floating tile, attaching a 999 triplet in the example instead, we get a smaller improvement. We add acceptance on 8 to reach *tenpai*, and the wait when completing the ***34*** block is a *kantan* 78 wait.

For stronger headless *iishanten* hands, increasing tile acceptance with triplets is more limited. If we have a two-*ryanmen* block hand, adding a triplet adjacent to one of the blocks brings the hand to *tenpai*, while a one-tile gap triplet only has the standard *ryanmen* wait improvements on 14***69*** from being able to cut from the triplet to become the hand's pair.

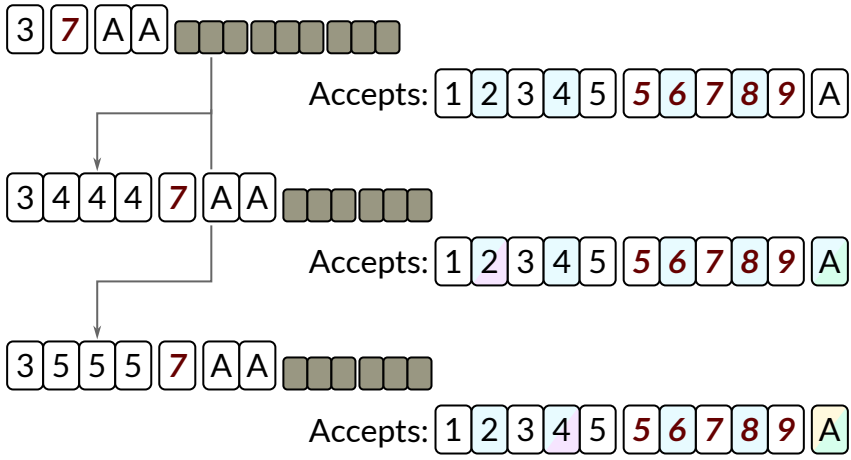


We can use a triplet to increase tile acceptance if one of the groups is a *kanchan*, however. If we add a 555 triplet adjacent to the 24 block in this headless *iishanten* hand, we gain some floating *iishanten* properties by interpreting the 4555 group as a 55 pair + 45 *ryanmen*. We can now draw or call 6 to reach *tenpai*, improve the wait when drawing 3 (discarding 2 or 5), and the wait after drawing a ***6*** or ***9*** upgrades to a *ryantan* 346.



A one-tile gap 666 triplet added to the same starting hand adds complete *iishanten* properties to the hand, with a 66 pair + 246 *ryankan* interpretation. This adds 5 to our tile acceptance, and the wait when completing the ***78*** group becomes a *kantan* 45.

Finally, we reach sticky *iishanten* hands. Since sticky *iishanten* hands already have such wide tile acceptance, triplets close to floating tiles tend to only use up tiles that would otherwise bring the hand to *tenpai*. In the example below, neither triplet adds any additional tile acceptance to advance to *tenpai*. In fact, the 444 triplet slightly reduces the number of available tiles when 2 is drawn (changing the *ryanmen* 14 wait into an *entotsu* 14A), while the 555 triplet acts similiarly if 4 is drawn.



One small point of compensation is that the waits after upgrading the AA pair into a triplet are improved. With the 444 triplet, completing AAA results in a *ryantan* 235 wait, while in the 555 triplet case, completing AAA returns a *kantan* 34 wait.

Chapter 4:
Assessing *Iishanten* Hands

Analysis of *iishanten* hands with many tiles in a single suit can be quite intricate. A complex hand can have multiple ways of interpreting how it can accept tiles, and it can take those different interpretations to get a full picture of what *tenpai* waits to expect once an acceptable tile is drawn. Even after drawing an accepted tile, there may be multiple options for discards to obtain good *tenpai* waits, and potential tradeoffs in terms of scoring potential.

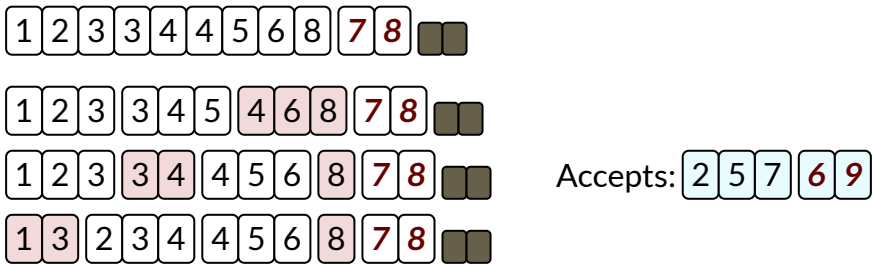
In this chapter, you will find a variety of example hands that illustrate these topics. Due to the complexity and variety of possible hands, these examples may not be exhaustive of all scenarios you will encounter. Still, the hope is that exposure to them can provide you some ideas for how to approach complex hands in your actual play.

Iishanten in Complex Hands

We can approach complex *iishanten* hands similar to how we decomposed complex *tenpai* hands in Chapter 2. By setting aside sequences and triplets from the hand, we can obtain a collection of basic *iishanten* patterns. The main complication is that we can end up with multiple types of *iishanten* pattern, each with a different way of reaching *tenpai*. It may require analysis across multiple patterns to fully understand a hand's tile acceptance and possible *tenpai* waits.

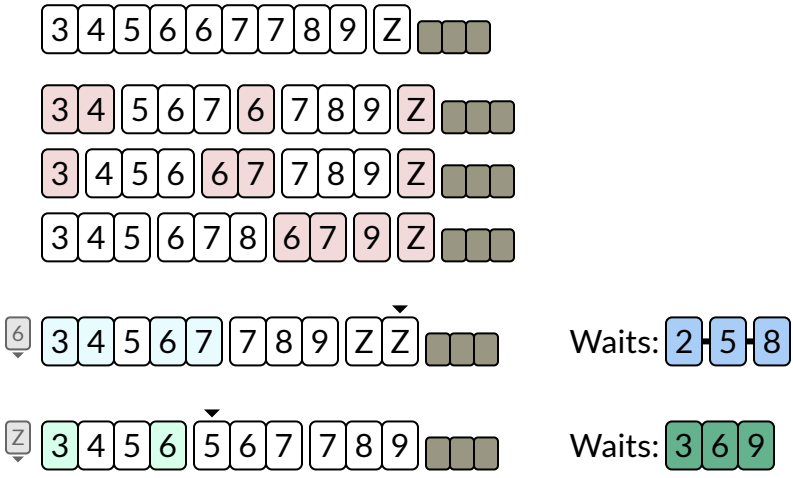
To be clear up front, it can be unreasonable to expect to perform a complete exploration of the most complex hands in actual play (especially online, where there are very strict game timers). Some of the key decompositions can be extremely tricky to find. But even if perfection is out of reach in practice, any additional ability to derive more insights from complex hands can be a boon to your gameplay.

