Section 6. Construct Four Hands

In the mysteries of this section, the reader is expected to find all four players' hands according to certain conditions.

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Mysteries

6-1. Mrs. Hudson's Problem

221B Baker Street. The clerk of the Chinese embassy Wan Dongtiao conducts mahjong training for the gentlemen Sherlock Holmes, Dr. Watson and Inspector Lestrade. After a while, Wan Dongtiao offers Mrs. Hudson the opportunity to play mahjong.
"Me? No way, I don't know anything!"
"I thought that I might be your personal game consultant. Would you mind, gentlemen?"
"Not at all! It's a very good idea, we like this game and definitely need a fourth player since you cannot always come to play."

So, the wall is built and a game begins. It is difficult for Mrs. Hudson to make decisions: what to discard, how to meld. The game comes to its crucial point. Mrs. Hudson has no melds in hand and asks Mr. Dongtiao, “Mr. Wan Dongtiao, what should I discard? I think that there are no ***spare*** tiles in hand.”
“I see. There are no spare tiles to throw because you have ***mahjong*** in hand!” answered Wan Dongtiao.
“So, what should I do? I can't simply win. Let's see if there is any tile to throw that will not complete somebody's mahjong. Otherwise, the others would not oppose it.”
“Gentlemen”, said Wan Dongtiao. “Will you permit me, as a special exception, to look at your hands to choose a discard for Mrs. Hudson?”
Wan Dongtiao takes a look at all three hands and declares, “Mrs. Hudson, there is no way, you can choose safe discard. Any tile you might throw would give mahjong to any gentlemen's hand. So, please, declare mahjong yourself!”

"Hu!" Mrs. Hudson laid her tiles on the table.

Questions

Question (for beginners): Please, reconstruct all four hands (there are plenty of solutions, provide at least one). Please, note that Mrs. Hudson's hand is a fully concealed one. She placed a tile in hand so there is no point for the “wait”.

Question (for limit-makers): Please, reconstruct all four hands (under the condition that Mrs. Hudson's hand is fully concealed) so that the sum of all four mahjongs would score 400+ pts.

Question (for experts): Please, reconstruct all four hands (under the condition that Mrs. Hudson's hand is fully concealed) so that the sum of all four mahjongs would score exactly 32 pts. This is very difficult to do! As a bonus feature, try to provide a solution for Mrs. Hudson’s hand with as a low number of different tiles as possible. There are solutions for eight different tiles).

Hint
Solution

* * *

6-2. Mrs. Hudson’s Problem #2

Mrs. Hudson continues to play against the three gentlemen with Mr. Wan Dongtiao acting as a game advisor. After winning with a hand with the regular structure, (3-3-3-3-2) Mrs. Hudson makes a vow not to collect even a pair in a hand, “I would not meld tiles, not keep in hand even a ***Pair***. Flower tiles I will discard. I hope that I would not discard a tile to somebody’s mahjong, otherwise, that would offend others.”

In such a way a whole deal passed. Mrs. Hudson took the last tile from the wall. She called for Mr. Wan Dongtiao, “Mr. Dongtiao, be so kind and help me. What tile could I safely discard in order to not give mahjong?”
Wan Dongtiao looked carefully at all three gentlemen’s hands and then he declared, “There is no way, Mrs. Hudson, that you can discard a safe tile, because each of your fourteen single tiles would complete somebody’s mahjong. Even more, despite that there is not even a pair in your hand you have ***mahjong***, so, please, declare it!”

Questions

Question 1: Please, reconstruct all four hands. (There exist many solutions, please, provide one).
Question 2 (for experts): Please, provide a solution under the condition of one dead hand (i.e., Lestrade’s hand).

Hint
Solution

* * *

6-3. Chinese New Year Celebration, or the Dragon Strikes

On New Year’s Eve, by the Chinese calendar, Chinese Embassy employee Wan Dongtiao invites his four friends (Mr. Sherlock Holmes, Dr. Watson, Inspector Lestrade and Mrs. Hudson) to celebrate the Chinese New Year in the Embassy. The mood was festive. Wan Dongtiao proposed that his guests play mahjong, leaving to himself the role of observer and commentator. He then said, “There is a belief that when the New Year comes, the Dragon enters and hits with his tail, driving away evil spirits.”

