

Section 7. Unusual Mahjong

This section contains somewhat unusual mahjong mysteries. The reader may encounter either an unusual way of playing the deal, or unusual rules, or unspecified conditions etc.

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Mysteries

7-1. Lost Bet



Today's mystery is not a mahjong problem *per se*, but instead, it relates to "Math-Jong" – math around the game of mahjong. The date of our story is March 8th. Sherlock Holmes, Dr. Watson, Mrs. Hudson and Inspector Lestrade are sitting at 221B Baker Street playing mahjong. They are arguing about what it means to be a high-level tournament player.

"I think that a high-level player wins each and every deal," started Lestrade.

"And I think that is not enough to win. It is also important to be able to play against a specific player. It's not a secret that in certain situations one can pass on declaring mahjong on one player's discard in favour of winning from a specific player, or from the wall," replied Holmes.

"And what about the case where one player's game points will be equal to another player's game points?" asked Mrs. Hudson. "This situation requires extremely fine planning."

"Well, it's just a coincidence," Dr. Watson joined the conversation. "I'll bet that if at the end of today's game we have the same score with you, dear Mrs. Hudson, I'll have to do something for you, like, for example, make dinner tonight."

"Good idea, my dear Watson! Watson, but why only tonight? Why not the whole week? Say, I would be ready to clean the house for the whole week, if my score and Mrs. Hudson's score are equal," said Holmes.

"Well, and I'm ready to deliver products to 221B Baker Street for the whole week," proclaimed Lestrade.

So, the game starts. With just one more deal to go, the score is as follows: Mrs. Hudson is in the 3rd position with exactly zero game points. All the gentlemen players have **different** game points.

"How ever can I manage to win the bet?" thought Mrs. Hudson. "My hand is not good, so, even if I win the deal I can get even with only one gentleman's score."

In a while, Mrs. Hudson hears "Hu!". "I lost," she thinks. However ...

After counting it turned out that the game points of all four players became ... equal to 0!

"Could you imagine that?" said Watson.

"It's elementary, my dear Watson!" Holmes answered. "Well, gentlemen, great deeds await us! For the whole week! This is a remarkable gift for Mrs. Hudson on the 8th of March!"

"And you, Mrs. Hudson, you are not so simple as it may appear," grumbled Inspector Lestrade.

Please, explain what has happened in the last deal.

Question 1: How many game points did the various players have before mahjong was declared?

Question 2: Who declared mahjong?

Question 3: What is the mahjong hand's value?

Question 4: Whom to blame for the lost bet?

[Hint](#)

[Solution](#)



7-2. Santa's Sock

On Christmas eve, it was snowing. All four of our friends, Sherlock Holmes, Dr. Watson, Mrs. Hudson and Inspector Lestrade, are sitting at the mahjong table at 221B Baker Street dreaming away...

"Tonight, I would like to get something... something extraordinary," said Mrs. Hudson.

"We might play by some exotic rules," proposed Lestrade.

"And I think that everybody has a Christmas present tonight. But Santa Claus, himself, where does he get his own present?" asked Dr. Watson.

"I propose to combine exotic rules play and Santa's present," said Holmes. "For instance, when a tile is played in some extraordinary fashion, then it should go into Santa's sock!"

"I like that idea! For instance, Flowers go to the sock!"

"And, for example, if a player takes a winning tile from the wall for mahjong, then the player **does not declare** this mahjong, but puts this tile into the sock. Thus, a gift for Santa Claus will be undeclared mahjong. Only, it is important that the move after such a mahjong be transferred to another player," Holmes continued.

"Let's play by such unusual rules!" Lestrade proclaimed.

The game starts

So be it, the wall is built, the tiles are dealt. East (Holmes) should replace a Flower, but instead of placing it nearby, he puts it directly into Santa's sock. The tile is replaced.

"Incredible! I have mahjong! My winning tile goes to Santa's sock," said Holmes. "Now South moves."

Note: Deep analysis of the Rules shows that East **cannot have** the winning tile, so let's assume that the tile after the Flower replacement is to be counted as the winning tile.