Let's start by looking at some example hands that do not include any triplets. The following hand has two main interpretations. If we pull out the 123 and 345 sequences, we get a complete *iishanten* hand, with *tenpai* advancement on drawing or calling 57***69***. However, if we shift the 345 sequence up to 456, we get a floating *iishanten* pattern, adding acceptance on 2 and showing how we can get a good *ryanmen* wait after drawing ***6*** or ***9***.

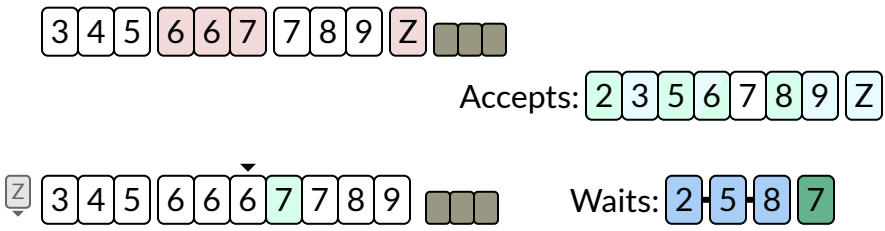


There are other floating *iishanten* decompositions that can be performed, like the last decomposition above, but they will not add any further tile acceptance or insights into better *tenpai* waits.

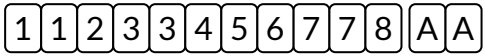
In most cases, pulling out two sequences from this next hand leaves a weak headless *iishanten* pattern. From these decompositions, we can expect that pairing 369Z will return a *ryanmen* or standard *sanmen* wait on some subset of 258, while completing a sequence with 258 should return a *nobetan* or *sanmentan* wait on a subset of 369.



However, if we pull out the 345 and 789 sequences, this reveals a sticky *iishanten* pattern hand with a 66 pair. This adds tile acceptance on 7 for a *shanpon* 67 wait. Additionally, we can observe that drawing 6 and discarding Z will also complete on a *tanki* 7. This is not something that is possible with the 39Z draws, and so might be missed by considering only the headless *iishanten* decompositions.

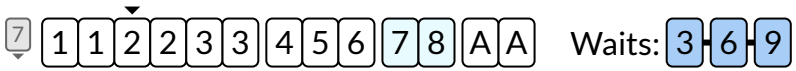


In this hand, we can observe a sticky *iishanten* hand by pulling out three sequences, implying that any tile from 1-3, 5-9, and A will bring us to *tenpai*. Additionally, drawing a 6 or 8 will give us a *ryanmen tenpai* wait.

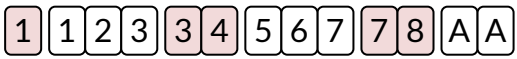


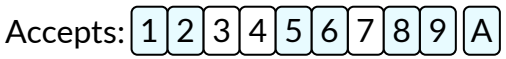
However, if we pull out different sets of two sequences, we end up observing complete or floating *iishanten* patterns instead. From the first complete *iishanten* pattern, we can add 4 to the list of accepted tiles (albeit with just a final 1A *shanpon* wait).

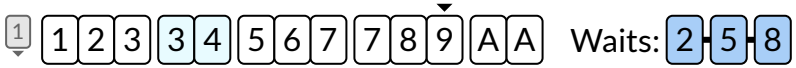
The second and third patterns illustrate how drawing 12A can leave us a good wait (including *sanmen* on a 2, discarding 7).



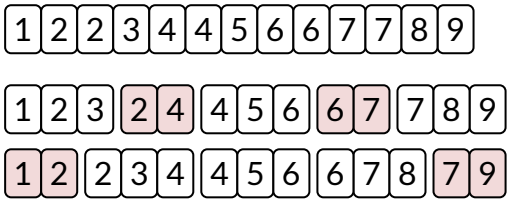
A floating *iishanten* decomposition shows how drawing 2569 will result in at least a two-sided *ryanmen* wait. The adjacency of 34 + 567 means that we get an even better *sanmen* on drawing a 6 or 9.



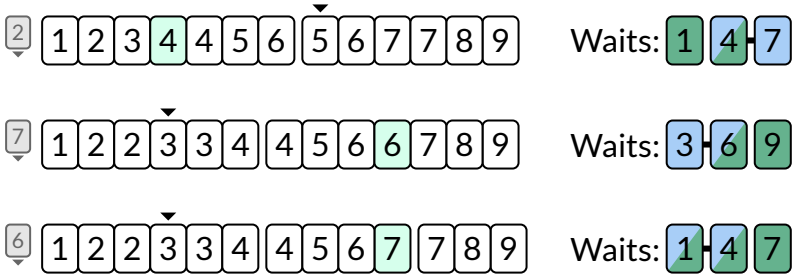




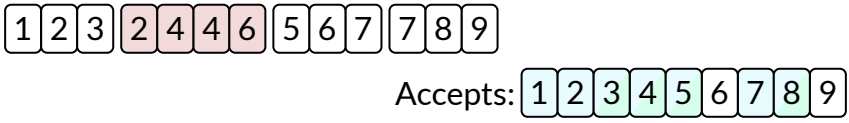
Here's a trickier example. If we pull out a full straight from this example, we observe a 24 + 67 headless *iishanten* pattern. This suggests a tile acceptance from 2-8: 2-4 from the 24 block, and 5-8 from the 67 block. Shifting the sequences adjacent to the 4 and 6 extend the acceptance to 1 and 9. These base patterns show that drawing 124 will leave at least a good *ryanmen* wait.



