The typogrid package

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Abstract
This package produces a typographic grid on every page of the document.
That grid consists of vertical lines that divide the text block into columns.
This may be useful to get the horizontal measures (distances etc.) into good
values.

Contents
1 Usage 1
2 Shortcomings 2
3 The implementation 2

Copyright

1 Usage
Load the package using the

\usepackage[⟨options⟩]{typogrid}

command. Valid options are final, draft, columns=⟨value⟩, headings=⟨true,false⟩,
and margin=⟨true,false⟩. The options final and draft may be given explicitly
or implicitly from the document-class options.

When draft is given the typographic grid is switched on; if final or none of
the above is given it is switched off.

The columns option determines the number of columns printed. If it is not
given, a default of 12 is used.

If headings=true is given, a grid is printed for the head line and the foot line,
too (this is the default, you may also omit it). If headings=false is given, no
grid is printed for the headings.
With `margin=false`, you can switch off printing a frame around the area for margin notes (default is to print the frame). There is a second possibility to change the typographic grid. You may use the command that takes a keyval list as argument. The same keywords are allowed as in the `usepackage` line, e.g.,

\typogridsetup{columns=4}

You may use this command within the text in order to change the grid at arbitrary position of the document. The change takes effect on the next page.

If you have switched off printing of the grid, you may get a grid for single pages using

\AddToShipoutPicture*{\typogrid}

The package defines the length `\gridwidth` which is as long as the space between too grid lines. You may use it to scale pictures to fit to the grid, for instance.

## 2 Shortcomings

- Calculation of position and size of the headings and the margin works for standard cases only.
- If the text width changes from one page to the next, the grid width is wrong on the first page after the change.

## 3 The implementation

Heading of the package:

\ProvidesPackage{typogrid}
[2011/12/31 v0.21 Typographic grid]
\RequirePackage{calc}
\RequirePackage{keyval}

Introduce the used lengths.

\newlength{gridwidth}\% 

Introduce the used counters and set the default number of columns.

\newcount\tpg@blocks\%
\newcounter{tpg@blocks@new}\%
\setcounter{tpg@blocks@new}{12}\%

Declare a command that can be used to change the appearance of the typographic grid. The argument takes a list of keyval options.

\newcommand*{\typogridsetup}[1]{{}\% 
\expandafter\setkeys\expandafter{typogrid}{#1}}\%

Define the key `columns` that takes the number of columns.

\define@key{typogrid}{columns}{\%
\setcounter{tpg@blocks@new}{#1}\%
\ifnum\the\c@tpg@blocks@new<1\relax
\PackageError{typogrid}{Less than 1 column given}{You have to} \%
\else\%
\fi\% 
\PackageError{typogrid}{Less than 1 column given}{You have to} \%
\else\%
\fi\% 
\PackageError{typogrid}{Less than 1 column given}{You have to} \%
\else\%
\fi\% 
\PackageError{typogrid}{Less than 1 column given}{You have to} \%
\else\%
\fi\% 
\PackageError{typogrid}{Less than 1 column given}{You have to} \%
\else\%
\fi\% 
\PackageError{typogrid}{Less than 1 column given}{You have to} \%
\else\%
\fi\% 
\PackageError{typogrid}{Less than 1 column given}{You have to} \%
\begin{verbatim}
declare at least 1 column.\% 
\setcounter{tpg@blocks@new}{1}\%
\fi
}

Define the key \texttt{headings} to switch on or off a frame around the headings.
\newif\iftpg@headings
\newif\iftpg@headings@new
\tpg@headings@newtrue
\define@key{typogrid}{headings}[true]{% 
\csname tpg@headings@new#1\endcsname
}

Define the key \texttt{margin} to switch on or off a frame around the margin.
\newif\iftpg@margin
\newif\iftpg@margin@new
\tpg@margin@newtrue
\define@key{typogrid}{margin}[true]{% 
\csname tpg@margin@new#1\endcsname
}

