Non-Floating Margin Notes with \texttt{marginnote} Package\

Markus Kohm (inactive)\footnote{From version 1.4b the package is unmaintained. But there is a public repository with issue tracker at \url{https://github.com/komascript/marginnote}. So everybody can contribute and reported issues will not be lost, if a new maintainer will be found.}\

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Abstract

In \LaTeX{} the command \texttt{\marginpar\{\(\langle \text{left} \rangle \}\{\langle \text{right} \rangle \}} can be used to create a note in the margin. But there is a problem with this command: It creates a special kind of float. So it cannot be used on floats or footnotes. The \texttt{marginnote} package supports another command \texttt{\marginnote} to create notes in the margin. This does not use any kind of float and therefore does not have the disadvantage of \texttt{\marginpar}. But there may be other problems ...

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1 How to Use \texttt{marginnote} Package

First of all you have to load the package. You can use:

\begin{verbatim}
\usepackage{marginnote}
\end{verbatim}

to do so. You can also use one of the following options to globally change the behaviour of \texttt{marginnote}:

\texttt{fulladjust} adjusts the margin note to the height and depth of the current line. Note that this may sometimes add an extra height and depth to the current line, but gives the best vertical alignment. This is the default.

\texttt{heightadjust} adjusts the margin note to the height of the current line, but not the depth. Note that this can sometimes result in extra height and vertical offset of the current line.

\footnote{This file has version 1.4c, last revised 2023/09/07. \texttt{marginnote} is version 1.4b, last revised 2018/08/09.}
depthadjust adjusts the margin note to the depth of the current line, but not the height. Note that this can sometimes result in extra depth and vertical offset of the current line.

noadjust does not adjust the margin note to the height or depth of the current line. Note that this often results in vertical offsets, but rarely in vertical extra space before or after the current line.

parboxrestore uses a reduced \@parboxrestore to restore the definition of \par and \ and some other commands, and sets \parindent to 0, \parfillskip to 0pt plus 1fil and \lineskip to \normallineskip, \baselineskip to \normalbaselineskip and enables \sloppy for every margin note. This is the default since the 1.4b release of marginnote. Release 1.4 and 1.4a also set \parskip to 0, but this caused a vertical placement problem, e.g., inside lists like itemize.

noparboxrestore does not restore any definition for the margin notes. This was the behaviour before the 1.4 release.

\marginnote The command \marginnote[(left)]{(right)}{(voffset)} can be used to set a margin note using the marginnote package. The first optional argument and the mandatory argument are the same as for \marginpar from the LATEX kernel. Even \reversemarginpar is taken into account. The note (left) or (right) is set to the current vertical position. The second optional argument (voffset) can be used to adjust the vertical position of the margin note. Use a negative dimension to move it up or a positive dimension to move it down.

\marginnotetextwidth The marginnote package needs to know the real width of the text area to find the right margin. While some environments (e.g., of the framed package) change \textwidth, marginnote defines its own text width macro. If you change the text area after \begin{document} you should add

\edef\marginnotetextwidth{\the\textwidth}

after changing the text area. You may want to do this globally using \xdef instead of \edef. Most users will never need to change \marginnotetextwidth.

\marginnotevadjust In some environments the vertical adjustment of the margin note is incorrect, e.g., one baseline too low. In this case, you can use the additional optional argument of \marginnote each time \marginnote is used, or redefine \marginnotevadjust at the beginning of the environment. The default definition is 0pt.

\raggedleftmarginnote \raggedrightmarginnote These macros define how the margin note is aligned. The defaults are

- align margin notes at the left margin right to the margin,
- align margin notes at the right margin left to the margin.

You can change this using \renewcommand, e.g., use
\renewcommand*{\raggedleftmarginnote}{}
\renewcommand*{\raggedrightmarginnote}{\centering}

to get justified text on the left and centered text on the right margin.

\marginfont This macro sets the font to be used for margin notes. The default is \normalcolor. You may can \renewcommand to change this, e.g., use
\renewcommand*{\marginfont}{\color{red}\sffamily}
to get red colored margin notes in the sans serif font family. Don’t forget: You need to load the \texttt{color} package or the \texttt{xcolor} package to use \texttt{\color}.