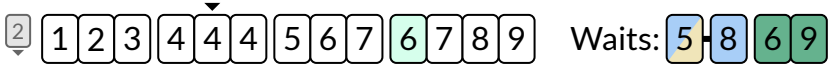
More difficult to see, drawing 358 actually gives us three-sided waits. In the case of drawing 5 or 8, discarding 2 leaves a *tanki* 4 which attaches to the 123 and 456 sequences. If we draw a 3, we can keep either the *tanki* 6 or 7 for our three-sided wait.



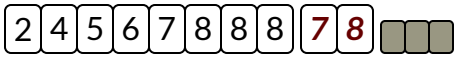
If we shift the 456 sequence from the initial headless pattern up to 567, we can observe a 2446 sticky *iishanten* pattern (with 44 as a pair and 2 and 6 as the floating tiles). This adds 7 to the 'good' *tenpai* wait list.

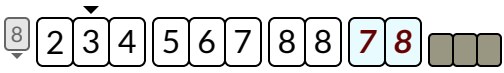


Additionally, we can observe that drawing 4 provides more than just the *ryanmen* 58 as *tenpai* waits. After discarding 2, we also get a *kantan* group 4446, providing a *nobetan* 69 wait.



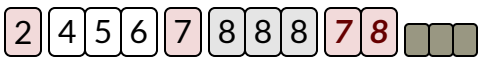
Now, let's move on to look at a few hands that include at least one triplet. We start our analysis of this example by setting aside the 888 triplet and observing what patterns can be formed from the remaining tiles. Here, we get a strong headless *iishanten* when pulling out a 567 sequence, with tile acceptance from 2-4 in the first suit, and ***6***-***9*** in the second suit. Since we have a triplet in this pattern, if we draw 3, we can discard 8 to take a good *ryanmen* ***69*** wait.

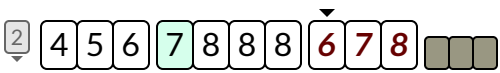




Waits: ***6*** ***9***

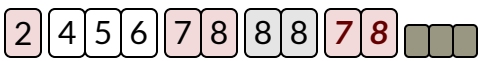
If we pull out a 456 sequence instead, we get a weaker headless pattern, but find that pairing 7 will also bring us to *tenpai*. We can also see that there is a *ryantan* 679 wait after drawing 6 or 9, and the adjacent 456 sequence will extend waits to 3 and 4.





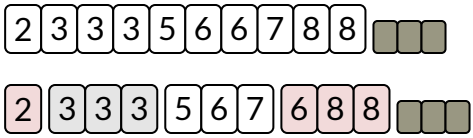
Waits: 3 6 9 4 7

From the latter decomposition, if we now split up the 888 triplet, we can find a floating *iishanten* pattern. This adds tile acceptance on 6 and 9, each one resulting in a *ryanmen* ***69*** wait.

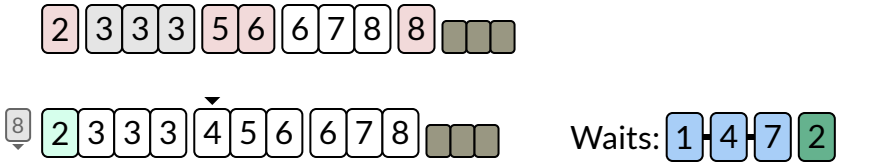


Accepts: 2 3 4 6 7 9 ***6*** ***7*** ***8*** ***9***

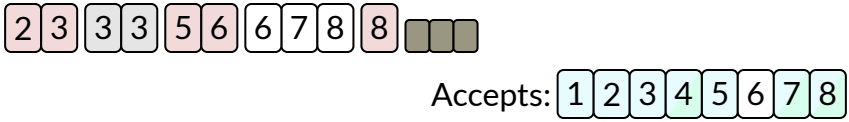
When we pull out the 333 triplet from this hand, we can interpret the remainder as either a sticky or weak headless *iishanten* hand. The first interpretation gives us our tile acceptance, 1-8, and implies *ryanmen* waits from drawing 357. We can also draw 7 or 8 to make use of the 2333 group, resulting in a *ryantan* 124 wait. (There are other three-sided waits possible by discarding 2 instead of 8 or 6, respectively, but they are slightly worse than the *ryantan* in terms of total tiles available.)



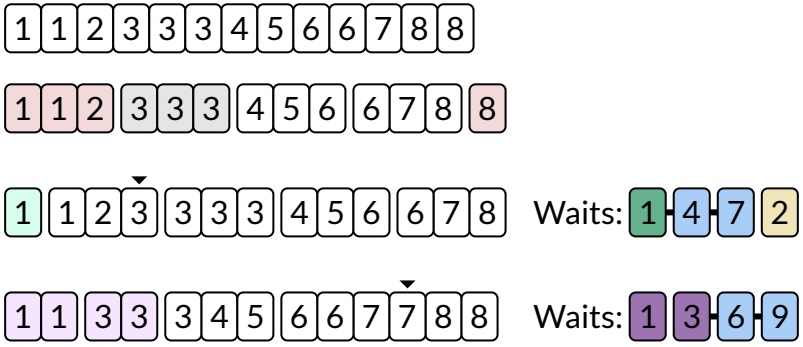
The weak headless pattern shows that drawing 2 can get us a *ryanmen* 47 wait, and that drawing 4 lets us also use the *ryantan* 124 wait. In fact, since 4 connects to 2333, we also add a *suji* 7 to that tile draw's waits.



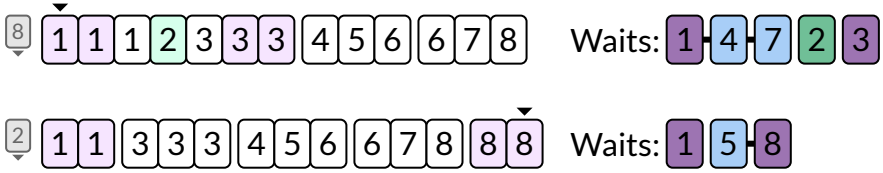
If we split the 333 triplet, we get a two-*ryanmen* floating *iishanten* pattern. This does not add any additional tile acceptance, but it does let us see that drawing 1 and discarding 8 will result in a *ryanmen* 47 wait.