South, after Flower replacement, also got mahjong. The winning tile went to Santa's sock. The same happened to West and North. After the first round, **nothing** has changed. Eventually, **all** the wall tiles come to be in Santa's sock.

Question: Please, re-construct all hands and all tiles from the wall which went to Santa's sock.

[Hint](#)

[Solution](#)



7-3. Christmas Wind

On Christmas Eve our four, Holmes, Dr. Watson, Mrs. Hudson and Inspector Lestrade played mahjong. When a few tiles remained in the wall, Watson asked, "Would you please tell me what is the Prevalent Wind right now?"

As he spoke, the window shutters suddenly opened and wind filled the room.

"Christmas Wind!" Lestrade jokes.

When the window was shut, and everybody had calmed down, they found out that **all** tiles in the remaining wall had turned face upward.

"And now, whose turn is it to move?" asked Mrs. Hudson.

"I don't remember," Holmes answered. "And we also don't remember," continued Watson and Lestrade.

"It is rather strange," Mrs. Hudson said. "**Any** of the remaining tiles fit my hand to make mahjong!"

"And to my hand also, and to mine," echoed the gentlemen.

Please, provide all hands and tiles left in the wall under two (independent from each other) conditions:

Question 1: Highest possible number of tiles left in the wall with **different** hand types.

Question 2: Highest possible number of tiles left in the wall with **the same** hand types.

Note: Here by "type" we mean the combination of hand constructing elements (Chow, Pung, Pair, Knitting sequence etc.).

[Hint](#)

[Solution](#)



7-4. 32nd of December

Important notice: Please note that points for any fan could be scored only for the winning hand. Though let's assume that fan points calculation is also possible for not-won-yet hand, just for the sake of solving the proposed problem.

New Year's Eve. Fun flowed, the chimes struck twelve, and after a glass of champagne, Inspector Lestrade offered, "Why not play mahjong right now, on January 1st?"

"And I'm still inclined to hope that before we see off an old year and go to bed, the New Year won't come! So, now it is still **December**, say... 32nd of December!" laughed Mrs. Hudson.

"A very intriguing turn," said Holmes. "So, let's play mahjong."

The first deal ended in a draw when Watson suddenly said, "Look, the neighbour on my right (it was Lestrade) melded **twelve** tiles in the same suit, and, most interesting, they contain a 32-point fan. Quite a mystical connection, the numbers 32 and 12. Ah, no wonder," a wild guess lit up his face, "that's because now the 32nd of the 12th month, **32nd of December.**" "But what is interesting," he continued, "is the fact that my hand was waiting for all the tiles melded by my right-hand neighbour."

Question 1: Please, provide a version of Watson's and Lestrade's hands.

When the second deal ended in a draw, Lestrade said, "That's really a mystery, but the neighbour on my right, Holmes, melded **twelve** tiles in the same suit, containing a 32-point fan, and my hand was waiting on **all** these melded tiles, exactly as in the first deal."

Question 2: Please, provide the hands of Holmes and Lestrade, with the constraint that all tiles in the waiting hand are **different**.

As you may guess, during the third deal, the situation repeated. Holmes' hand was waiting for twelve melded tiles of the **same suit** of Mrs. Hudson (the neighbour on Holmes' right).

Question 3: Please, provide the hands of Holmes and Mrs. Hudson under the condition that Holmes melded a Pung of Dragons (i.e., he has exactly **ten** tiles in his hand).

The fourth deal cut off all conceivable scenarios. In the end, **each** player melded exactly **twelve one-suit** tiles containing a 32-point fan. And, each of the players' hand was waiting for **eight** (not twelve!) tiles of their right neighbour's hands.

Question 4: Please, provide hands of all players.

[Hint](#)

[Solution](#)



7-5. Dr. Watson's Mahjong Dreams

Sherlock Holmes and Dr. Watson returned to the house on 221B Baker Street, after a sleepless night spent in ambush while investigating a case. Surprisingly, Inspector Lestrade and Wan Dongtiao were waiting for them to play mahjong.

"We are here because we agreed to play on Sunday at 10 a.m.," said Mr. Lestrade.

"Wow, it's already Sunday," murmured Dr. Watson with very sleepy eyes.

