The **mahjong** package*

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Abstract

The **mahjong** package provides a LaTeX 2_ε and LaTeX 3 interface for typesetting mahjong tiles using an extended version of MPSZ algebraic notation. Features include spaces, rotated, blank, and concealed tiles, as well as red fives. The size of the mahjong tiles and their symbols can be controlled using package options and optional arguments. It is primarily aimed at Riichi (aka. Japanese) Mahjong but can be used to typeset any style of mahjong, save for flower tiles.

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*This document corresponds to **mahjong** v1.1, dated 2025/01/06

1   Introduction

Mahjong is a tile-based game originating from China which is popular in East and South-East Asia and has since spread throughout the world. The mahjong package provides an interface for typesetting mahjong tiles and hands using MPSZ algebraic notation. This documentation assumes familiarity with the game in general but none of its many styles. Nonetheless, some basic terms will be defined because of differing vocabulary among players.

2   Mahjong Tiles

2.1   Suited Tiles

The suited tiles are referred to as follows:

Suit	Tiles
Bamboo	
Dots	
Character	

Suited tiles are referred to using the pattern ⟨*value*⟩ ⟨*suit*⟩. For instance, is called *4 Bamboo*.

2.2   Honor Tiles

This documentation refers to the seven honor tiles as follows:

Winds

East Wind (E)	South Wind (S)	West Wind (W)	North Wind (N)

Dragons

White Dragon	Green Dragon	Red Dragon

Table 1: MPSZ notation reference. Each tile is identified by its column's number and its row's letter.

	0	1	2	3	4	5	6	7	8	9
s	🀫	🀐	🀑	🀒	🀓	🀔	🀕	🀖	🀗	🀘
p	🀫	🀙	🀚	🀛	🀜	🀝	🀞	🀟	🀠	🀡
m	🀫	🀇	🀈	🀉	🀊	🀋	🀌	🀍	🀎	🀏
z		🀀	🀁	🀂	🀃		🀅	🀄		

3 MPSZ Algebraic Notation

3.1 Standard Notation

MPSZ notation assigns each tile an identifier consisting of a digit and a letter (table 1). For suited tiles, the digit corresponds to the tile's value and the letter to its suit, Bamboo (`s`), Dots (`p`) or Character (`m`). For instance, `2m` identifies 🀈 (2 Character). The only exception ot this rule are red fives, whose numeric value is 0. Red 5 Bamboo, for example, has identifier `0s`. Honor tiles are assigned the "suit" `z`, with `1z` – `4z` corresponding to E, S, W and N, and `5z` – `7z` to the white, green and red dragon, respectively.

Collections of tiles, such as melds or hands, are represented by concatenating the identifiers of the tiles they comprise. For instance, `3s4s5s` corresponds to 🀒🀓🀔. Groups of tiles sharing the same suit can be abbreviated by omitting all but the last suit identifier. The above example can also be expressed as `345s`. Spaces are ignored and the notation is case-insensitive.

3.2 Extensions

**Spaces.** Spaces can be inserted using `-`: `444s-567s` produces 🀓🀓🀓 🀕🀖🀗.

Concealed Tiles. 🟥 Concealed (or face-down) tiles are represented by `X`. They don't need a suit identifier and don't act as one. `123s X 456s` and `123 X 456s` are therefore equivalent.

Blank Tiles. ❓ Blank or unknown tiles are represented by `?`. Just like concealed tiles, they don't change the current suit. `123s ? 456s` and `123 ? 456s` are equivalent, for instance.

Rotation. Inserting an apostrophe (') rotates the *preceeding* tile counter-clockwise. For instance, `6'66m` is rendered as . This can only be done once per tile, i.e. it is not possible to rotate them 180° or 270°. When you want to rotate the last tile of a group, it doesn't matter whether the apostrophe appears before or after the suit, so `77'm` and `77m'` are equivalent.

Rotation and Stacking. Quotes (") cause the *preceeding* tile to be rendered as two rotated and stacked tiles. For instance, `77"7z` produces .
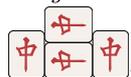
4 Typesetting Mahjong Tiles in Your Document

\mahjong The main interface is `\mahjong [⟨height⟩] [⟨scale⟩] {⟨hand⟩}`. ⟨*hand*⟩ refers to a tile sequence in MPSZ notation as discussed above. ⟨*height*⟩ specifies the height of the rendered mahjong tiles. ⟨*scale*⟩ specifies the fraction of vertical space that the tiles' symbols should occupy. The value should be between 0 and 1. If an optional argument is not given, the default (which can be set through a package argument) will be used.

\mahjong_typeset_hand:n
\mahjong_typeset_hand:x
\l_mahjong_tile_height
\g_mahjong_default_height
\l_mahjong_tile_scale
\g_mahjong_default_scale

The LaTeX 3 interface for rendering mahjong tiles are `\mahjong_typeset_hand:n` and its variants. This macro accepts the hand to be rendered in MPSZ notation. The height can be specified by setting `\l_mahjong_tile_height` and the default height is saved in `\g_mahjong_default_height`. The scale of the tiles' symbols can be changed by setting `\l_mahjong_tile_scale` and the default scale is saved in `\g_mahjong_default_scale`.

4.1 Package Options

height The default height can be set using the package's `height` parameter. For instance, `\usepackage[height=2\baselineskip]{mahjong}` sets the default size of mahjong tiles to double the value of `\baselineskip` in the context they are rendered in.

scale The default scale can be set using the package's `scale` parameter. It should ideally be set to a constant to ensure consistent typesetting. The default is 0.75, i.e. the symbols take up 85% of the tiles' vertical space.

5 Acknowledgments

The mahjong tiles used in this package were created by GitHub user FluffyStuff. The original repository is FluffyStuff/riichi-mahjong-tiles, used under CC-BY Version 4.0.

Change History