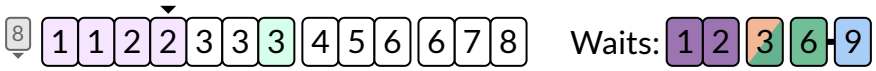
In this example, the obvious decomposition after setting aside the 333 triplet returns a sticky *iishanten* pattern, with tile acceptance on all in-suit tiles except 5. Thanks to the presence of the 333 triplet, the waits obtained from the standard 'good' draws 3 and 7 are better than the usual *ryanmen*. For 3, we have not just the *sanmen* 147 from the *gorenkei* 23456, but also a *kanchan* 2 by splitting the 11 pair. For 7, we have a *sanmen* 369 from the *gorenkei* 45678, but can also win on a 1 due to the *entotsu* enabled by the 333 triplet.



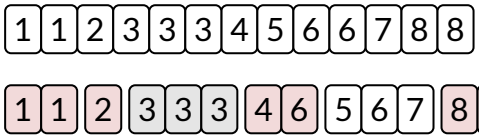
Additionally, we can form some multi-sided waits from drawing 1 or 8 into a triplet. Drawing 1 forms an edge *tatsumaki* pattern with a base 1234 wait and *suji* 7 extension, while drawing 8 lets us take an *entotsu* 158 wait.



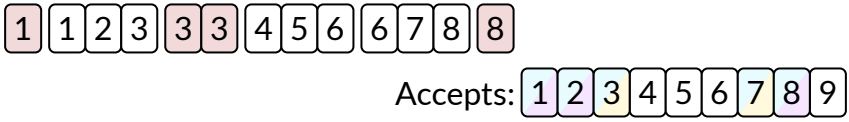
One more tricky insight from this decomposition: when we draw a 2, we get a sequential *shanpon* 123 wait. The 3 actually extends through the connected sequences to also add waits on 6 and 9. (Analysis continues on the next page.)



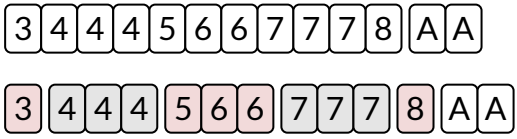
While we might be done with deriving multi-sided *tenpai* opportunities from the first decomposition, we're not done with decomposing the hand in full. If we pull out the 333 triplet and 567 sequence, we might see a tricky 11 + 246 + 88 complete *iishanten* pattern that adds acceptance on the 5, albeit with just a *shanpon* 18 wait.



Since we can accept all in-suit tiles, further decompositions from splitting up the triplet will only aid in identifying wait potentials. For example, the alternative sticky *iishanten* decomposition below might make it easier to identify the potential waits from drawing 123 outlined earlier.

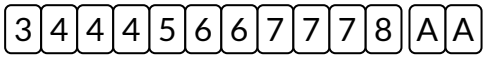


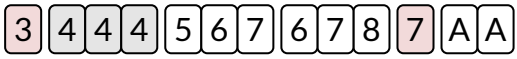
Next, we have a hand with multiple triplets. Due to the way they split up the hand, setting aside both triplets returns a 35 + 668 + AA complete *iishanten* hand with tile acceptance on 467A.



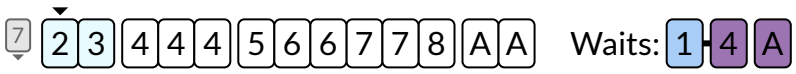
Although a 3 + 56 + 68 floating *iishanten* interpretation would suggest an *entotsu* 47A wait, the fact that we're using most of those tiles in the hand already make it a somewhat unappealing draw. (Analysis continues on the next page.)

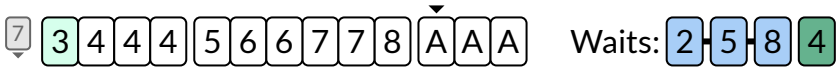
In order to extract the full tile acceptance on this hand and find improved potential *tenpai* waits, we need to break up the triplets. If we split up the 777 triplet, we can find a sticky *iishanten* pattern; the floating 3 and 7 tiles suggest tile acceptance on all in-suit tiles, and good waits on 2468.





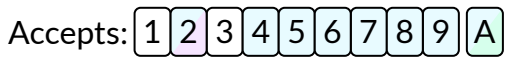
The 3444 grouping also suggests that drawing 2 will result in an *entotsu* 14A wait, while drawing A will result in a *ryantan* 235 wait. For the latter, the 567 sequence adds a *suji* 8 to our waits.

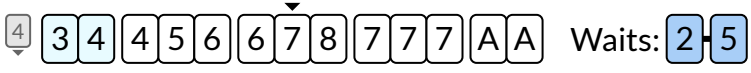




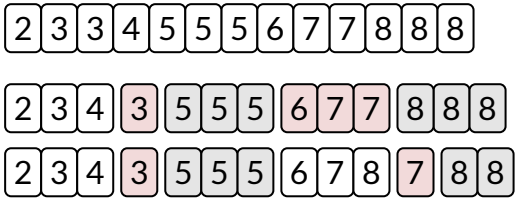
Additionally, the 6778 *nakabukure* group indicates that drawing 5 or 9 will leave a *ryanmen* 69 or 58 wait, respectively, after discarding the floating 3.

Breaking up the 444 triplet (and keeping the 777 triplet together) lets us make one final 'good' wait insight, by decomposing the hand into a 34 + 468 complete *iishanten*. This is where we discover that if we draw 7, rather than discarding 3, we should instead discard 4 to take a *ryanmen* 25 final wait. (This is also an alternative wait to take if we draw 5.)