So the game started, the dice were thrown, the wall was broken, and the tiles were dealt. Before East prepared to shed his first discard, however, something totally unexpected happened, Dr. Watson fell asleep.

"What should we do now? Mrs. Hudson is out. Can we play with just three?" asked Mr. Lestrade, looking at Dr. Watson snoring.

"I propose we play as much as we can, and then we'll decide," said Mr. Holmes.

So the game continued. Players played their tiles, making declarations when after "Hu", Dr. Watson woke up.

"Gentlemen, I had very interesting dreams. The last one resembled this "Hu" declaration. Well, I see the deal has now finished."

Question: Provided Dr. Watson did *not* play while sleeping, and the deal continued for as long as it was possible without disturbing Dr. Watson, please tell how many dreams Dr. Watson saw during his sleep, where each dream corresponds to exactly one successful declaration: "Flower", "Chow", "Pung", "Kong", "Hu". For clarity, there were no false "Hu" declarations.

[Hint](#)

[Solution](#)



7-6. Mrs. Hudson in the Spotlight

Mrs. Hudson's successful play at the London MCR Championship drew everyone's attention so that even the correspondent of the newspaper "Mahjong News" decided to watch her play. Here is an abstract from the article describing a particular deal, 'Mrs. Hudson managed quite quickly to reach a waiting hand. But the most amazing thing is the fact that after each of her moves after getting to the wait (for valid 8+ points hand) and until she declared "Hu!" on a discarded tile, Mrs. Hudson's hand changed and the hand's value increased.'



Question: Please, provide the chain of **a maximal** length of Mrs. Hudson's hands under the following conditions:

- the hand value is counted specifically on a discarded tile
- the hand value with multiple waits is counted by its minimum value
- at least one tile in the hand (except for flower tiles) must be changed after each move

[Hint](#)

[Solution](#)

Hints

7-1. Lost Bet

Question 2: More than one "Hu" has been declared.

Question 3: Beside normal "Hu" also false "Hu" has been declared.

[Solution](#)



7-2. Santa's Sock

Please, find the hands waiting for Suit tiles and a hand waiting for honor tiles.

[Solution](#)



7-3. Christmas Wind

Question 1: Since hand types should be different for all four hands that leaves only one set which will be formed by waiting tiles from the open wall.

Question 2: What hand structure is always waiting for three different tiles?

[Solution](#)



7-4. 32nd of December

Please, try to identify which 32-point fans can be used for solving the mystery.

[Solution](#)



7-5. Dr. Watson's Mahjong Dreams

Please find a way to not let Dr. Watson's discard remain unclaimed. The other point is to determine which kind of kongs can be used.

[Solution](#)



7-6. Mrs. Hudson in the Spotlight

Please consider a list of technical actions carried out upon Mrs. Hudson's waiting hand for the hand still to be waiting while changed.

[Solution](#)

Solutions

7-1. Lost Bet

Answer 1. Before mahjong was declared, the players had:

- Lestrade – 58 points
- Watson – 18 points
- Hudson – 0 points
- Sherlock – -76 points

Answer 2. Mahjong was declared by three players – Watson, Lestrade, and Holmes.

Answer 3. Dr. Watson declared not-enough-points mahjong, he has to pay 10 points in favor of each player, so he loses 30 points. Lestrade was in such a hurry that he confused the winning tile for his mahjong with the tile in another suit, and he declared a not-legal-structured mahjong. He has to pay 20 points in favor of each of the players losing 60 points. Holmes declared 22 points mahjong from Mrs. Hudson.