They began to play, but... it began strangely. After having exchanged flowers, Holmes (East) discarded East.
“Ah, if not the East, I would have won,” said Mrs. Hudson. “My hand is waiting!”
“And mine!” said Watson.
“And mine!” cheerfully repeated Lestrade.
“No wonder my hand also is waiting, this matter does not cost even a tenth of a pipe”, continued Holmes.

Mrs. Hudson took a tile from the wall, smiled, and discarded... East. Watson discarded East, and Lestrade did the same. On the second lap, it was their turn to each discard af South. Then this was followed by four West wind tiles and then by four North wind tiles. During the next nine laps, all 36 tiles of some suit were discarded with no chance for anybody to make any declaration. Next follows a mixture of rare and and not the most successful moves by players.

When the last tile is taken from the wall, Lestrade thought for a moment and then declares, "Kong!" tiles noisily slammed on the table. "Oh, where do I take the tile replacement after the Kong?" he asked.
And then…

Somewhere from above, a 145th tile dropped onto the table. It was a tile from another mahjong set, and it was caused to drop from the Lestrade’s noisy play. Wan Dongtiao immediately replied, “Now the Dragon entered and hit with his tail.”
“Hu!” all four cheerfully exclaimed. “That is exactly the tile I was waiting for.”

Wan Dongtiao looks at the hands of the players. “If we assume that Lestrade won his hand from the wall, and all of you from discard, I count almost ... ***800 points*** in the total of all the hands!”

Question: Please, provide approximately the hands of all players and explain what took place during the second half of the deal.

Hint
Solution

Hints

6-1. Mrs. Hudson’s Problem

Question (for beginners): There are plenty of solutions.
Question (for limit-makers): Try to find 88 or 64 points fan for each hand.
Question (for experts): Try to use hands with multisided waits.

Solution

6-2. Mrs. Hudson’s Problem #2

What hand structure does not have any pair?
What hand can wait for many Honor tiles?

Solution

6-3. Chinese New Year Celebration, or the Dragon Strikes

To increase the value of waiting hands all players must have four concealed pungs and all tiles of the hand belonging to some group (pure suit, “All Green” etc.).

Solution

Solutions

6-1. Mrs. Hudson’s Problem

Answer (for beginners).

Here is one of many possible solutions. Mrs. Hudson has the main fan “Half Flush” in her hand while the hands of gentlemen with the structure "Greater/Lesser Honors and Knitted Tiles" are waiting for all tiles in Mrs. Hudson's hand.

Mrs. Hudson, concealed – 🀆🀆🀆, 🀀🀀🀀, 🀇🀈🀉, 🀇🀈🀉, 🀅🀅.

Holmes, concealed – 🀅🀄🀁🀂🀃🀊🀍🀚🀝🀠🀒🀕🀘.

Watson, concealed – 🀅🀄🀆🀂🀃🀐🀓🀖🀋🀎🀛🀞🀡.

Lestrade, concealed – 🀄🀀🀁🀂🀃🀙🀜🀟🀑🀔🀗🀌🀏.

Answer (for limit-makers).

Mrs. Hudson, concealed – 🀕🀕🀊🀊🀊🀋🀋🀋🀌🀌🀌🀝🀝🀝:

- 64 = Four Concealed Pungs;
- 24 = Middle Tiles;
- 24 = Pure Shifted Pungs;
- 4 = Fully Concealed Hand;
- 2 = Double Pung.

Totaling 118 pts.

Mr. Holmes, concealed – 🀑🀑🀑🀑🀓🀓🀓🀓🀕🀗🀗🀗🀗:

- 88 = All Green;
- 24 = Seven Pairs;
- 24 = Full Flush;
- 8 = Reversible Tiles;
- 2*3 = Tile Hog (three times);
- 2 = All Simples.

Totaling 152 pts.

Dr. Watson, concealed – 🀙🀙🀙🀚🀛🀜🀝🀞🀟🀠🀡🀡🀡:

- 88 = Nine Gates;
- 2 = Two Concealed Pungs.

Totaling 90 pts.

Mr. Lestrade, concealed – 🀇🀇🀇🀈🀉🀊🀋🀌🀍🀎🀏🀏🀏:

- 88 = Nine Gates;

- 2 = Two Concealed Pungs (when 🀋), or
- 1 = Short Straight (when 🀊 or 🀌).

Totaling 89+ pts.

All four hands cost at least 118+152+90+89=449 pts.

Answer (for experts).