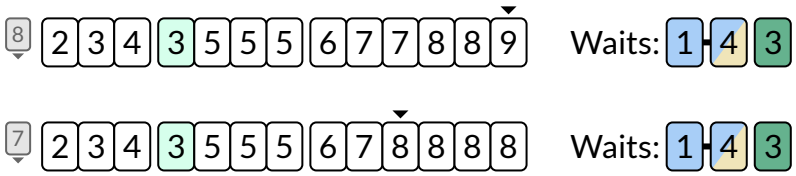




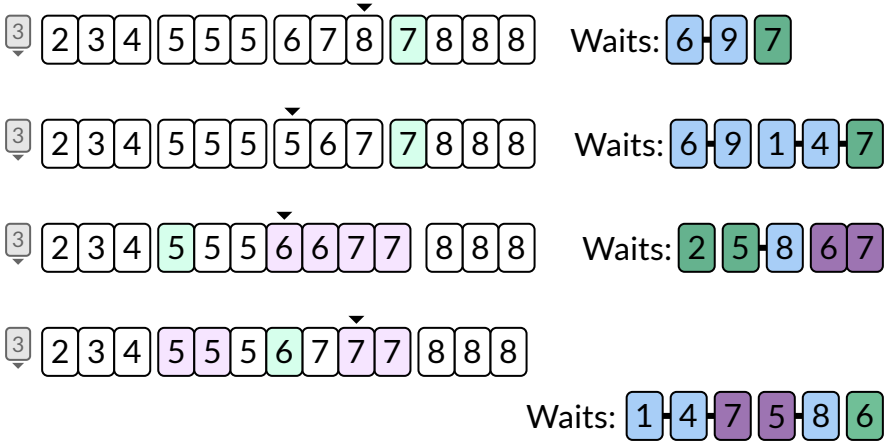
This final example has many opportunities for multi-sided waits. Setting aside the two triplets returns a sticky *iishanten* pattern with tile acceptance from 1-8; splitting the 888 triplet gives a different sticky *iishanten* to add tile acceptance on 9.



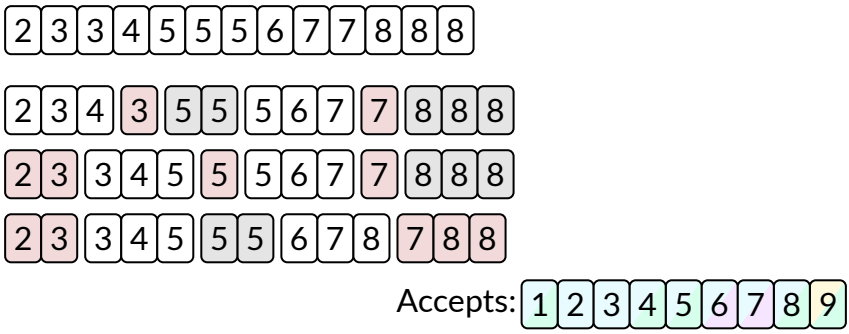
The compound 677 and 788 groups on the higher end of these breakdowns show how we can get at least a *kantan* 134 wait from using the 234 + 3555 groups after drawing any tile from 5-9.



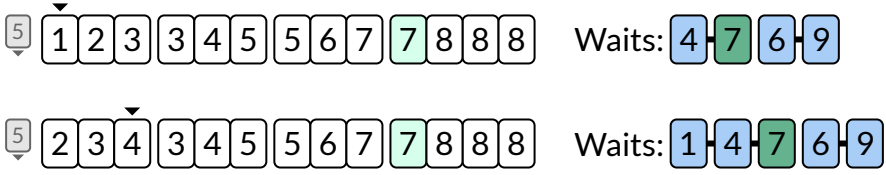
On drawing 5678, we can actually get better or alternative waits if we discard the 3 instead of a 7 or 8. For 8, discarding 3 gets us a *ryantan* 679 wait, while drawing 5 creates additional *suji* 14 extensions. Drawing 6 lets us take a sequential triplet + *shanpon* wait, while drawing 7 lets us make a *tatsumaki* shape; each also has a bonus *suji* extension using the 234 sequence. (Analysis continues on the next page.)



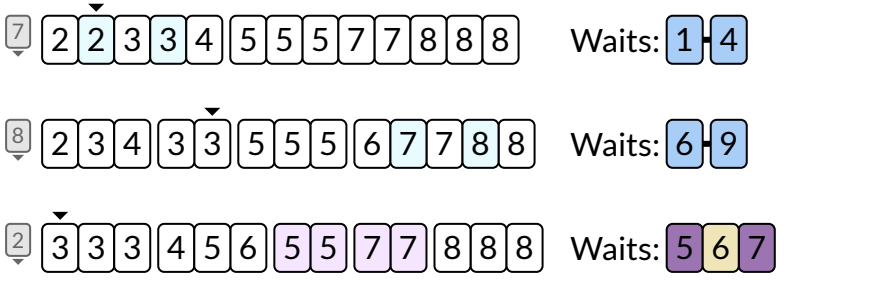
Returning to decomposing the original hand, if we change focus to splitting the 555 triplet, we can see other ways of using the 7888 group to find multi-sided waits.



Drawing 1 or 4, then discarding 5, gets us the *ryantan* 679 wait, plus *suji* extensions. There's an additional wait for the 4 thanks to the connection of the completed sequence.



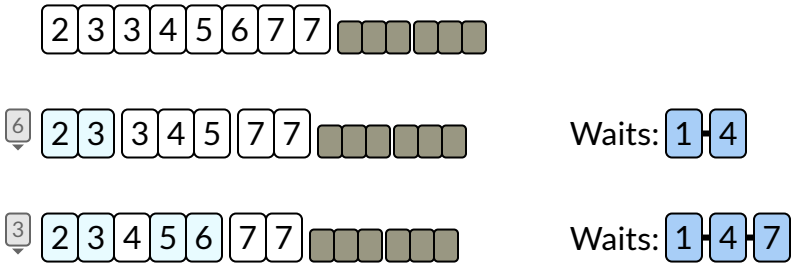
As for the remaining tiles, drawing 2 generates just the standard *ryanmen* 14 implied by the sticky *iishanten* decompositions, and the best wait after drawing 3 is a *ryanmen* 69 after discarding 8. An *entotsu* 358 wait is possible by discarding 7, but since there is only one tile of each type that isn't already in the hand, it's a poor choice. Discarding 2 gives an interesting 567 wait using the *suji*-gap carry rule, but it has one fewer possible tile available compared to the standard *ryanmen* wait (six tiles vs. seven).