2 Issues Using marginnote

Some known issues are listed below. For new issues, it is recommended to either discuss them in a public \LaTeX{} forum or report them in issue tracker on github.

- Currently, the package lacks a new maintainer. The author no longer maintains the package anymore, as it was originally intended to be used as a small hack for for a few cases. But over the years it has grown and become a conglomerate of hacks that hack hacks that are very widely used. A break with a complete overhaul of the design would be necessary. But nothing I can or want to do at the moment. If you want to do it, please But even without taking over maintenance, you can contribute, e.g. by participating in the issue tracker of the package.

- You cannot use paragraphs with \texttt{\par} or empty lines inside a margin note. In my opinion this would note make sense. However, if you really need paragraphs you can try using \texttt{\endgraf} instead of \texttt{\par}.

- From version 1.4a, a workaround is available for double-sided documents with consecutive odd or even pages. However, it is not advisable to use double-sided documents with such page sequences as printing such documents can be problematic. The \texttt{marginnote} package displays a warning message whenever it detects those page sequences.

- From version 1.3, the \texttt{marginnote} package no longer support \TeX{} engines that lack primitives \texttt{\pdfsavepos} and \texttt{\pdflastxpos}, or \texttt{\savepos} and \texttt{\lastxpos}. The previous fallback option for manual adjustment has been removed. You will receive an error message if you try to use a \TeX{} engine without these primitives, and \texttt{\epsilon-\TeX{}} primitives are also required. Nonetheless, this should not be an issue with current, free \TeX{} distributions like MiK\TeX{} or \TeX{}Live.

- When using double-side layout, such as with using the \texttt{twoside} class option, \texttt{marginnote} requires page number information to determine if a page is odd or even, and therefore wich margin to use — left or right. \LaTeX{} operates using asynchronous output. Because of this, the counter \texttt{page} should not be used to obtain the current page number, unless at the header or footer of the page. To resolve the issue, the \texttt{marginnote} package employs a mechanism akin to labels. However, this implies that the accurate margin will not be determined during this \LaTeX{} run, but in the next. Therefore, after making any changes to the margin notes or page breaks, two \LaTeX{} runs are necessary to ensure all margins are correct.

- The \texttt{\marginnote} command utilizes \texttt{\strut} and \texttt{\vadjust} to position the margin note accurately. However, it may fail under certain circumstances. You may adjust the vertical position of the margin note using the second optional argument of \texttt{\marginnote}. Sometimes, the use of \texttt{\marginnote} command can cause the text outside to shift unnecessarily. You can choose from
the package options fulladjust, heightadjust, depthadjust, or noadjust to globally adjust, or locally redefine \mn@strut or \mn@zbox.

Note: The margin note always will be placed at the current vertical line. This means, if you are using two \marginnote commands at the same line, they will be put on the same place. This is not a bug but a feature!

- From version 1.1b, \marginnote commands inserted between paragraphs (or in \TeX terms: in vertical mode) will result in the note being placed between the paragraphs instead of at the end of the preceding paragraph. You may use \leavevmode or the third optional argument of \marginnote to place it differently.

- No page break can occur within a margin note created using the \marginnote command.

- The use of \marginnote immediately after \item results in a different behavior compared to \marginpar. This is not a bug, but rather a deliberate feature!

- With math, using the \marginnote command may work or not work, depending on the \math environment.

- If the horizontal position of the margin note is not correct, try another \LaTeX run.

- Sometimes lines may stretch vertically when using \marginnote, particularly if you use \marginnote within a list and upper case umlauts like “Ü”, or if you have \lineskiplimit>0pt. To resolve this issue, you can set \lineskiplimit=0pt or \lineskiplimit=-\maxdimen or use other available package options.

- You should not use \marginnote within the optional argument of \item.

- If \if@twocolumn is \iftrue, e.g., because you are using the \twocolumn class option or the \twocolumn command, \marginnote decides whether the note should be placed to the left or right the columns by comparing the current horizontal position with \columnwidth+\columnsep. If the current horizontal position is somewhere on the left column, the note is placed in the left margin. If the current horizontal position is somewhere right of the left column and therefore on the right column, the note is placed in the right margin. However, supporting twocolumn mode is as problematic as supporting reverse margin notes. It is not preferred. It may be revised in the future. The current support for twocolumn mode has only been implemented due to a feature request from Florent Chervet.

