

The mahjong package*

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Contents

1	Introduction	2
2	Mahjong Tiles	2
2.1	Suited Tiles	2
2.2	Honor Tiles	2
3	MPSZ Algebraic Notation	3
3.1	Standard Notation	3
3.2	Extensions	3
4	Typesetting Mahjong Tiles in Your Document	4
5	Acknowledgments	4

Abstract

The `mahjong` package provides a $\text{\LaTeX} 2_{\epsilon}$ and $\text{\LaTeX} 3$ 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 can be controlled using a package option and an optional argument of `\mahjong`. It is primarily aimed at Riichi (aka. Japanese) Mahjong but can be used to typeset any style of mahjong. However, flower tiles and jokers are currently missing.

*This document corresponds to `mahjong` v1.0, dated 2021/04/14




























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 $\langle value \rangle \langle suit \rangle$. 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 of 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>] {<hand>}`. *<hand>* refers to a tile sequence in MPSZ notation as discussed above and *<height>* specifies the height of the rendered mahjong tiles. If *<height>* is not specified, the default height is used.

`\mahjong_typeset_hand:n` The L^AT_EX 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 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. The parameter defaults to `\baselineskip`.

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.