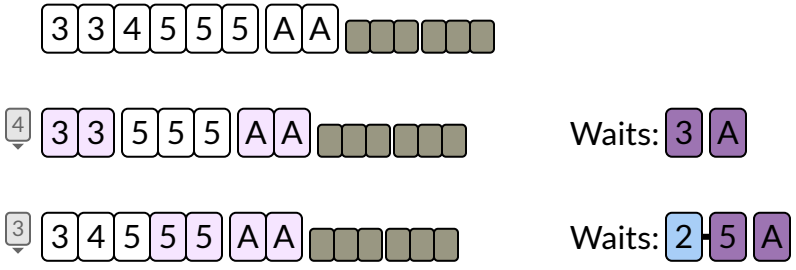
Advancing from *Iishanten* to *Tenpai*

While anticipating tile acceptance and waits while in *iishanten* is a lofty ideal, we are still ultimately restricted in advancing to *tenpai* by the tiles we draw or which are discarded by our opponents. When an opportunity to reach *tenpai* arises, we may have a choice between tiles to discard to choose our waits. In a complex hand, having a solid understanding of the rules by which waits are constructed will help you identify the discards that give you the best *tenpai* waits.

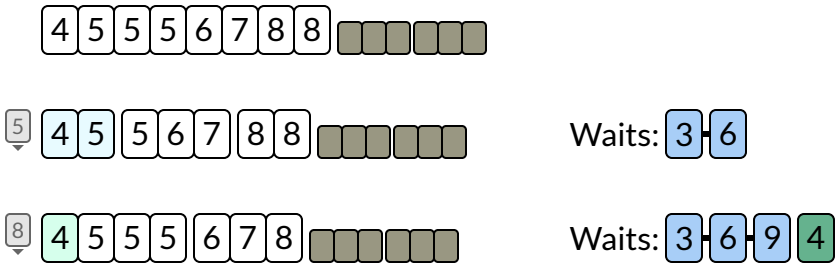
For example, in the following hand, we could discard the 6 for a *ryanmen* 14 wait. However, we're better off discarding a 3 instead, obtaining a standard *sanmen* 147 wait.



Here, discarding 4 will leave just a *shanpon* 3A wait. However, if we discard 3 instead, we can improve to an *entotsu* 25A wait.

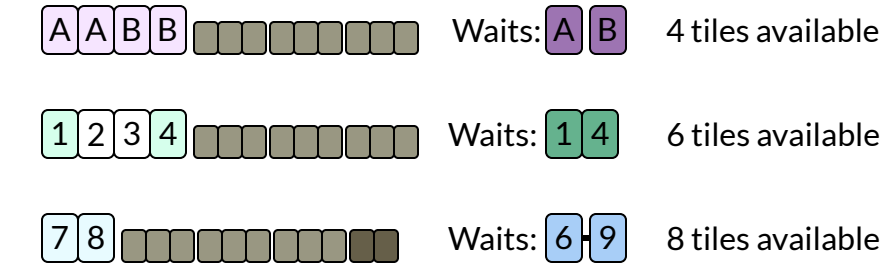


In this hand, discarding 5 to set 88 as our pair gives us a fine *ryanmen* 36 wait. But if we recognize the potential that triplets can have on obtaining complex waits, we should discard 8 to get not just the *sanmen* 369, but also the *tanki* 4 as our *tenpai* waits.



The decision of which tile to discard may not be as simple as just choosing the wait with the largest number of tile types. We should also consider how many tiles are available from our waits and whether the winning tile will affect the scoring patterns (*yaku*) that we can claim.

From the standpoint of only counting the number of raw tiles available, we generally favor waits based on *ryanmen* bases over *tanki* bases, and *tanki*-based waits over *shanpon*-based waits. When we have a *shanpon* wait, we are guaranteed to use two tiles per type, leaving at most two tiles per type to be drawn or called. Contrast that with *tanki*-based waits (like *nobetan*) where we only need to use one tile per type, leaving up to three to be drawn or called, and *ryanmen*-based waits where we could have all four tiles per type available for the win.

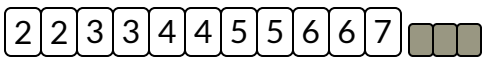


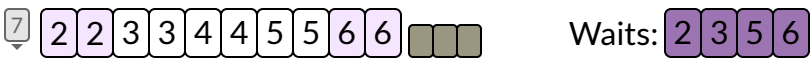
Kanchan and *penchan* waits can also have four tiles available per wait, making them effective wait extensions.

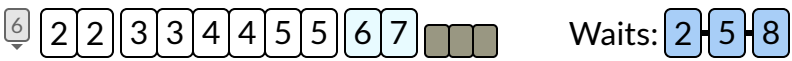
Consider the following hand. We can take *tenpai* in two different ways. Discarding the ***8***, we can take an *entotsu* 36***7*** wait, or we can discard a ***7*** for a *ryanmen* ***69*** wait.

While there are three different tiles in the *entotsu* wait, five of those tiles are already in the hand, leaving just seven (12 - 5) available to complete the hand. On the other hand, all eight of the tiles for the *ryanmen* wait could be available to be drawn or called. Furthermore, the *ryanmen* wait might be eligible for the *pinfu yaku*, while this is not possible for the *entotsu* wait.

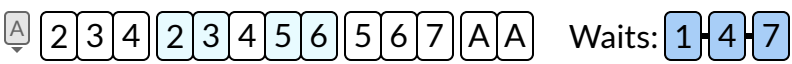
In this example, discarding 7 leaves five consecutive pairs, for a quadruple *shanpon* 2356 wait. Discarding 3 or 6 lets us take a *sanmen* 258 wait.



