

skyline.sty

v1.0

A style file for typesetting Skyline logic puzzles

		2		3	
3	2				3
4				3	1
		3		3	1

		2		3	
	5	4	3	1	2
	4	5	1	2	3
3	2	3	5	4	1
4	1	2	4	3	5
	3	1	2	5	4
	3		3	1	

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2 Options

rows [5] defines the number of rows in the grid.

columns [5] specifies the number of columns in the grid

sudoku [false] sets rows and columns to 9, in case of *(true)* is specified. Additionally the classic Sudoku grid is drawn.

width [6.7cm] sets the width of the minipage, in which the grid is typeset.

scale [1] scales the size of the grid in the minipage.

fontsize [Large] specifies the size of the numbers next to the grid. Here, the usual L^AT_EX sizes are used. Possible values: tiny, scriptsize, footnotesize, small, normalsize, large, Large, LARGE, huge, Huge

title [] sets the title of a puzzle.

titleindent [0.75cm] defines the indent of the title.

titlewidth [5.85cm] specifies the width of the box the title is set in.

bgcolor [] sets the background color of the grid.

counterstyle [none] defines the counter style. Predefined styles: none, left, right

cvoffset [-39pt] sets the vertical offset of the counters in the margin.

3 Environments

3.1 skyline

```
\begin{skyline}[<options>]
...
\end{skyline}
```

The skyline environment is the central core of the style file. With the optional argument of the environment, you can reset the options with local scope. Here, a blank grid is created.

3.2 puzzlebackground

```
\begin{puzzlebackground}
...
\end{puzzlebackground}
```

The puzzlebackground environment allows you to place elements behind the main layer. This is for example usefull for the `\fillarea` command.

3.3 puzzleforeground

```
\begin{puzzleforeground}
...
\end{puzzleforeground}
```

The puzzleforeground environment allows you to place elements in front of the main layer. This is for example usefull for the `\framearea` command.

4 Commands

4.1 In the grid and around

4.1.1 skylineT

```
\skylineT{<csv list>}
```

The command `\skylineT` typesets the numbers above the grid indicating how many skyscrapers are visible. It expects a comma-separated list as an argument.

4.1.2 skylineB

`\skylineB{<csv list>}` The command `\skylineB` typesets the numbers below the grid.

4.1.3 skylineL

`\skylineL{<csv list>}` The command `\skylineL` typesets the numbers left to the grid.

4.1.4 skylineR

`\skylineR{<csv list>}` The command `\skylineR` typesets the numbers right to the grid.

4.1.5 skylinecell

`\skylinecell{<column>}{<row>}`
`{<height>}` The command `\skylinecell` sets the *<height>* of the grid cell *<column>**<row>*.

4.1.6 setrow

`\setrow{<row>}{<csv list>}` The command `\setrow` sets the heights of *<row>*. It expects a comma-separated list.

4.1.7 setcolumn

`\setcolumn{<column>}{<csv list>}` The command `\setcolumn` sets the heights of *<column>*.

4.1.8 framearea

`\framearea{<color>}{<tikz path>}` The command `\framearea` frames the area given by *<tikz path>* with color *<color>*. The reference for coordinates is the bottom left corner of the cell.

```
1 \framearea{green}{(2,2) -- (2,3) -- (3,3) -- (3,2) -- (2,2)}
```

This command will color the frame of the grid cell (2,2) green. You should consider using this command in the `puzzleforeground` environment.

4.1.9 fillarea

`\fillarea{<color>}{<tikz path>}` The command `\fillarea` fills the area given by *<tikz path>* with color *<color>*. The reference for coordinates is the bottom left corner of the cell. You should consider using this command in the `puzzlebackground` environment.

4.2 Presentation

4.2.1 definecounterstyle

`\definecounterstyle{<name>}`
`{<definition>}` The command `\definecounterstyle` allows you to define your own styles. For example, the style `left` is defined as follows:

```

1 \definecounterstyle{left}{
2   \begingroup\reversemarginpar\marginnote{
3     \tikz\node[shape=rectangle,fill=yellow!40,inner sep=7pt,
4       draw,rounded corners=3pt,thick]
5     {\Huge\puzzlecounter};}\LP@cvmoffset]\endgroup}
6 }

```

To typeset the counter into the margin we use the command `\marginnote`. We need to use the command `\reversemarginpar` to set the counter into the left margin. Of course, we must use this command in a group for local scope. Finally we use `\puzzlecounter` in a `\tikz` node with a vertical offset set with the option `cvoffset`.

