The sidenotes package*

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Abstract

This package allows the typesetting of rich content in the margin. It includes text, but also figures, captions, tables and citations, which is common in science textbooks such as Feynman's *Lectures on Physics*.

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1 Usage

`\sidenote` The macro is very similar to the footnote macro and tries to emulate its behavior. It just puts the notes in the margin instead of the bottom of the page, therefore the name *sidenote*. It has the same parameters as footnote as well as an additional offset: `\sidenote[number][offset]{text}`. All the sidenotes are subsequently numbered and float in the margin to avoid overlap. The first, optional parameter will manually change the numbering to the given value. The second offset parameter will fix the text at a certain position in the margin. In particular, there is a difference between not providing an offset (floating text) and an offset of 0 (fix text at actual position).

`\sidenotemark` Sidenote tries to mimic the footnote behavior and, consequently, provides the same solutions. Sometimes, it is not possible to directly call a sidenote macro, e.g. inside of a figure caption. Then, you can use `\sidenotemark[number]` and `\sidenotetext[number][offset]{text}` macros. `\sidenotemark` puts a mark at the current position. Afterwards, outside of the environment that causes the `\sidenotetext` trouble, it is possible the call `\sidenotetext[number][offset]{text}` to provide the text and typeset the sidenote. The optional parameters are similar to the

*This document corresponds to sidenotes v1.20, dated 2024/09/12. Earlier versions by Oliver Schebaum.

sidenote macro. The first, optional parameter will change the numbering and the offset will change the position.

`\sidecaption` The `\sidecaption[entry][offset]{text}` macro can be used if the caption of a figure or table should be in the margin. The caption has to be adjacent to the figure, so a float is not an option here. Therefore, the caption might overlap with other marginals. Then, these marginals have to be adjusted with offset parameters. The formatting of the caption is done by the *caption* package by defining a *sidecaption* style. Please refer to the documentation of the caption package for information on styles. The macro can be starred, which is analog to the regular starred caption (no numbering, no tof entry): `\sidecaption*[offset]{text}`.

`marginfigure` The marginfigure environment puts a figure and its caption in the margin. Instead of `\begin{figure}[htbp]` use `\begin{marginfigure}[offset]`. Again, using an offset value switches the behavior from float to fixed position. The marginfigure has its own caption style named *marginfigure*.

`margintable` The margintable environment works similar to marginfigure, but with table environments. Use `\begin{margintable}[offset]` instead of `\begin{table}[htbp]`, its caption style is named *margintable*.

`figure*` The `figure*` environment is used to position figures across the full page, i.e. the text width plus the margin. The algorithm has to distinguish between recto and verso (left and right) pages and might need up to three LaTeX runs to provide

`table*` the desired result. The corresponding caption style is called *widefigure*. The sister environment for tables is `table*`. Use *widetable* to change its caption style.

2 Technical note

When writing the package, we tried to provide a *minimum* extension to standard LaTeX for typesetting rich content in the margin. This means, that there are no sensible default values for most things such as page geometry, fonts and font sizes. However, the *caesar_book*-class accompanies this package as an example implementation as well as a template we use for our theses.

In addition, we tried to keep compatibility with packages the user might want to use later. However, the following packages are needed by *sidenotes* and might introduce side effects with other packages.

3 Required packages

marginnote supports an alternative to `\marginpar` and creates notes in the margin. The notes are not floats and can be shifted up or down. Technically, every time an offset is provided the package uses `\marginnote` and `\marginpar` otherwise.

caption allows to set figure and table captions in the margin and allows easier formatting of these captions. Please refer to the *caption* manual for details on styles.

xparse is used to take advantage of the improved LaTeX3 syntax. All macros and environments are defined using this package.

l3keys2e provides a key/value mechanism

changepage is used to correctly shift figure* and table*. It has to use the option [strict] to work properly. This might lead to an option clash, if the same package is loaded without this option.

4 Implementation

Process the package options: onside

```
\ExplSyntaxOn
%
\keys_define:nn { sidenotes }
  {
    oneside .bool_set:N = \sidenotes_oneside
  }
\ProcessKeysOptions { sidenotes }
```

We need a counter similar to the footnote counter.

```
\newcounter{sidenote} % make a counter
\setcounter{sidenote}{1} % init the counter
```

The LaTeX3 parts concerning the optional arguments should not distinguish between an empty bracket pair and no optional argument. This is required to keep macros with two leading optional arguments.

```
% \changes{v1.20}{2024/09/12}{Allow long arguments.}
\DeclareExpandableDocumentCommand{\IfNoValueOrEmptyTF}{ m +m +m }
{
 \IfNoValueTF{#1}
  {#2}
  {\tl_if_empty:nTF {#1} {#2} {#3}}
}
```

Put a marker in the horizontal list to detect subsequent sidenotemarks.

```
\NewDocumentCommand \@sidenotes@thesidenotemark { m }
{
    \leavevmode
    \ifhmode
        \edef \@x@sf {\the \spacefactor }
        \nobreak
    \fi
    \hbox {\@textsuperscript {\normalfont #1 }}
    \ifhmode
        \spacefactor \@x@sf
    \fi
    \relax
}
%
\NewDocumentCommand \@sidenotes@multisign { } {3sp}
%
\NewDocumentCommand \@sidenotes@multimarker { }
{
  \kern-\@sidenotes@multisign
  \kern\@sidenotes@multisign\relax
}
```

```
%
\NewDocumentCommand \@sidenotes@multichecker { }
{
  \dim_compare:nNnTF \lastkern = \@sidenotes@multisign
  {\@sidenotes@thesidenotemark{,}}
  {}
}
%
```