Solution for eight different tiles in Mrs. Hudson’s hand will be shown. The main trick is in using of structure like 🀑🀑🀑🀒 for calling for ***three*** tiles (here 🀐, 🀒, and 🀓).

Mrs. Hudson, concealed – 🀐🀐🀐🀒🀓🀔🀒🀓🀔🀜🀜🀞🀟🀠:

- 4 = Fully Concealed Hand;
- 1 = Pung of Terminals or Honors;
- 1 = Pure Double Chow;
- 1 = No Honors;
- 1 = One Voided Suit.

Totaling 8 pts.

Mr. Holmes, melded – 🀘🀘🀘🀏🀏🀏, concealed – 🀑🀑🀑🀒🀍🀎🀏:

- 2 = Double Pung;
- 2 = Tile Hog;
- 1 = Pung of Terminals or Honors;
- 1 = Pung of Terminals or Honors;
- 1 = No Honors;
- 1 = One Voided Suit.

Totaling 8 pts.

Mr. Watson, melded – 🀙🀙🀙🀇🀇🀇, concealed – 🀝🀝🀝🀞🀇🀈🀉:

- 2 = Double Pung;
- 2 = Tile Hog;

- 1 = Pung of Terminals or Honors;
- 1 = Pung of Terminals or Honors;
- 1 = No Honors;
- 1 = One Voided Suit.

Totaling 8 pts. (a clone of Mr. Holmes' hand).

Mr. Lestrade, concealed – 🀔🀔🀟🀟🀟🀠🀠🀈🀉🀊🀍🀍🀍:

- 2 = Concealed Hand;
- 2 = Double Pung;
- 2 = Two Concealed Pungs;
- 2 = All Simples.

Totaling 8 pts.

All four hands cost 8*4=32 pts.

* * *

6-2. Mrs. Hudson's Problem #2

Answer 1. Mrs. Hudson's hand ("Greater Honors and Knitted Tiles"):

concealed – 🀅🀄🀆🀀🀁🀂🀃🀇🀊🀍🀚🀝🀠🀘.

Surely, one of the gentlemen's hands should be a 13-tile wait for "Thirteen Orphans" calling for the following seven Honors and two Terminals out of Mrs. Hudson's hand: 🀅🀄🀆🀀🀁🀂🀃🀇🀘.

Now, two other hands have to wait for 🀊, 🀍, 🀚, 🀝 and 🀠.

These two hands are very simple "Pure-suiter-waits" with waiting tiles 🀋🀌 (plus a Pair) in "Character" hand and 🀛🀜🀝🀞🀟 (plus a Pair) in "Dots" hand.

Answer 2 (for experts). Let's start with the same Mrs. Hudson's and Mr. Holmes' hands as in Answer 1. Now, to deal with the wait on sparse tiles in two suits like 🀊, 🀍, 🀚,

🀝, 🀠, we need to utilize a structure with so-called “chameleons” (see additional section below on “chameleons”). Dr. Watson’s hand:

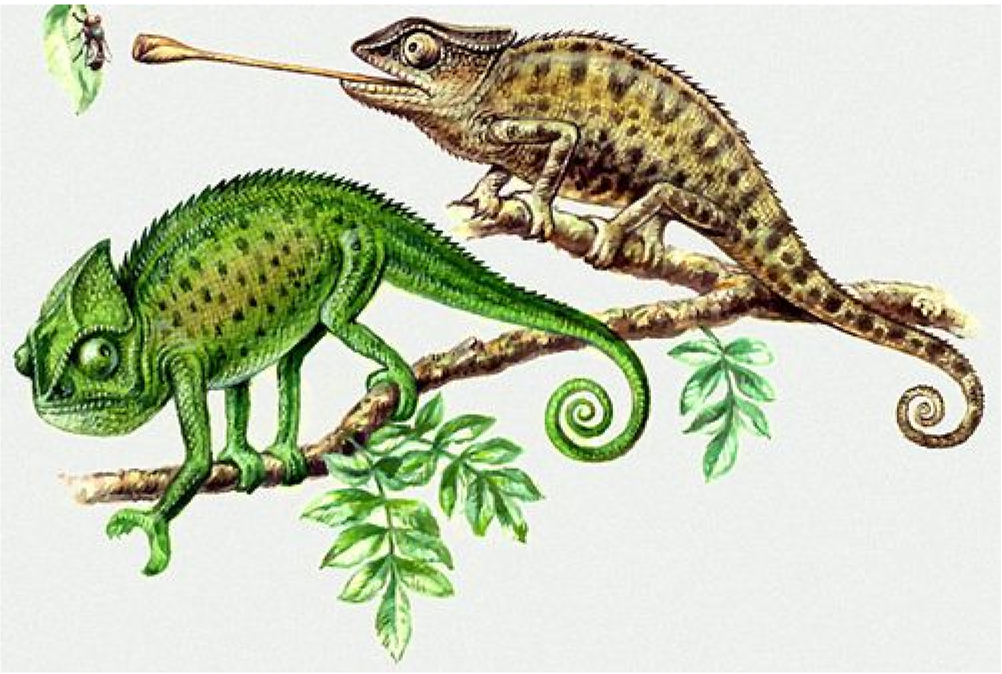
concealed – 🀛🀜🀝🀞🀟🀠🀠🀠🀋🀌🀍🀍🀍.