4.2.2 puzzlecounter

`\puzzlecounter` The command `\puzzlecounter` provides the counter in textual form to use it for example in `\definecounterstyle`.

4.2.3 titleformat

`\titleformat{<format>}` With the command `\titleformat`, you can define the format of the title. By default, the definition is as follows:

```

1 \titleformat{\centering\Large\color{blue}}

```

4.3 Miscellaneous

4.3.1 skylinsetup

`\skylinsetup{<options>}` With the command `\skylinsetup` you can reset the options with global scope.

4.3.2 setpuzzlecounter

`\setpuzzlecounter{<number>}` With the command `\setpuzzlecounter`, you can reset the puzzle counter, for example before the solutions.

5 Supported variants

5.1 Skyline Sudoku

	4	1	3	2	3	5	3	2	3	
2				8				7		4
3			4			6			8	2
3		2		7					1	3
3					8	2				2
1			2		4		7			4
2				3			4			3
2					1					1
2		3					1	2		3
4			5							3
	4	5	2	5	2	1	2	4	3	

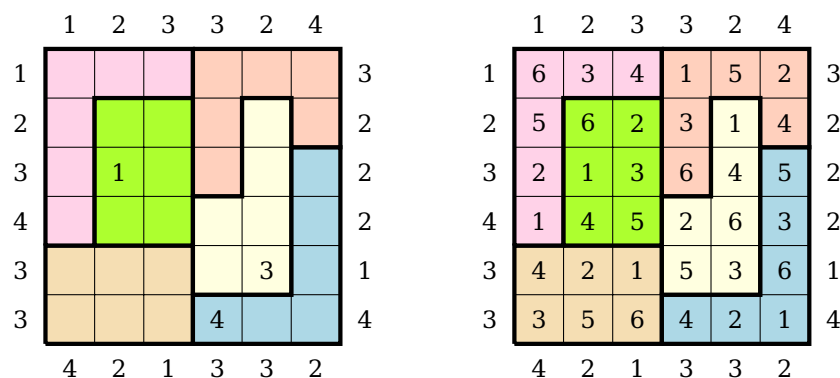
	4	1	3	2	3	5	3	2	3	
2	3	9	6	8	5	1	2	7	4	4
3	1	7	4	9	2	6	3	5	8	2
3	5	2	8	7	3	4	9	6	1	3
3	7	4	3	1	8	2	6	9	5	2
1	9	8	2	6	4	5	7	1	3	4
2	6	5	1	3	9	7	4	8	2	3
2	8	6	7	2	1	3	5	4	9	1
2	4	3	9	5	6	8	1	2	7	3
4	2	1	5	4	7	9	8	3	6	3
	4	5	2	5	2	1	2	4	3	

```

1 \begin{center}
2   \begin{skyline}[sudoku,scale=.46]
3     \skylineB{4,5,2,5,2,1,2,4,3}
4     \skylineL{4,2,2,2,1,3,3,3,2}
5     \skylineT{4,1,3,2,3,5,3,2,3}
6     \skylineR{3,3,1,3,4,2,3,2,4}
7     \setrow{9}{{},{},{},8,{},{},{},7}
8     \setrow{8}{{},{},{},4,{},{},6,{},{},8}
9     \setrow{7}{{},{},2,{},7,{},{},{},1}
10    \setrow{6}{{},{},{},{},8,2}
11    \setrow{5}{{},{},{},2,{},4,{},7}
12    \setrow{4}{{},{},{},{},3,{},{},4}
13    \setrow{3}{{},{},{},{},{},1}
14    \setrow{2}{{},{},3,{},{},{},1,2}
15    \setrow{1}{{},{},{},5}
16  \end{skyline}
17  \hspace{1cm}
18  \begin{skyline}[sudoku,scale=.46]
19    \skylineB{4,5,2,5,2,1,2,4,3}
20    \skylineL{4,2,2,2,1,3,3,3,2}
21    \skylineT{4,1,3,2,3,5,3,2,3}
22    \skylineR{3,3,1,3,4,2,3,2,4}
23    \setrow{9}{3,9,6,8,5,1,2,7,4}
24    \setrow{8}{1,7,4,9,2,6,3,5,8}
25    \setrow{7}{5,2,8,7,3,4,9,6,1}
26    \setrow{6}{7,4,3,1,8,2,6,9,5}
27    \setrow{5}{9,8,2,6,4,5,7,1,3}
28    \setrow{4}{6,5,1,3,9,7,4,8,2}
29    \setrow{3}{8,6,7,2,1,3,5,4,9}
30    \setrow{2}{4,3,9,5,6,8,1,2,7}
31    \setrow{1}{2,1,5,4,7,9,8,3,6}
32  \end{skyline}
33 \end{center}

