The sidecap package

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Abstract

This package defines the new environments `SCfigure` and `SCtable`, analogous to `figure` and `table`, which make it easy to typeset captions sideways.

Additionally, a `wide` environment is defined; it allows to use the margin area, e. g., for figures wider than `\textwidth`.

1 Introduction

In some cases it may be useful to typeset the caption aside the figure or the table. For this purpose the package sidecap defines the new environments `SCfigure` and `SCtable`. The figure or the table and the caption are put into two minipages that are positioned side by side and centered as a whole. The space between the minipages is `\columnsep`. The correct positioning with respect to left and right pages requires at least two compilation runs.

2 Usage

`\usepackage[`⟨*option*⟩`]{sidecap}`

```
\begin{SCtable}  [⟨relwidth⟩][⟨float⟩] ...  \end{SCtable}
\begin{SCfigure} [⟨relwidth⟩][⟨float⟩] ...  \end{SCfigure}
\begin{SCtable*} [⟨relwidth⟩][⟨float⟩] ...  \end{SCtable*}
\begin{SCfigure*}[⟨relwidth⟩][⟨float⟩] ...  \end{SCfigure*}
```

⟨*option*⟩ – `outercaption` (default): Caption appears left on left pages and right on right pages.

`innercaption`: Caption appears right on left pages and left on right pages.

`leftcaption`, `rightcaption`: Caption is always on the left or right, respectively.

`wide`: The floating objects may extend into the margin area.

`raggedright`: Better justification for small captions. The ragged2e package is used if available.

⟨*relwidth*⟩ – optional; caption width relative to the width of the figure or table. A large value (e.g., 50) reserves the maximum width that is possible. Default is 1.0 .

⟨*float*⟩ – optional; like the floating position parameter of the original table/figure environments. Default is `tbp`.

`\begin{wide} ... \end{wide}`
The `wide` environment may be used inside `figure` and `table` environments as well as in the normal text.

3 Required packages

This package requires the standard LaTeX package ifthen.

4 Supported packages

This package is compatible LaTeX package hyperref (tested with version 6.69c as of 2000/01/22).
If the `raggedright` package option has been given, then captions will be set with ragged right margin. The ragged2e package will be used if it can be found.

5 The implementation

5.1 Register allocation and auxiliary macros

```
1 ⟨*package⟩
2
3 \RequirePackage{ifthen}
4
5 \newlength{\SC@BOXWD} \newlength{\SC@CAPWD} \newlength{\SC@tempdim}
6 \newcounter{SC@C} \newsavebox{\SC@BOX} \newcommand*{\SC@FLOAT}{}
7 \newcommand*{\SC@IDENT}{SC@\number\value{SC@C}}
8
9 \newcommand*{\isSC@WIDEi}[2]{#2}  %default: false
10 \newcommand*{\isSC@WIDEii}[2]{#2} %default: false
11
12 \let\SC@caption=\caption \let\SC@label=\label%
13
14 \let\SC@justify=\relax
```

5.2 Package hyperref compatibility

The following work-around for hyperref is due to Heiko Oberdiek.

```
15 %% From Heiko Oberdiek, 2000/01/24
16 \newcommand*\@getsecondarg{}% LaTeX-check if already defined
17 \long\def\@getsecondarg#1#2#3\@nil{#2}
18
19 \providecommand*{\getpagenumber}[1]{%
20   \expandafter\@getpagenumber\csname r@#1\endcsname{#1}%
21 }
22
23 \newcommand*{\@getpagenumber}[2]{%
24   \ifx#1\relax
25     \protect\G@refundefinedtrue % LaTeX: rerun warning
26     \@latex@warning{Reference `#2' on page \thepage\space
27       undefined}%
28     0%
```

```
  \else
    \expandafter\@getsecondarg#1\@nil
  \fi
}
%%---------------------------------------
```

Note: The \pageref doesn't work with hyperref ...:-(

```
\newcommand*{\isSC@ODD}[2]{%
%  \ifthenelse{\isodd{\pageref{\SC@IDENT}}}{#1}{#2}}
 \ifthenelse{\isodd{\getpagenumber{\SC@IDENT}}}{#1}{#2}}
```

5.3 Option processing

```
\DeclareOption{innercaption}{\renewcommand*{\SC@FLOAT}[2]{%
  \isSC@ODD{{#1}\hspace{\columnsep}{#2}} {{#2}\hspace{\columnsep}{#1}}}}

\DeclareOption{outercaption}{%
  \renewcommand*{\SC@FLOAT}[2]{%
  \isSC@ODD{{#2}\hspace{\columnsep}{#1}} {{#1}\hspace{\columnsep}{#2}}}}

\DeclareOption{rightcaption}{%
  \renewcommand*{\SC@FLOAT}[2]{{#2}\hspace{\columnsep}{#1}}}

\DeclareOption{leftcaption}{%
  \renewcommand*{\SC@FLOAT}[2]{{#1}\hspace{\columnsep}{#2}}}

\DeclareOption{wide}{%
   \renewcommand*{\isSC@WIDEi}[2]{\if@twocolumn #2\else #1\fi}
   \renewcommand*{\isSC@WIDEii}[2]{#1}}

\DeclareOption{raggedright}{%
   \let\SC@justify=\raggedright}

\ExecuteOptions{outercaption}

\ProcessOptions

\ifx\SC@justify\raggedright
  \IfFileExists{ragged2e.sty}{%
    \RequirePackage[OriginalCommands]{ragged2e}%
    \let\SC@justify=\RaggedRight
    }{}
\fi
```