Answer 4. Let's calculate how many points the players will have after the last deal:

- Lestrade = $58 - 60 + 10 - 8 = 0$ points
- Watson = $18 + 20 - 30 - 8 = 0$ points
- Hudson = $0 + 20 + 10 - 8 - 22 = 0$ points
- Sherlock = $-76 + 20 + 10 + 24 + 22 = 0$ points

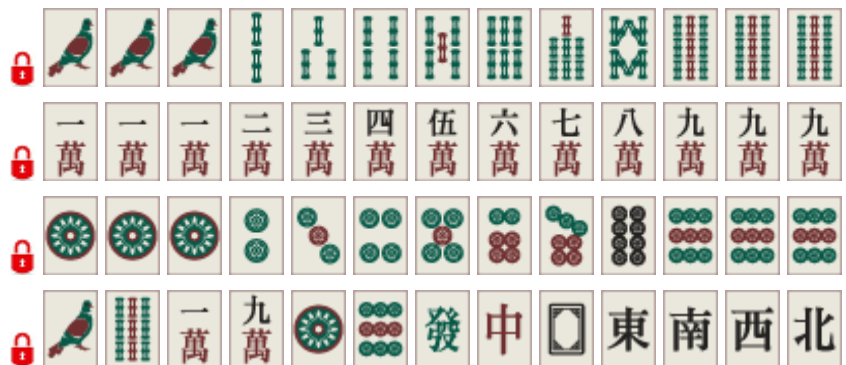
Whom to blame for the lost bet? Probably, Watson and Lestrade for declaring false "Hu".

P.S. There is another solution available with starting points 80, 40, 0, -120 with two false "Hu" and self-drawn mahjong for 22 points.



7-2. Santa's Sock

This problem is not as difficult as it might be thought at first glance. Besides eight Flower tiles, we need to cope with 84 wall tiles making it $84/4=21$ tiles for each player's hand. Such a vast wait easily could be arranged with three **Nine Gates** waiting hands and one **Thirteen Orphans** waiting hand:



In the wall / sock there are $7*3*3=63$ "simple" suit tiles and $7*3=21$ Honor tiles totaling 84 tiles.

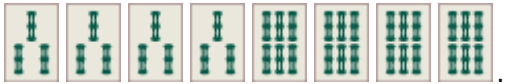


7-3. Christmas Wind

Answer 1. It is rather easy to construct four hands waiting double-sided for tiles like







. In such a case we could place into retaining wall up to eight tiles:



Since the only constraint is to fit one Chow, the other two tiles might be a Pair and three sets: Chow-Chow-Chow, Chow-Chow-Pung, Chow-Pung-Pung, Pung-Pung-Pung.

Enhancement. There is a way to increase the number of tiles from eight to nine. We have

three hands with  waiting for  with the other eight tiles in hand as a Pair and two sets: Chow-Chow, Chow-Pung, Pung-Pung. The fourth hand has a structure [Honors and Knitted Tiles](#) with missing Dots tiles. So, altogether there are four

tiles , one  and four tiles  totaling nine tiles in the wall.

Answer 2. All four hands have a structure [Honors and Knitted Tiles](#) with [Knitted Straight](#) and

four Wind tiles  waiting for . The wall consists of twelve

Dragon tiles: .

Note: Unfortunately, an interesting idea with four [Thirteen Orphans](#) waiting hands does not work since there would be no waiting tiles left to be placed into the wall.



7-4. 32nd of December

Before we start let's take a look at possible 32-points fans. There are only three such fans:

- fan #16 [Four Pure Shifted Chows](#)
- fan #17 [Three Kongs](#)
- fan #18 [All Terminals and Honors](#)

Please note that fan #18 is applicable only for the whole hand, so no use for our purpose. A fan #16 is available in two sub-fan versions: with step 1 and step 2. Let's also note that all three options (fan #16 step 1, fan #16 step 2 and fan #17) ideally meet requirements for the problem having exactly twelve tiles: four sets in fan #16 and three sets in fan #17.

Answer 1. A plenty of options might be offered for a solution, let's start with the toughest one – [Four Pure Shifted Chows](#), step 2.

Lestrade (twelve melded tiles):

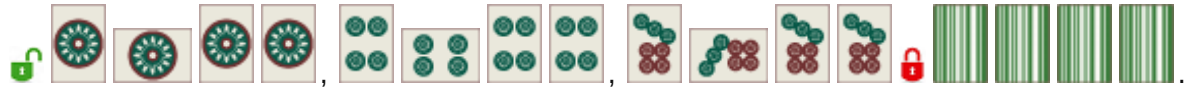


Watson (thirteen tiles in hand):

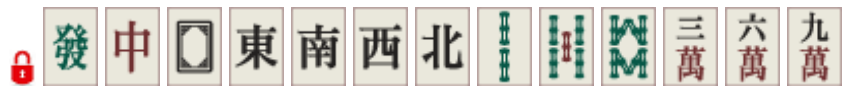
 , well-known “Nine Gates”
wait (*not* fan but wait!).