3 Implementation

\mn@savepos Since version 1.3 marginnote does need either \pdfsavepos and \pdflastxpos \mn@lastxpos or \savepos and \lastxpos and does not longer support engines without these primitives. All these engines also provide \vTeX extensions. So we do not longer need an explicite \vTeX test.
Next declare and process the options.

\if\mn@verbose
\newif\if\mn@verbose
\mn@verbosetrue
\DeclareOption{verbose}{\@mn@verbosetrue}
\DeclareOption{quiet}{\@mn@verbatimfalse}

\mn@strut The package needs to adjust the margin note at the current line. Sometimes this causes extra vertical line spacing. To avoid this you may redefine \mn@strut. The default value is \strut.

\newcommand*{\mn@strut}{}

\mn@zbox This macro is used to set a horizontal box without height, depth and width.

\newcommand{\mn@zbox}[1]{}

The options do redefine both, \mn@strut and \mn@zbox.

\DeclareOption{fulladjust}{%}
\renewcommand*{\mn@strut}{\strut}
\renewcommand{\mn@zbox}[1]{%
\bgroup
\setbox\@tempboxa\vbox{#1}%
\ht\@tempboxa\ht\strutbox
\dp\@tempboxa\dp\strutbox
\wd\@tempboxa\z@
\box\@tempboxa
\egroup
}%

\DeclareOption{heightadjust}{%}
\renewcommand*{\mn@strut}{\begingroup\dp\strutbox\z@\strut\endgroup}%
\renewcommand{\mn@zbox}[1]{%
\bgroup
\setbox\@tempboxa\vbox{#1}%
\ht\@tempboxa\ht\strutbox
\dp\@tempboxa\dp\z@
\wd\@tempboxa\z@
\box\@tempboxa
\egroup
}%

\DeclareOption{depthadjust}{%}
\renewcommand*{\mn@strut}{\begingroup\ht\strutbox\z@\strut\endgroup}%
\renewcommand{\mn@zbox}[1]{%
\bgroup
\setbox\@tempboxa\vbox{#1}%
\ht\@tempboxa\ht\z@
\dp\@tempboxa\dp\strutbox
\wd\@tempboxa\z@
\box\@tempboxa
\egroup
}%

\DeclareOption{noadjust}{%}
\renewcommand*{\mn@strut}{\begingroup\ht\strutbox\z@\strut\endgroup}%
\renewcommand{\mn@zbox}[1]{%
\bgroup
\setbox\@tempboxa\vbox{#1}%
\ht\@tempboxa\ht\z@
\dp\@tempboxa\dp\strutbox
\wd\@tempboxa\z@
\box\@tempboxa
\egroup
}%

\DeclareOption{noadjust}{%}
We can either use \@parboxrestore inside the margin notes or don't use it. I would recommend to use it, so this will be the new default.

\newcommand*{\mn@parboxrestore}{}
\DeclareOption{parboxrestore}{% 
  \renewcommand*{\mn@parboxrestore}{% 
    \@tempskipa\parskip
    \@parboxrestore
    \parskip\@tempskipa
  }%}
\DeclareOption{noparboxrestore}{% 
  \renewcommand*{\mn@parboxrestore}{}%}
\ExecuteOptions{verbose,fulladjust,parboxrestore}
\ProcessOptions\relax

\newmarginnote We need a macro to define a new note at the aux file. This will be done using the mechanism of \LaTeX that is used for \newlabel. But we use another prefix. This will result in the usual “Labels(s) may have changed. Rerun to get cross-references right.” if a margin note is new or have moved to another page.

\newcommand*{\newmarginnote}{\@newl@bel{mn}}
\if@mn@pdfmode
  \@mn@mode@prefix
\marginnotetextwidth Some environments change \textwidth. But at PDF mode we need to know the real text width to find the right margin. So we use our own text width macro. Sometimes it may be useful if the user can set it up. Because of this it is a user command.

