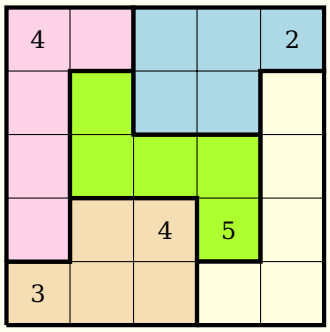
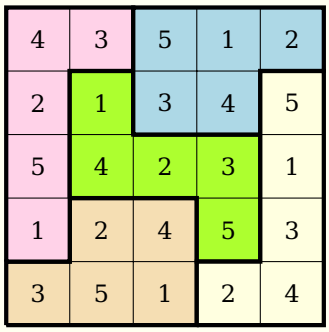
chaossudoku.sty

v1.1

A style file for typesetting Chaos Sudoku logic puzzles





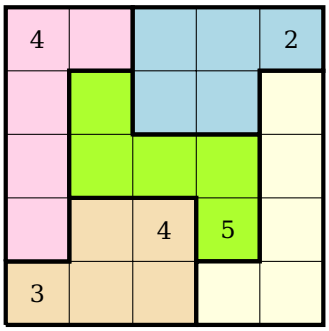
March 27, 2013

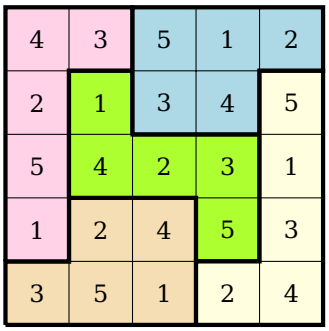
Package author:
Josef Kleber

josef.kleber@gmx.de
https://bitbucket.org/kleberj/logicpuzzle/

1 The puzzle

Fill the cells of an area with numbers from 1 to N of the N*N grid. Each number can appear only once - in each area, column, row or diagonal if indicated. Here's a little self-explanatory example:






```
\begin{center}
  \begin{chaossudoku}
    \chaossudokucell{1}{1}{3}
    \chaossudokucell{1}{5}{4}
    \chaossudokucell{3}{2}{4}
    \chaossudokucell{4}{2}{5}
    \chaossudokucell{5}{5}{2}
    \begin{puzzlebackground}
      \fillarea{Wheat}{(1,1)--(1,2)--(2,2)--(2,3)--(4,3)--(4,1)--(1,1)}
      \fillarea{HotPink!30}{(1,2)--(1,6)--(3,6)--(3,5)--(2,5)--(2,2)--(1,2)}
      \fillarea{GreenYellow}{(2,3)--(2,5)--(3,5)--(3,4)--(5,4)--(5,2)--(4,2)--(4,3)--(2,3)}
      \fillarea{LightBlue}{(3,4)--(3,6)--(6,6)--(6,5)--(5,5)--(5,4)--(3,4)}
      \fillarea{LightYellow}{(4,1)--(4,2)--(5,2)--(5,5)--(6,5)--(6,1)--(4,1)}
    \end{puzzlebackground}
  \end{chaossudoku}
  \hspace{1,5cm}
  \begin{chaossudoku}
    \setrow{5}{4,3,5,1,2}
    \setrow{4}{2,1,3,4,5}
    \setrow{3}{5,4,2,3,1}
    \setrow{2}{1,2,4,5,3}
    \setrow{1}{3,5,1,2,4}
    \begin{puzzlebackground}
      \fillarea{Wheat}{(1,1)--(1,2)--(2,2)--(2,3)--(4,3)--(4,1)--(1,1)}
      \fillarea{HotPink!30}{(1,2)--(1,6)--(3,6)--(3,5)--(2,5)--(2,2)--(1,2)}
      \fillarea{GreenYellow}{(2,3)--(2,5)--(3,5)--(3,4)--(5,4)--(5,2)--(4,2)--(4,3)--(2,3)}
      \fillarea{LightBlue}{(3,4)--(3,6)--(6,6)--(6,5)--(5,5)--(5,4)--(3,4)}
      \fillarea{LightYellow}{(4,1)--(4,2)--(5,2)--(5,5)--(6,5)--(6,1)--(4,1)}
    \end{puzzlebackground}
  \end{chaossudoku}
\end{center}
```

2 Options

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

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

width [5.1cm] 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 LaTeX sizes are used. Possible values: `tiny`, `scriptsize`, `footnotesize`, `small`, `normalsize`, `large`, `Large`, `LARGE`, `huge`, `Huge`

title [] sets the title of a puzzle.

titleindent [0cm] defines the indent of the title.

titlewidth [5.1cm] 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 [-23pt] sets the vertical offset of the counters in the margin.

3 Environments

3.1 chaossudoku

`\begin{chaossudoku}[`⟨*options*⟩`]`
`...`
`\end{chaossudoku}`

The `chaossudoku` 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 chaossudokucell

`\chaossudokucell{⟨column⟩}{⟨row⟩}{⟨number⟩}` The command `\chaossudokucell` sets the ⟨*number*⟩ of the grid cell ⟨*column*⟩ ⟨*row*⟩.

4.1.2 setrow

`\setrow{⟨row⟩}{⟨csv list⟩}` The command `\setrow` sets the contents of ⟨*row*⟩. It expects a comma-separated list.

4.1.3 setcolumn

`\setcolumn{⟨column⟩}{⟨csv list⟩}` The command `\setcolumn` sets the contents of ⟨*column*⟩.

4.1.4 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.

```
\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.

4.1.5 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:

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

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 chaossudokusetup

\chaossudokusetup{⟨options⟩} With the command \chaossudokusetup 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 Examples & Solutions

You can download application examples and their solutions from the project page. The puzzles are originally licensed under CC BY NC SA.