Introduce an internal macro to place the marginal text. Use margin note in case an offset is given and marginpar otherwise.

```
% \changes{v1.20}{2024/09/12}{Allow long arguments.}
\NewDocumentCommand \@sidenotes@placemarginal { +m +m }
{
  \IfNoValueOrEmptyTF{#1}
    {\marginpar{#2}}
    {\marginnote{#2}[#1]}
}
%
```

`\sidenote` Introduce the `\sidenote` macro with two optional arguments to set the number and the offset.

```
\NewDocumentCommand \sidenote { o o +m }
{
  \sidenotemark[#1]
  \sidenotetext[#1][#2]{#3}
  \@sidenotes@multimarker
}
```

`\sidenotemark` Sidenotemark is supposed to work similarly to footnotemark.

```
\NewDocumentCommand \sidenotemark { o }
{
  \@sidenotes@multichecker
  \IfNoValueOrEmptyTF{#1}
    {\@sidenotes@thesidenotemark{\thesidenote}}
    {\@sidenotes@thesidenotemark{#1}}
  \@sidenotes@multimarker
}
```

`\sidenotetext` Sidenotetext is supposed to work similarly to footnotetext. The additional, optional argument sets the offset.

```
\NewDocumentCommand \sidenotetext { o o +m }
{
  \IfNoValueOrEmptyTF{#1}
    {
      \@sidenotes@placemarginal{#2}{\textsuperscript{\thesidenote}{}~#3}
  \refstepcounter{sidenote}
}
    {\@sidenotes@placemarginal{#2}{\textsuperscript{#1}~#3}}
}
```

`\sidecaption` Sidecaption puts the caption in the margin. It never floats with the other text in the margin, since it has to be next to the figure. Sidecaption* works similarly to sidecaption, but without an entry.

```
\DeclareCaptionStyle{sidecaption}{font=footnotesize}
\NewDocumentCommand \sidecaption {s o o m}
{
  \captionsetup{style=sidecaption}
  \IfBooleanTF{#1}
  { % starred
    \IfNoValueOrEmptyTF{#2}
    {\marginnote{\caption*{#4}}}
    {\marginnote{\caption*{#4}}[#2]}
  }
  { % unstarred
  \IfNoValueOrEmptyTF{#2}
    {\def\@sidenotes@sidecaption@tof{#4}}
    {\def\@sidenotes@sidecaption@tof{#2}}
  \IfNoValueOrEmptyTF{#3}
    {\marginnote{\caption[\@sidenotes@sidecaption@tof]{#4}}}
    {\marginnote{\caption[\@sidenotes@sidecaption@tof]{#4}}[#3]}
  }
}
```

`marginfigure` The marginfigure environment is similar to the figure environment. But the figure is put in the margin.

```
\newsavebox{\@sidenotes@marginfigurebox}
\DeclareCaptionStyle{marginfigure}{font=footnotesize}
\NewDocumentEnvironment{marginfigure} { o }
{
  \begin{lrbox}{\@sidenotes@marginfigurebox}
    \begin{minipage}{\marginparwidth}
      \captionsetup{type=figure,style=marginfigure}
}
{
    \end{minipage}%
  \end{lrbox}%
  \@sidenotes@placemarginal{#1}{\usebox{\@sidenotes@marginfigurebox}}
}
```

`margintable` The margintable is similar to the table environment. But the table is put in the margin.

```
\newsavebox{\@sidenotes@margintablebox}
\DeclareCaptionStyle{margintable}{font=footnotesize}
\NewDocumentEnvironment{margintable} { o }
{
  \begin{lrbox}{\@sidenotes@margintablebox}
    \begin{minipage}{\marginparwidth}
      \captionsetup{type=table,style=margintable}
}
{
    \end{minipage}
  \end{lrbox}
  \@sidenotes@placemarginal{#1}{\usebox{\@sidenotes@margintablebox}}
}
```

`figure*` The figure* environment provides a figure environment for figures that span across the full page (text plus margin width).

```
\AtBeginDocument{%
\newlength{\@sidenotes@extrawidth}
\setlength{\@sidenotes@extrawidth}{\marginparwidth}
\addtolength{\@sidenotes@extrawidth}{\marginparsep}}
%
\NewDocumentEnvironment{autoadjustwidth}{ m m }%
{
    \bool_if:NTF \sidenotes_oneside
    {
        \begin{adjustwidth}{#1}{#2}
    }
    {
        \begin{adjustwidth*}{#1}{#2}
    }
}
{
    \bool_if:NTF \sidenotes_oneside
    {
        \end{adjustwidth}
    }
    {
        \end{adjustwidth*}
    }
}
%
\DeclareCaptionStyle{widefigure}{font=footnotesize}
\RenewDocumentEnvironment{figure*}{ O{htbp} }
{
    \begin{figure}[#1]
        \begin{autoadjustwidth}{}{-\@sidenotes@extrawidth}
        \begin{minipage}{\linewidth}
        \captionsetup{style=widefigure}
}
{
\end{minipage}
        \end{autoadjustwidth}
    \end{figure}
}
```

`table*` The table* environment provides a table environment for figures across text and margin width.

```
\DeclareCaptionStyle{widetable}{font=footnotesize}
\RenewDocumentEnvironment{table*}{ O{htbp} }
{
    \begin{table}[#1]
        \begin{autoadjustwidth}{}{-\@sidenotes@extrawidth}
        \begin{minipage}{\linewidth}
        \captionsetup{style=widetable}
}
{
\end{minipage}
        \end{autoadjustwidth}
    \end{table}
}
```

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