\newcommand*{\marginnotetextwidth}{}
\let\marginnotetextwidth\textwidth
\AtBeginDocument{\edef\marginnotetextwidth{\the\textwidth}}

\@mn@marginrest Macro \@mn@marginrest does the complete test, which margin to use. The result may be found at \if@tempswa. To avoid changes on the last page if there is a new note on the first page, try to count the notes by page. We know that this can not be successful, but never the less it may be a good try. \@mn@thispage saves the page number of the last usage of \@mn@marginrest. \@mn@atthispage saves the number of margin note at this page. But we need to know the absolut page number to do this. So we increase the absolut page number \@mn@abspage at
From version 1.4a there is a workaround for consecutive odd pages or consecutive even pages in a twoside document.

\ifodd\value{mn@abspage}%
\ifodd\value{page}%
\else
\if@twoside
\begingroup
\advance\c@page\m@ne
\PackageWarningNoLine{marginnote}{Consecutive odd pages found.}%
Consecutive odd pages found.\PackageWarning{marginnote}{%}
Note, it is not recommended to use consecutive\PackageWarning{marginnote}{%}
od pages in a double-ended document.\PackageWarning{marginnote}{%}
The pages of your document should always\PackageWarning{marginnote}{%}
be a sequence: odd-even-odd-even-...\PackageWarning{marginnote}{%}
Maybe you've forgotten a\PackageWarning{marginnote}{%}
\@ifundefined{KOMAClassName}%
{\string\cleardoublepage}%
{\string\cleardoubleoddpage}%
 before\PackageWarning{marginnote}{%}
changing the page numbering on page \thepage
}%
\endgroup
\fi
\PackageInfo{marginnote}{Using workaround for absolute page number}%
\stepcounter{mn@abspage}%
\fi
\else
\ifodd\value{page}%
\if@twoside
\begingroup
\advance\c@page\m@ne
\PackageWarningNoLine{marginnote}{Consecutive even pages found.}%
Consecutive even pages found.\PackageWarning{marginnote}{%}
Note, it is not recommended to use consecutive\PackageWarning{marginnote}{%}
even pages in a double-ended document.\PackageWarning{marginnote}{%}
The pages of your document should always\PackageWarning{marginnote}{%}
be a sequence: odd-even-odd-even-...\PackageWarning{marginnote}{%}
Maybe you've forgotten a\PackageWarning{marginnote}{%}
\@ifundefined{KOMAClassName}%
{\string\cleardoublepage}%
{\string\cleardoubleevenpage}%
 before\PackageWarning{marginnote}{%}
changing the page numbering on page \thepage
}%
\endgroup
\fi
\else
\ifodd\value{page}%
\if@twoside
\begingroup
\advance\c@page\m@ne
\PackageWarningNoLine{marginnote}{Consecutive even pages found.}%
Consecutive even pages found.\PackageWarning{marginnote}{%}
Note, it is not recommended to use consecutive\PackageWarning{marginnote}{%}
even pages in a double-ended document.\PackageWarning{marginnote}{%}
The pages of your document should always\PackageWarning{marginnote}{%}
be a sequence: odd-even-odd-even-...\PackageWarning{marginnote}{%}
Maybe you've forgotten a\PackageWarning{marginnote}{%}
\@ifundefined{KOMAClassName}%
{\string\cleardoublepage}%
{\string\cleardoubleevenpage}%
 before\PackageWarning{marginnote}{%}
changing the page numbering on page \thepage
}%
\endgroup
\fi
\fi
\else
\ifodd\value{page}%
Number of the next margin note at this page.
\newcommand*{\@mn@margintest}{%}

If the margin note label was not defined, it seems to be new. In this case the absolute page number will be used for the test instead of the saved real page number.

If we are not in two side mode, we are on an odd page.
Ulrike Fischer suggested a simple change to take care of $hoffset$, e.g., using package `crop`. We use this occasion to take care of $pdfhorigin$, too. If $\@mn@currxpos$ is not empty here, it should be corrected by $hoffset$ and maybe by $pdfhorigin$.

If you are using package `bidi` and RTL mode is active, the position is from right instead of left. So we have to subtract $\@mn@currxpos$ from $pdfpagewidth$ (or $pagewidth$ using LuaTeX, but this cannot be, because bidi is not LuaTeX-compatible).
Test, whether or not if@RTL exists and is true or false.

Command \marginnote is the main macro of the package. The others are helpers to manage the optional arguments.
In horizontal mode the space hack of the \LaTeX kernel will be used. In vertical mode this should not be used.