Answer 2. Let’s assume that Holmes has three melded kongs in one suit with the step 3 and Lestrade is waiting for **Greater Honors and Knitted Tiles**.

Holmes (twelve melded tiles):

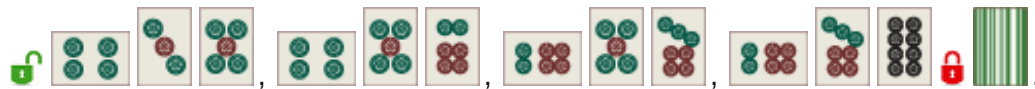


Lestrade (thirteen tiles in hand):



Answer 3. Let’s assume that Mrs. Hudson has melded **Four Pure Shifted Chows**, step 1.

Mrs. Hudson (twelve melded tiles):





Holmes (three melded tiles and ten tiles in hand):



Please, look at Holmes’ hand, what is this? This is **Eight Gates** the middle brother of **Nine Gates**. Having structure **311113** such a one-suit hand is waiting for all tiles in the range plus two outside the range, one from both sides.

Answer 4. One possible solution is that each player has three melded kongs, two of them are in one suit, numbers are shifted with step 3. This gives only three melded sets, the rest in hand is some pair and two one-suit tiles waiting double-sided for chow for tiles in neighbour’s one-suited kongs.

For instance, when Holmes has  , Lestrade has  in hand. We will not show all four hands here.



7-5. Dr. Watson's Mahjong Dreams

To start with, Dr. Watson can sit at any wind except East, let's assume it is North. The key issue to solve for continuing the deal is to not let West's discard remain unclaimed, otherwise, the game will stall. So, every West's discard must be punged or konged by East

or South. East can claim only pungs and kongs, while South and West can declare pungs, kongs and chow. "Hu" can be declared by any of the three players except North. Flowers can be declared by everybody except North, and to maximize the number of calls, none of the flowers should be declared during the flowers replacement phase (right after the dealing of the tiles).

One more crucial point about kongs: concealed or melded kongs take only one declaration, while a promoted kong takes two declarations: pung, and then kong. In fact, this process requires two turns due to a rule from the "Green Book" (see p. 3.6.8): "You may not kong in the same turn as one in which you have melded a chow or a pung." It is allowed, however, to declare a second kong after declaring a first kong in the same turn.

So, the chain of events may look like (numbers in brackets show the total number of declarations = Watson's dreams):

- dealing tiles
- no Flowers replaced
- Watson falls asleep
- East discards
- South declares Pung then discards (1)
- West declares Pung then discards (2)
- East declares Pung then discards (3)
- South declares Pung then discards (4)
- West declares Pung then discards (5)
- East declares Pung then discards (6)
- South declares Pung then discards (7)
- West declares Pung then discards (8)
- East declares Pung then discards (9)
- South declares Pung then discards (10)
- West declares Pung then discards (11)
- East declares Melded Kong (12)
- East declares Promoted Kong, which repeats three times (13, 14, 15)
- South takes a tile from the wall and declares Flower, it repeats four times (16, 17, 18, 19)
- South takes a tile from the wall and declares Promoted Kong, which repeats four times (20, 21, 22, 23)
- West takes a tile from the wall and declares Flower, it repeats four times (24, 25, 26, 27)
- West takes a tile from the wall and declares Promoted Kong, it repeats four times (28, 29, 30, 31)
- West discards, East declares "Hu" (32)
- Watson wakes up

Altogether, Watson has seen as many as 32 mahjong dreams.

P.S. If unsuccessful declarations are to be counted, then there might be the possibility of chow-declarations being bumped by pungs, and multiple "Hu".