```

5.2 Skyline Sudoku (N*N)



```

1 \begin{center}
2   \begin{skyline}[rows=6,columns=6,scale=.65]
3     \skylineB{4,2,1,3,3,2}
4     \skylineL{3,3,4,3,2,1}
5     \skylineT{1,2,3,3,2,4}
6     \skylineR{4,1,2,2,2,3}
7     \skylinecell{2}{4}{1}
8     \skylinecell{4}{1}{4}
9     \skylinecell{5}{2}{3}
10    \begin{puzzlebackground}
11      \fillarea{Wheat}{(1,1)--(1,3)--(4,3)--(4,1)--(1,1)}
12      \fillarea{HotPink!30}{(1,3)--(1,7)--(4,7)--(4,6)--(2,6)--(2,3)
13        --(1,3)}
14      \fillarea{GreenYellow}{(2,3)--(2,6)--(4,6)--(4,3)--(2,3)}
15      \fillarea{LightBlue}{(4,1)--(7,1)--(7,5)--(6,5)--(6,2)--(4,2)
16        --(4,1)}
17      \fillarea{LightSalmon!50}{(4,7)--(4,4)--(5,4)--(5,6)--(6,6)
18        --(6,5)--(7,5)--(7,7)--(4,7)}
19      \fillarea{LightYellow}{(4,2)--(4,4)--(5,4)--(5,6)--(6,6)--(6,2)
20        --(4,2)}
21    \end{puzzlebackground}
22  \end{skyline}
23  \hspace{1cm}
24  \begin{skyline}[rows=6,columns=6,scale=.65]
25    \skylineB{4,2,1,3,3,2}
26    \skylineL{3,3,4,3,2,1}
27    \skylineT{1,2,3,3,2,4}
28    \skylineR{4,1,2,2,2,3}
29    \setrow{6}{6,3,4,1,5,2}
30    \setrow{5}{5,6,2,3,1,4}
31    \setrow{4}{2,1,3,6,4,5}
32    \setrow{3}{1,4,5,2,6,3}
33    \setrow{2}{4,2,1,5,3,6}
34    \setrow{1}{3,5,6,4,2,1}
35    \begin{puzzlebackground}
36      \fillarea{Wheat}{(1,1)--(1,3)--(4,3)--(4,1)--(1,1)}

```

```

37 \fillarea{HotPink!30}{(1,3)--(1,7)--(4,7)--(4,6)--(2,6)--(2,3)
38 --(1,3)}
39 \fillarea{GreenYellow}{(2,3)--(2,6)--(4,6)--(4,3)--(2,3)}
40 \fillarea{LightBlue}{(4,1)--(7,1)--(7,5)--(6,5)--(6,2)--(4,2)
41 --(4,1)}
42 \fillarea{LightSalmon!50}{(4,7)--(4,4)--(5,4)--(5,6)--(6,6)
43 --(6,5)--(7,5)--(7,7)--(4,7)}
44 \fillarea{LightYellow}{(4,2)--(4,4)--(5,4)--(5,6)--(6,6)--(6,2)
45 --(4,2)}
46 \end{puzzlebackground}
47 \end{skyline}
48 \end{center}

```

6 Examples & Solutions



You can download application examples and their solutions from the [project page](#). The puzzles are originally licensed under .