Package options:
\newif\iftpg@draft
\DeclareOption{draft}{\tpg@drafttrue}
\DeclareOption{final}{\tpg@draftfalse}
\DeclareOption{colorgrid}{\PassOptionsToPackage{\CurrentOption}{eso-pic}}
\DeclareOption{grid}{\PassOptionsToPackage{\CurrentOption}{eso-pic}}
\DeclareOption*{\expandafter\typogridsetup\expandafter{\CurrentOption}}
Default is no grid.
\ExecuteOptions{final}
\ProcessOptions\relax

Load this package after processing the options.
\RequirePackage{eso-pic}[2002/11/16]
\typogrid

Define the command that produces the grid.
\newcommand*{\typogrid}{%

Switch to black and thin lines.
\begingroup
\normalcolor
\thinlines

Calculate the number of lines to be printed.
\@tempcnta=\tpg@blocks
\advance\@tempcnta by -1%

Print a frame around the text block.
\AtTextLowerLeft{%
\put(0,0){% 
\framebox(\LenToUnit{\textwidth},\LenToUnit{\textheight})}{}}%

Print the vertical lines for the grid.
\multiput(\LenToUnit{\gridwidth},0)%
\line(0,1)\LenToUnit{\textheight}
\endgroup
\end{verbatim}
Print a frame around the head line if wanted.
\iftpg@headings
\AtTextUpperLeft{%
\put(0,\LenToUnit{\headsep}){%
    \framebox(\LenToUnit{\textwidth},\LenToUnit{\headheight}){%}
}\fi

Print the grid.
\multiput(\LenToUnit{\gridwidth},\LenToUnit{\headsep})
(\LenToUnit{\gridwidth},0){\the\@tempcnta}{%
    \line(0,1){\LenToUnit{\headheight}}%
}\}%

Print a line below the foot line if wanted (the height of the foot line is not available).
\AtTextLowerLeft{%
\put(0,\LenToUnit{-\footskip}){%
    \line(1,0){\LenToUnit{\textwidth}}%
}\}%

Print the grid.
\put(0,\LenToUnit{-\footskip}){%
    \line(0,1){\LenToUnit{-\footskip}}%
}\%
\put(\LenToUnit{\gridwidth},\LenToUnit{-\footskip}){%
    \line(0,1){\LenToUnit{-\footskip}}%
}\%
\multiput(\LenToUnit{\gridwidth},\LenToUnit{-\footskip})
(\LenToUnit{\gridwidth},0){\the\@tempcnta}{%
    \line(0,1){\LenToUnit{-\footskip}}%
}\}%
\fi

Print a frame around the margin if wanted.
\iftpg@margin
\AtTextLowerLeft{%
\@tempdima=\textwidth\advance\@tempdima\marginparsep%
\if@twoside%
\ifodd\c@page
\else
\@tempdima=-\marginparsep\advance\@tempdima-\marginparwidth%
\fi%
\fi%
\put(\LenToUnit{\@tempdima} 0){%}
    \framebox(\LenToUnit{\marginparwidth},%\LenToUnit{\textheight}){%}
\}%
\fi
\endgroup

Calculate the width of each grid. Store it globally to be able to use it inside the document.
\setlength{\gridwidth}{\textwidth/\arabic{tpg@blocks\new}}%
\global{\gridwidth=\gridwidth}
\global{\tpg@blocks=\arabic{tpg@blocks\new}}%
\iftpg@headings\new
\global{\tpg@headingstrue}
\else
\global{\tpg@headingsfalse}
\fi
\iftpg@margin\new

\global\tpg@margintrue
\else
\global\tpg@marginfalse
\fi
}

Start the grid at \begin{document}. Do it that late to enable the author to switch between draft and final before that position.

\AtBeginDocument{%
Print the grid on any page if wanted.
\iftpg@draft
\typeout{Typographic grid switched on}%
\AddToShipoutPicture{\typogrid}%
\else
\typeout{Typographic grid switched off}%
\fi

Declare width of grid for first page of document.
\setlength{\gridwidth}{\textwidth/\arabic{tpg@blocks@new}}%
\global\tpg@blocks=\arabic{tpg@blocks@new}%
\iftpg@headings@new
\tpg@headingstrue
\else
\tpg@headingsfalse
\fi
\iftpg@margin@new
\tpg@margintrue
\else
\tpg@marginfalse
\fi
}

Change History

0.10
General: First version ............ 1

0.20
General: Reimplementation with respect to showframe.sty by
Rolf Niepraschk .............. 1

General: Set date and version explicitly in \ProvidesPackage \ new
Update Makefile .............. 1

Index

Numbers written in italic refer to the page where the corresponding entry is described; numbers underlined refer to the code line of the definition; numbers in roman refer to the code lines where the entry is used.