7-6. Mrs. Hudson in the Spotlight

Let's consider a list of technical actions carried out upon Mrs. Hudson's waiting hand for the hand still to be waiting while changed (part of hand except for flower tiles) after a move is finished:

- drawing one tile from the wall, discarding the other tile
- declaring any kind of kong, combined with drawing a tile from the wall
- declaring Flower, combined with drawing a tile from the wall
- declaring pung
- declaring chow


For draw-and-discard action hand value may be increased by getting points for new scoring elements like wait, voided suit, hand as-a-whole change (**Outside Hand**, **Reversible Tiles**), etc. Flower declaration without change of hand does not work by mystery conditions, hence, we need draw-and-discard action tricks. Kong declaration is ideal for hand value increase due to acquiring additional points from the number of kongs in hand. Pung declaration may be ineffective. Chow declaration is always ineffective.

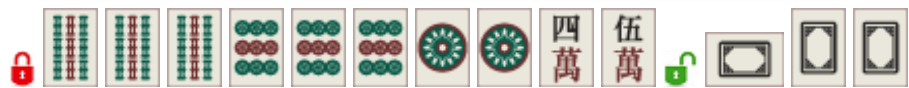
The general plan for the chain of waiting hands consist of following parts:

- 3-pung hand is converted to 4-pung hand
- four kong declarations
- eight flower declarations
- tricks around voided suit, **Outside Hand** and **Reversible Tiles**

How long can this chain be? Out of 144 tiles, $13 \times 4 = 52$ tiles must always be placed in 4 players' hands. Mrs. Hudson's hand should have 4 extra tiles in kongs and 8 flowers. Thus, $144 - 52 - 4 - 8 = 80$ tiles must inevitably go to the discard zone. On a rough count, a chain length can be limited by $80 / 4 = 20$. Fortunately, any single declaration by other players provides one additional wall tile, altogether up to $4 \times 3 = 12$ tiles may be added to the pool increasing chain length to the value of 23. The other possibility to increase length is to neglect hand efficiency issues – pick tile for the wait so that hand value increases while the number of available tiles may be lessened.

Here is a chain of 27 (!) hands (on the edge of efficiency, increased efficiency when three other players declare chows hence eliminating critical tiles will lessen the chain for 4-5 hands) based on pungs / kongs, flower combos and tricks about pattern groups. Hand value is calculated on discard by mystery conditions. For any of Mrs. Hudson's waiting hands, we will count discarded, melded, standing and wall tiles after Mrs. Hudson's discard, describing if necessary moves of other players before her next move. A round starts with West and follows North, East, and South.

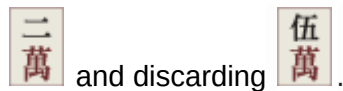
1. Mrs. Hudson is sitting on South and takes first East discard of , "Pung!".



Hand value = 2×1 (Pung of Terminals) + 2 (Double Pung) + 2 (Two Concealed Pungs) + 2 (Dragon Pung) = 8 points.


Melded = 3, standing = 13 (E) + 10 (S) + 13 (W) + 13 (N) = 49, discarded = 1, wall = 91 tiles.



2. Simple draw-and-discard round, South creates one point for wait after taking from the wall



Hand value = $2 \times 1 + 2 + 2 + 2 + 1$ (Closed Wait) = 9 points.

Melded = 3, standing = 13 + 10 + 13 + 13 = 49, discarded = 5, wall = 87 tiles.

3. Simple draw-and-discard round, all three other players discard . South moves wait,

getting Outside Hand after taking from the wall  and discarding .



Hand value = $2 \times 1 + 2 + 2 + 2 + 4$ (Outside Hand) + 1 (Edge Wait) = 13 points.

Melded = 3, standing = 13 + 10 + 13 + 13 = 49, discarded = 9, wall = 83 tiles.

Now, to avoid a long and detailed description of steps 4 through 26, we only show Mrs. Hudson's hand and provide the hand's value calculation.



Hand value = $3 \times 1 + 2 + 2 + 2 + 6$ (All Pungs) + 1 (Single Wait) = 16 points.



Hand value = $3 \times 1 + 2 + 2 + 2 + 6 + 1 + 1$ (Flower Tiles) = 17 points.