\ifhmode
\marginnote{#1}{#2}{#3}
\esphack
\else
\marginnote{#1}{#2}{#3}
\fi

All changes (but change of counters that are global because of using the \LaTeX commands to change them an \gdef and \xdef) should be local. In h-mode a \strut will be used to fix base line. The margin note will be put to vertical list using \vadjust. This also means that we are one line to deep. This will be corrected later using negative kern. In v-mode we use a special kind of vbox to simply set everything. Math mode should behave like v-mode. And if we are just after an item we have to leave v-mode first.

\ifmmode\strut\let\@tempa\vadjust\else\if@inlabel\leavevmode\fi\fi
\ifhmode\strut\let\@tempa\vadjust\else\let\@tempa\vlap\fi
\@tempa{%}
Everything will be put upwards using a \vbox with zero height and depth and \vss. At this box the margin test will be done. If \reversemarginpar was used, the logic reverses. Then the note will be places to the margin.

\vbox to\z@{\vss\@mn@margintest\if@reversemargin\if@tempswa\@tempswafalse\else\@tempswatrue\fi\fi\if@tempswa\rlap{%}
If \@mn@currxpos is neither \relax nor empty it is the real current x position of the last PDF\LaTeX run and may be used to calculate the real horizontal offset.

\if@mn@verbose
\PackageInfo{marginnote}{xpos seems to be \@mn@currxpos}\
\fi
\begingroup
\ifx\@mn@currxpos\relax\else\ifx\@mn@currxpos\@empty\else
\kern-\dimexpr\@mn@currxpos\relax
\fi\fi
\ifx\@mn@currpage\relax
\let\@mn@currpage\one
Here's the correction of the vertical position. The remain is simple.

Using the left margin.

Same like above for left margins.

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This may be used to define an automatic vertical adjust. The default is zero. Values greater than zero will move the margin note down, values less than zero will move the margin note up.

\newcommand*{\marginnotevadjust}{\z@}

This macro is used to set a vertical box without size at vertical mode.

\newcommand{\mn@vlap}[1]{\setbox\@tempboxa\vbox to \ht\strutbox{#1\vss}\box\@tempboxa\vskip-\baselineskip}

This macro is used to set a vertical box at horizontal mode.

\newcommand{\mn@vadjust}[1]{\mn@zbox{\kern-\parskip\leavevmode\vadjust{#1}\kern\parskip}}

These are very simple. A class may also define \marginfont. Use this if available. I don’t use \let for the definitions of the ragged macros, so the meaning may change loading e.g. package ragged2e.

\providecommand*{\marginfont}{}

\newcommand*{\raggedleftmarginnote}{\raggedleft}
\newcommand*{\raggedrightmarginnote}{\raggedright}

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Change History

v1.0a
General: Example to macros
\raggedleftmarginnote and \raggedrightmarginnote at documentation fixed [thanks to Susumu Tanimura]
\marginfont: Use \providecommand to define it.
\if@mn@pdfmode: new switch
\mn@vadjust: new (internal)
\mn@zbox: new (internal)

v1.0b
General: spelling fixes

v1.1
\@mn@@@marginnote: new PDF mode feature
\@mn@currpage: new (internal)
\@mn@currxpos: new (internal)
\@mn@margintest: new PDF mode feature
\if@mn@pdfmode: new switch
\marginnotetextwidth: new macro

v1.1a
\if@mn@pdfmode: PDF\TeX{} since 1.40 allows \pdfsavepos in DVI mode too

v1.1b
\@mn@@@marginnote: use \mn@vadjust instead of \vadjust
\if@mn@pdfmode: if level fixed
\@mn@vadjust: new (internal)
\@mn@zbox: new (internal)

v1.1c
\if@mn@pdfmode: \Xe\TeX{} has working \pdflastxpos

v1.1d
\mn@savepos: take care of \hoffset [\pdfhorigin]
\if@mn@pdfmode: PDFTEX since 1.40 allows \pdfsavepos in DVI mode too
\mn@strut instead of \strut
\mn@strut: new (semi internal)

v1.1f
\@mn@@@marginnote: missing usage of \marginnotetextwidth on left margin fixed

v1.1g
\@mn@@@marginnote: missing \long added

v1.1i
\@mn@@@marginnote: \ignorespaces added
\strut moved to fix hyphenation [thanks to Ulrike Fischer]

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