A
\AddToShipoutPicture \AtTextLowerLeft .......... 105
\AtBeginDocument \AtTextUpperLeft .......... 105
\arabic .......... 88, 90, 109
\baselineskip 65, 67, 70

B
<table>
<thead>
<tr>
<th>C</th>
<th>\ifodd</th>
<th>77</th>
<th>\iftpg@draft</th>
<th>31, 103</th>
<th>\RequirePackage</th>
<th>3, 4, 39</th>
</tr>
</thead>
<tbody>
<tr>
<td>\c@page</td>
<td></td>
<td>77</td>
<td>\iftpg@headings</td>
<td>19, 53</td>
<td>\CurrentOption</td>
<td>34–36</td>
</tr>
<tr>
<td>\c@tpg@blocks@new</td>
<td></td>
<td>13</td>
<td>\iftpg@headings@new</td>
<td></td>
<td>\Ifodd</td>
<td>6, 44, 90, 110</td>
</tr>
<tr>
<td>\DeclareOption</td>
<td></td>
<td>32–36</td>
<td>\iftpg@margin</td>
<td>25, 73</td>
<td>\Ifodd \iftpg@headings@new</td>
<td>20, 91, 111</td>
</tr>
<tr>
<td>\define@key</td>
<td></td>
<td>11, 22, 28</td>
<td>\iftpg@margin@new</td>
<td></td>
<td>\Ifodd \iftpg@headings@newtrue</td>
<td>21</td>
</tr>
<tr>
<td>\ExecuteOptions</td>
<td></td>
<td>37</td>
<td>\LenToUnit</td>
<td>48–51, 55–59, 62–70, 65, 67, 70</td>
<td>\PackageError</td>
<td>14</td>
</tr>
<tr>
<td>\footskip</td>
<td>62, 64, 66, 68</td>
<td>\line</td>
<td>51, 59, 63, 65, 67, 70</td>
<td>\PassOptionsToPackage</td>
<td>\ifpg@blocks</td>
<td>6, 44, 90, 110</td>
</tr>
<tr>
<td>\framebox</td>
<td>48, 56, 83</td>
<td>\marginparwidth</td>
<td>79, 83</td>
<td>\ifpg@draftfalse</td>
<td>\ifpg@drafttrue</td>
<td>32</td>
</tr>
<tr>
<td>\global</td>
<td>89, 90, 92, 94, 97, 99, 100</td>
<td>\marginparsep</td>
<td>75, 79</td>
<td>\ifpg@headingsfalse</td>
<td>\ifpg@headingstrue</td>
<td>102, 112</td>
</tr>
<tr>
<td>\gridwidth</td>
<td>49, 50, 57, 58, 68, 69, 88, 89, 100</td>
<td>\normalcolor</td>
<td>42</td>
<td>\ifpg@marginfalse</td>
<td>\ifpg@margintrue</td>
<td>27</td>
</tr>
<tr>
<td>\headheight</td>
<td>56, 59</td>
<td>\PackageWarning</td>
<td>14</td>
<td>\ifpg@marginfalse</td>
<td>99, 119</td>
<td></td>
</tr>
<tr>
<td>\headsep</td>
<td>55, 57</td>
<td>\PassOptionsToPackage</td>
<td>\ifpg@margintrue</td>
<td>97, 117</td>
<td></td>
<td></td>
</tr>
<tr>
<td>\iftpg@twoside</td>
<td>76</td>
<td>\ProcessOptions</td>
<td>38</td>
<td>\typeout</td>
<td>104, 107</td>
<td></td>
</tr>
<tr>
<td>\typogrid</td>
<td>2, 40, 105</td>
<td>\ProvidesPackage</td>
<td>1</td>
<td>\typogridsetup</td>
<td>2, 9, 36</td>
<td></td>
</tr>
</tbody>
</table>