Strictly speaking, the hand above gains eight points for mahjong the above hand only after having the fan “Last Tile Claim”.

Chameleons

By definition, “chameleon” (the term was first used by Vitaly Novikov in 2005) is a number of one-suited tiles equal to 3*X+2 (i.e., 2, 5, 8, 11) which forms ***a part*** of regular mahjong structure in both occasions:

1. ***No*** tiles added (“Chameleon sits straight”) – “X” groups by 3 tiles (usually, Chows) and a Pair;
2. ***One*** tile added (“Chameleon puts out its tongue and catches a fly”) – “X+1” groups by 3 tiles (usually, Chows) and a Pung.



Thus, Dr. Watson’s hand 🀛🀜🀝🀞🀟🀠🀠🀠 may be split as:

1. 🀛🀜🀝 + 🀞🀟🀠 + 🀠🀠 – no tiles added, or;
2. 🀚🀛🀜 + 🀝🀞🀟 + 🀠🀠🀠 when 🀚 is added;
3. 🀛🀜🀝 + 🀝🀞🀟 + 🀠🀠🀠 when 🀝 is added;

4. 🀛🀜🀝 + 🀞🀟🀠 + 🀠🀠🀠 when 🀠 is added.

Similarly, 🀋🀌🀍🀍🀍 may be split as:

1. 🀋🀌🀍 + 🀍🀍 – no tiles added, or;
2. 🀊🀋🀌 + 🀍🀍🀍 when 🀊 is added;
3. 🀋🀌🀍 + 🀍🀍🀍 when 🀍 is added.

Dr. Watson's hand consists of two chameleons each of them can "sit straight" (no tile added) or "catches a fly" (a tile is added to form part of a hand of legal structure).

* * *

6-3. Chinese New Year Celebration, or the Dragon Strikes

Let's look at possible hands. The basic idea is each player begins with four concealed pungs in a particular set of tiles (pure suit, "All Green", "All Even" etc.) and nobody decides to ruin their hand.

🀑🀑🀑, 🀒🀒🀒, 🀓🀓🀓, 🀗🀗🀗, 🀕,

🀛🀛🀛, 🀝🀝🀝, 🀡🀡🀡, 🀔🀔🀔, 🀕,

🀐🀐🀐, 🀖🀖🀖, 🀘🀘🀘, 🀙🀙🀙, 🀕,

🀚🀚🀚, 🀜🀜🀜, 🀞🀞🀞, 🀠🀠🀠, 🀕.

The discarded suit was Characters. The tile that each player is waiting for is 🀕. During the second part of the deal (when the smoke alarm fired – nothing notable happened) players decided to declare kongs, which reduced the ability to win hands. So, the first hand will look like (other hands are not shown):

🀫🀑🀑🀫, 🀫🀒🀒🀫, 🀫🀓🀓🀫, 🀫🀗🀗🀫, 🀕.

Thus, we may calculate points in all for hands:

- 4 * 88 = 352 ("Four Kongs");

- 1 * 88 = 88 ("All Green");
- 4 * 64 = 256 ("Four Concealed Pungs");
- 1 * 24 = 24 ("All Even");
- 1 * 24 = 24 ("Full Flush");
- 1 * 24 = 24 ("Pure Shifted Pungs");
- 3 * 8 = 24 ("Last Tile Claim");
- 1 * 8 = 8 ("Last Tile Draw");
- 1 * 8 = 8 ("Reversible Tiles");
- and variety of fans less than 8 points.

Totaling ***800+*** points.