Hand value = $3 \times 1 + 2 + 2 + 2 + 6 + 1 + 1$ (One Voided Suit) + 1 = 18 points.



Hand value = $3 \times 1 + 2 + 2 + 2 + 6 + 1 + 2$ (Concealed Kong) + 1 = 19 points.



Hand value = $3 \times 1 + 2 + 2 + 2 + 6 + 1 + 2 + 1$ (One Voided Suit) + 1 = 20 points.



Hand value = $3 \times 1 + 2 + 2 + 6$ (One Melded and one Concealed Kongs) + 6 + 1 + 1 = 21 points.



Hand value = $3 \times 1 + 2 + 2 + 6 + 6 + 1 + 1$ (One Voided Suit) + 1 = 22 points.



Hand value = $3 \times 1 + 2 + 2 + 6 + 6 + 1 + 8$ (Reversible Tiles) + 1 = 29 points.



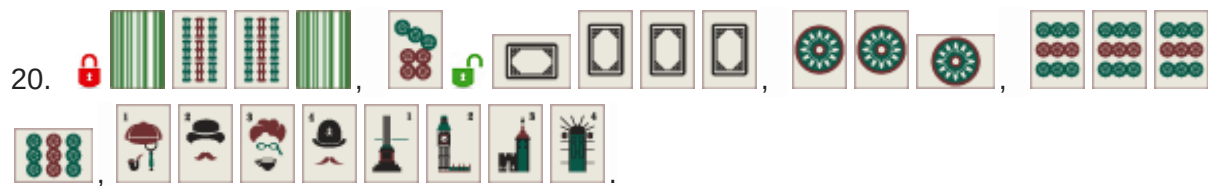
Hand value = $3 \times 1 + 2 + 2 + 6 + 6 + 1 + 8 + 2$ (Flower Tiles) = 30 points.



Hand value = $3 \times 1 + 2 + 2 + 6 + 6 + 1 + 8 + 8$ (Flower Tiles) = 36 points.



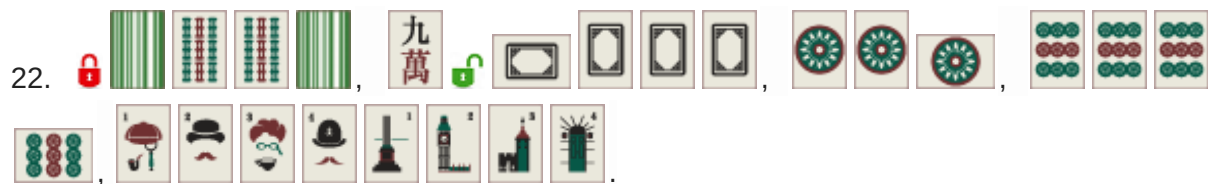
Hand value = $3 \times 1 + 2 + 2 + 32$ (Three Kongs) + 6 + 1 + 8 = 54 points.



Hand value = $3*1 + 2 + 2 + 32 + 6 + 1 + 1$ (One Voided Suit) + 8 = 55 points.



Hand value = $3*1 + 2 + 2 + 32 + 6 + 1 + 8$ (Reversible Tiles) + 8 = 62 points.



Hand value = $2 + 2 + 32 + 32$ (All Terminals or Honors) + 1 + 8 = 77 points.



Hand value = $2 + 2 + 32 + 32 + 1 + 1$ (One Voided Suit) + 8 = 78 points.



Hand value = $3*1 + 2 + 2 + 88$ (Four Kongs) + 8 = 103 points.






Hand value = $3*1 + 2 + 2 + 88 + 1$ (One Voided Suit) + 8 = 104 points.



Hand value = $3*1 + 2 + 2 + 88 + 8$ (Reversible Tiles) + 8 = 111 points.

27. Simple draw-and-discard round. South goes for **All Terminals or Honors** after taking from

the wall  and discarding . West discards  and Mrs. Hudson declares "Hu".



Hand value = 2 + 2 + 88 + 32 (**All Terminals or Honors**) + 1 (**One Voided Suit**) + 8 = 133 points.

Melded = 60, standing = 1 + 1 + 1 + 1 = 4, discarded = 76, wall = 4 tiles.