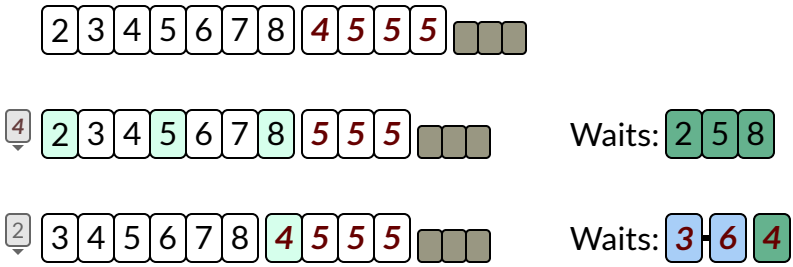




Each pattern has a maximum of eight tiles available, despite a different number of winning tile types. But we're more likely to prefer discarding the 6, as it can potentially obtain the *pinfu* and Two Identical Sequences (*iipeikou*) *yaku*. If the final set is a triplet, we can improve our wait by discarding from it down to a pair. The resulting *sanmen* 147 wait has nine available tiles, and may score the Two Times Two Identical Sequences (*ryanpeikou*) *yaku*.

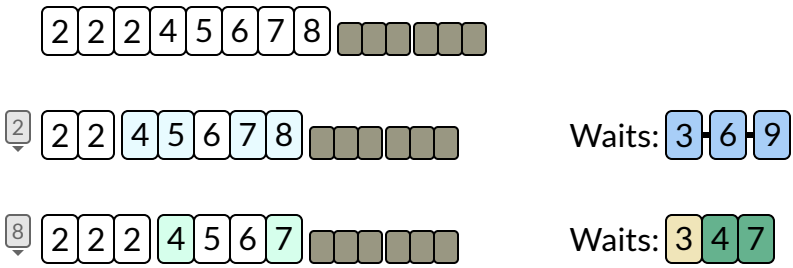


This example shows a comparison between *tanki*-based waits and *ryanmen*-based waits. If we discard ***4***, we get a *sanmentan* 258 wait; if we discard 258, we get a *ryantan* ***346*** wait.



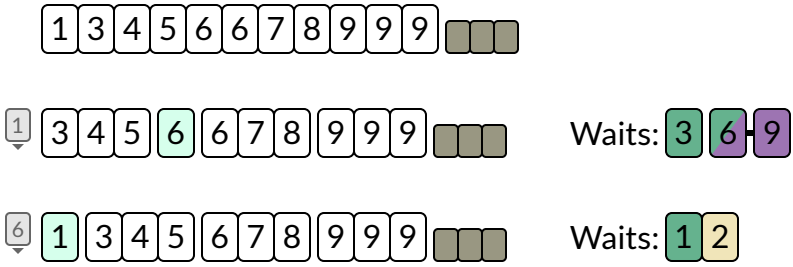
The winner in terms of total number of available tiles is the *ryantan* wait. The *sanmentan* has nine tiles available, but the *ryantan* has eleven tiles available. Additionally, if the final set is a sequence, then winning on ***36*** satisfies the *pinfu yaku* requirements.

Similarly, in this example, our main choices are to discard 2 to take a standard *sanmen* 369 wait, or to discard 8 and take a trickier extended *kantan* 347 wait.



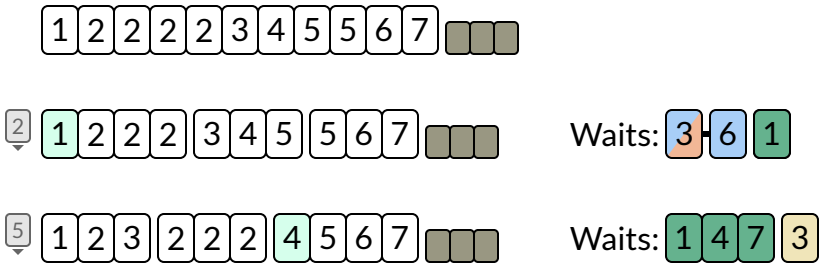
Here too, we should prefer the simpler standard *sanmen* from discarding 2. There are up to eleven tiles available for the standard *sanmen* wait, along with *pinfu yaku* potential, while there are a slightly fewer ten tiles available for the extended *kantan* wait.

Of course, it is not always so simple as to take the wait with *ryanmen* elements or added *kanchan* or *penchan* waits. Discarding 1 from this hand returns a *nobetan* + *aryanmen* combination 369 wait. However, we also have the option of discarding 6, leaving a *kantan* 12, using the 999 triplet's influence extended by the 345 and 678 sequences.



Normally, the three-sided wait would have more tiles available, but the 999 triplet means we have a maximum of six available tiles. So in this case, we should prefer the extended *kantan* wait, which has up to seven tiles available. Additionally, winning on 2 will let us claim the valuable Full Straight (*ikkitsuukan*) *yaku*.

This final example is one where we have a tradeoff in scoring potential between wait options. If we discard 2, we can get an extended *pentan* 136 wait. This is already quite good, with up to nine available tiles and potential for *pinfu* on 36 if the final set is a sequence. However, if we want a larger wait at the cost of losing any chance of *pinfu*, we can discard 5 for an extended *kantan* 1347 wait, with up to twelve available tiles.



Postface: Multi-Sided Wait Training

There are many other real-game considerations in choosing a *tenpai* wait that are beyond the scope of this guide. The available tile counts listed in the last chapter assume that no winning tiles have been discarded or are in previously-called sets. Certain tiles, like 1s, 9s, and honors, are often more likely to come out of opponents' hands due to their relative lack of usefulness. Scoring concerns may require you to build your hand in a specific direction.

The main objective of this guide is to help you read your waits and opportunities when they come up, though without much thought on how to guide your hand towards those goals. The examples in this guide alone will not be exhaustive enough to build mastery in reading multi-sided waits.

And so, in closing, I encourage you to put some time into practicing reading hands and finding their waits in order to build your brain's pattern recognition and analysis skills to prepare for real games. If you see a complex hand wait in your own games and don't understand it, whether your own or an opponent's, take some time to do a quick review. Additionally, there are a number of internet resources that you can use to help you in your training. A few selected sites follow below.

