

## *Mahjong with Dima Zaitsev: impressions and experience of visiting Xian, China*

### *History*

As for the value of mahjong for Chinese people, I grasped it observing how happily and selflessly salesmen and other people are playing in streets of Xian as well as learned it from “Kung Fu Panda” cartoon movies, where Mr. Ping says to Po: “Then you will fulfill your destiny and take over the restaurant! Just as I took it over from my father, who took it over from his father who won it from a friend in a game of mahjong”. Indeed! One could win fortunes playing mahjong! First of all, it is a pleasant occupation to play surrounded by friends, moreover some players are getting so much absorbed by the game that they seem to reside, when playing, in some other miraculous world of dragons, winds, bamboos, birds, cakes...

We were, for the first time, in Xian and China in 2011, when colleagues from XIDIAN University invited us to a Mahjong Club to learn how to play mahjong and we started enjoying the game after a few rounds. The basic rules seem rather simple while the game itself is rather deep opening prospects for both deductive analysis and intuition. Recently playing mahjong with my students and teaching assistants during [2023 Summer School of XIDIAN University](#) encouraged me to compose this brief tutorial for myself, my relatives and friends.



## Mahjong tiles

A simple mahjong set could be bought online for a dozen (or a few) euro if not brought from China. Usually four persons play, though “modifying” classical rules, three and even two of us were playing at a family table.

Though the typical mahjong set includes 144 tiles, in Xian they use 136 tiles, leaving 8 flowers and seasons aside. A person, who finishes first, wins. To finish, one should collect winning combinations of tiles: triples or fourths of the same tiles, or triple sequences of increasing numbers.



The basic set is organized rather regularly:

- ✓ 3 sequences from 1 to 9 of *numbers*, *bamboos*, and *cakes*;
- ✓ 4 *winds* (west, north, south, east);
- ✓ 3 *fundamental tiles* (*dragons*): *red*, *green*, and *white*.

Totally:  $9 \times 3 + 4 + 3 = 34$  tiles.

The basic set is repeated 4 times to obtain  $34 \times 4 = 136$  tiles.

Note that numbers actually count ten thousand units specified with red hieroglyph.

I recommend studying Chinese a bit to call numbers from 1 to 9, ten thousands, a cake, a bamboo, a bird (which is instead of 1 bamboo puzzling a beginner), 4 winds, and 3 additional tiles. Traditionally, numbers, winds, and additional tiles are specified with hieroglyphs while the quantity of bamboos and cakes is easily recognized repeated in the corresponding numbers. Undoubtedly, you can use your own language to call the things though I was always attracted by the sound of Chinese language trying to speak myself, at least when playing mahjong, to submerge into its miraculous world.

### ***Canvas of playing mahjong***

The game canvas is easy to follow. Each player is having 13 tiles and the players are doing moves in sequence. A move includes taking secretly 1 tile from the wall of hidden tiles and disposing 1 tile to the open market. Instead of disposing a tile, the player can announce victory.

The process can be interrupted by taking the recently disposed tile with the following descending priority of events: *kong* – 4 same tiles; *pong* – 3 same tiles; *chow* – a sequence of 3 tiles. A person, who takes a tile from the market, should put the combination openly on the table near his hidden tiles. *Chow* is allowed only when taking a tile disposed by the previous in the sequence player. After *kong* and *pong*, the right of move comes to the next player after the one who put a combination on the table. To keep the balance of tiles in a hand, after a *kong*, a tile is taken from the wall.

There are two ways of collecting combinations during the game – an open (put on table) and a closed (secret). Though, when a player claims victory (*hula* or *mahjong*), he should open his hand and show hidden combinations as well.

*Kong* is put on the table in either variant – open or closed, because of taking an extra tile. When a closed *kong* is put on the table, one or two its tiles remain closed (overturned) for further counting points.

A *regular ending* of the game is collecting a combination with 4 triples and 1 pair of tiles in a hand, open and hidden. Triples can be either pongs or sequences. For this purpose the fourth tile within a *kong* is not counted. To start playing mahjong you can just enjoy a single victory, starting to count score in a series of games later on.

### ***Ritual of playing mahjong***

Now you know everything about mahjong rules except of details stipulated by the tradition. Let us embellish the above canvas of mahjong by an ornament of traditional details.

Initially a wall is built consisting of 4 equal parts of  $17 \times 2 = 34$  tiles in front of each player. In a club, special mahjong table is raising the wall automatically from underneath compartment, while when playing manually, players build it from shuffled tiles with hidden faces.

An opener throws 2 six-faceted cubes; the obtained sum specifies the place in the wall from where tiles are taken by the players. Firstly, parts of the wall are counted clockwise, then, from the target part, the same number of rows is counted in anticlockwise direction, from the far end (in clockwise direction).

From the indicated spot, players, in clockwise sequence, are taking 3 rounds by 4 tiles and finally 1 tile when the opener takes 2 tiles (an extra one for the first move).

The moves of players proceed in anticlockwise order while taking tiles from the wall proceeds in clockwise sequence. Remind that the sequence can be broken by a *pong* or a *kong* of a player.

When disposing of a tile during a move, the player should announce it loudly and put openly on the table. It allows others to check whether they need the tile to accomplish their *pong* or *kong*. Besides, the tile can be taken from the previous player for *chow* – a sequence of 3 numbers of the same type (ten thousand, bamboo, or cake).

When having one tile to accomplish the game, to take it from the market with the highest priority, a player can overturn his tiles, faces to the table.

When claiming the victory, a player says *hula* or *mahjong* and opens his hidden tiles for check.

### ***Invent your strategy of mahjong***

Mahjong strategy represents an interesting topic to investigate using AI methods. Here I reveal only common recommendations to build your own strategy based on your experience and preferences. When a player takes a tile from the wall, he decides which tile to dispose putting it openly to the market. Sometimes, it requires deciding whether to *pong*, *kong*, or *chow* openly compared to continue playing without exposing the corresponding combination.

Within a hand, a process of growing winning combinations is taking place. Sometimes growing combinations compete with each other. For instance a set 1, 2, 2 could result either in *chow* 1, 2, 3 or in *kong* 2, 2, 2. Doing *chow* from the previous player opens 1, 2, 3 neglecting probability of the correspondent *kong* in future, only in the case of taking the fourth yet unopened tile 2.

Each decision should take into consideration open tiles lying on the table, either in open combinations of players or in the market. Probability of getting some tile to close a combination is evaluated as inversely proportional to the number of same tiles on the table not forgetting that totally we have only 4 tiles of each type.

## Chinese mahjong glossary

Numbers:

1	2	3	4	5	6	7	8	9
一	二	三	四	伍	六	七	八	九
Yī	Èr	Sān	Sì	Wǔ	Liù	Qī	Bā	Jiǔ

Symbols on tiles with enumerated items:

bird	bamboo	cake	ten thousand
鳥	条	饼	萬
Niǎo	Tiáo	Bǐng	Wàn

Combinations:

combination	eat	triple	four	pair
面	吃	碰	杆	对
Miàn	Chī	Pèng	Gān	Duì

Winds:

east wind	south wind	west wind	north wind
東風	南風	西風	北風
Dōngfēng	Nán fēng	Xīfēng	Běifēng

Fundamental tiles (dragons):

center	richness	spiritual
中	發	白
Hóng zhōng	Fācái	BaiBan

### *Forthcoming advanced mahjong will contain:*

special cases, for example, preliminary stopping the game when 4 same tiles were added to the market after the beginning; additional vining combinations, say four pairs; rules for counting score; rules for changing and taking into consideration winds.

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