Mahjong Waits Trainer https://mahjong-trainer.netlify.app/

This app is a good place to start for wait training. You can work your way up from four tiles up to a full hand of thirteen, in one or two suits. You can also adjust the minimum number of waits to force more complex waits as well (though there is, as of this writing, no option for allowing *noten* hands as a possibility). If you make a mistake, you can see how the waits you missed would complete the hand.

Chinitsu Trainer https://chintore-4cc86.web.app/

This app provides a more structured wait reading experience, with set quizzes on seven- and ten-tile patterns. At the end of each quiz, you'll be graded on your accuracy and speed, and will be able to review the questions you missed. In order to try the ten-tile quizzes, you need to answer all seven-tile patterns correctly, which comprehensively cover the twenty patterns outlined at the end of Chapter 1 of this guide.

Timed *Chinitsu* Quizzes
http://hinakin.main.jp/mckonweb/index.htm

Want some additional challenge in your training? This timed quiz will test your wait reading on fully-closed flush hands at multiple difficulty levels. Level 1 is a normal mode where each hand has at least one wait, while Level 2 adds *noten* hands into the mix. Level 3 ensures that each hand has a complex wait, and Level 4 feeds you unsorted hands to parse.

If you click on the 何切る tab, you can test your ability to choose between waits. Here, you are given a fourteen-tile *tenpai* hand and need to figure out which tile to cut such that the remaining tiles give you the widest set of waits.

Finally, the 対戦 tab will let you play against a computer opponent in a 1v1 match of building single-suited hands. When your opponent discards, you must decide whether to call *ron* (ロン) or draw a tile (ツモる). On your turn, you must decide whether to declare *tsumo* (ツモ) or click on a tile to discard. Just be careful not to make an incorrect call (*chombo*), or you'll pay a *mangan* penalty!

Incidentally, the last tab, 牌姿記憶, is a tile memory test, for hands of five, eight, or thirteen tiles. Whether or not this is a helpful exercise for you to train your attention, I'll leave that to you to decide.

Bamboo Mahjong

https://www.gamedesign.jp/games/bamboo/

Looking for an alternative 1v1 CPU battle? Try this game. Hit the 開始 button, and that'll start the game. In contrast with the previous site, *riichi* (立直) can be declared (though without requiring a point stick investment), and the *chombo* penalties are *yakuman* in size!

Mahjong Efficiency Trainer

https://euophrys.itch.io/mahjong-efficiency-trainer

You can use this app to help you train on advancing your hand towards *tenpai*, but make sure to go into the settings and limit the number of suits to draw from. Additionally, pay keen attention to the caveats listed with the app. In particular, the trainer only cares only about immediate tile acceptance. There will be cases in real play where you will want to make a less efficient discard with plans for a more valuable hand, or choose a discard with better future efficiency (including your final wait). So when the trainer highlights that you haven't maximized your efficiency, make sure you think about, and understand, what you've traded off and if it would be worth it in an actual game.

Notes on Offline Training

Of course, you can also perform training with physical tiles. Assemble a single suit of tiles, pull out a random hand, and find its waits. You can start with just seven tiles, then gradually build up to ten or thirteen tiles. If the hand is *noten*, think about which tiles would bring the hand closer to *tenpai*, and what tile you would cut after drawing or calling a beneficial tile. You can also start with eight, eleven, or fourteen-tile hands to practice reading which tile to cut. Practicing these things can help reduce the thinking time you need to use in real game situations!

With physical tiles, you can also make random hands more interesting by limiting the pool of tiles. By excluding the edge tiles, this increases the chances of a complex hand to be analyzed. In これだけで勝てる！ 麻雀の基本形８０, author Fukuchi Makoto suggests doing this training while only using numeric tiles from 3-7. If you limit the tiles in this way, you can also consider assembling hands from two suits, to provide broader training material on which tile to cut.

Sources and Credits

Reading Waits Infographic

Development of this guide was preceded by a standalone infographic on *tenpai* waits, linked in the QR code to the right, hosted on Google Drive. It summarizes the wait patterns seen in the first chapter of this guide, along with a few irregular additions.

多面張理論 by 01

https://ameblo.jp/010101/entry-12409243772.html

The general structure of the first two chapters of this guide, and many of the examples used, come from 01's guide. This guide wouldn't exist if I hadn't seen this one.

麻雀技術の教科書 by 井出 洋介, 小林 剛

A list of the seven-tile patterns in the appendix of this book inspired the creation of the waits infographic linked above. I've also found this book, along with the subsequent books in the series, a useful general learning resource to get up to intermediate skill levels.

Riichi Mahjong Wiki: Machi https://riichi.wiki/Machi
JP Wikipidia: 聴牌 https://ja.wikipedia.org/wiki/聴牌

Names for wait patterns were pulled from these two Wikis' pages.

これだけで勝てる！ 麻雀の基本形８０ by 福地 誠

As noted in the postface, there are some suggestions in Chapter 5 of this book regarding *chinitsu* training with physical tiles. There is also a chapter on complex shapes (Chapter 3), but is not written to the same depth as full flush hands as in this guide. Among the sources listed here, this book is the most geared towards beginners.

アガリ率５％アップ何切る by 小林 剛, 竹内 隆之

Despite the book's intriguing title, it's really just all about understanding multi-sided waits. If you wanted a book that is more professionally developed than this guide, take a peek. If you wanted more "what would you discard" problems like those presented in the last section of this guide's Chapter 4, you'll find plenty of those in the first half of this book. The other half contains a different breakdown of base forms and extensions that can help supplement (or perhaps supplant) the methods described here.

ウザク式麻雀学習 牌効率 by G・ウザク

If you're looking for a book that goes into more depth on tile efficiency than this guide, try checking this book out. While the book is mostly about general hand efficiency, there is one chapter that is dedicated to discussion of multi-sided waits.

tenhou.net *Shanten* Calculator https://tenhou.net/2/

If you need to quickly solve for a hand's *shanten* (distance from *tenpai*) and what tiles will bring it closer to *tenpai* or completion, this site is extremely convenient. I got plenty of use from it to explore and check many of the examples seen in this guide.