5.4 User-level macros (environments)

`SCfigure` Simply passes the first (optional) parameter and the required one, in this case 'figure', to `SC@float`. The figure caption should be bottom aligned.

```
\newenvironment{SCfigure}{\SC@float[b]{figure}}{\endSC@float}
\newenvironment{SCfigure*}{\SC@dblfloat[b]{figure}}{\endSC@dblfloat}
```

SCtable Simply passes the first (optional) parameter and the required one, in this case 'table', to `SC@float`. The table caption should be top aligned.

```
\newenvironment{SCtable}{\SC@float[t]{table}}{\endSC@float}
\newenvironment{SCtable*}{\SC@dblfloat[t]{table}}{\endSC@dblfloat}
```

wide This is an environment that allows to extend the width of the text body (or of a floating environment) by using the margin space.
It shouldn't be used in twocolumn text.

```
\newenvironment{wide}%
{%
  \setlength{\@tempdima}{\linewidth}
  \addtolength{\@tempdima}{\marginparwidth}%
  \addtolength{\@tempdima}{\marginparsep}%
  \begin{lrbox}{\SC@BOX}% ???
    \begin{minipage}{\@tempdima}% ???
}%
{%
    \end{minipage}% ???
  \end{lrbox}% ???
  \stepcounter{SC@C}\SC@label{\SC@IDENT}%
  \isSC@ODD{\def\SC@hpos{l}}{\def\SC@hpos{r}}%
  \noindent\makebox[\linewidth][\SC@hpos]{\usebox{\SC@BOX}}%
}
```

5.5 Internal macros

5.5.1 Collecting arguments

The new internal float environment, similar/analogous to LaTeX's `@float` environment.

Syntax: `\SC@float[`⟨*vpos*⟩`]{`⟨*name*⟩`}[`⟨*relwd*⟩`][`⟨*fps*⟩`]`

- Parameter ⟨*vpos*⟩ (optional) is the vertical positioning of the caption.
- Parameter ⟨*name*⟩ (required) is the name of the 'original' LaTeX floating environment (e.g., 'figure' or 'table').
- Parameter ⟨*relwd*⟩ (optional) is the desired relative width of the caption.
- Parameter ⟨*fps*⟩ (optional) is the usual LaTeX float positioning specifier.

The usual 'cascading' programming style is applied (cf. LaTeX's `\@float`).

\SC@float Initially, the first optional parameter is checked for.

```
\def\SC@float{\@ifnextchar[\SC@xfloat{\SC@xfloat[c]}}
```

\SC@xfloat Then the first and second parameters are consumed and the third one is checked for.

```
\def\SC@xfloat[#1]#2{\@ifnextchar[%
  {\SC@yfloat{#1}{#2}}%
  {\SC@zfloat{#1}{#2}{1.0}[\@nameuse{fps@#2}]}}
```

`\SC@yfloat` Again, the fourth (and last) parameter is checked for.

```
\def\SC@yfloat#1#2[#3]{\@ifnextchar[%
  {\SC@zfloat{#1}{#2}{#3}}%
  {\SC@zfloat{#1}{#2}{#3}[\@nameuse{fps@#2}]}}
```

5.5.2 Capturing the float's contents

`\SC@zfloat` Finally, here is the macro that does all the work.

```
\def\SC@zfloat#1#2#3[#4]{%
  \def\SC@vpos{#1}%
  \expandafter\edef\csname fps@#2\endcsname{#4}%
  \def\SC@captype{#2}%
  \ifx#3\@empty\def\SC@fraction{1}\else\def\SC@fraction{#3}\fi%
```

The `\caption` and `\label` commands must be redefined.

```
  \let\SC@CAPtext\@empty \let\SC@OPTCAPtext\@empty \let\SC@LABtext\@empty%
  \renewcommand\caption[2][]{\gdef\SC@OPTCAPtext{##1}%
  \gdef\SC@CAPtext{\SC@justify##2}}%
  \renewcommand\label[1]{\gdef\SC@LABtext{##1}}%
  \@namedef{fnum@#2}{\mbox{\@nameuse{#2name}~\@nameuse{the#2}}}%
```

Save the figure or table (or whatever) in a box.

```
  \begin{lrbox}{\SC@BOX}%
}%

```

`\SC@dblfloat` Analogous to LaTeX's `\@dblfloat`.

```
\def\SC@dblfloat{%
  \if@twocolumn\let\reserved@a\SC@dbflt\else\let\reserved@a\SC@float\fi
  \reserved@a}
\def\SC@dbflt{\SC@float}
```

5.5.3 Output the float's contents

`\endSC@float` Outputs the figure or table (or whatever) and the caption.

```
\def\endSC@float{%
  \end{lrbox}%
⟨+debug⟩  \typeout{onecolumn}%
  \let\isSC@WIDE\isSC@WIDEi%
  \def\@FLOAT{\@float}\def\end@FLOAT{\end@float}%
  \isSC@WIDE%
    {\setlength{\@tempdima}{\textwidth}%
     \addtolength{\@tempdima}{\marginparwidth}%
     \addtolength{\@tempdima}{\marginparsep}}%
    {\setlength{\@tempdima}{\columnwidth}}
  \endSC@FLOAT{\@tempdima}}%
```

`\endSC@dblfloat` Ditto for `*`-forms of floats.

```
\def\endSC@dblfloat{%
  \end{lrbox}%
⟨+debug⟩  \typeout{twocolumn}%
  \let\isSC@WIDE\isSC@WIDEii%
  \def\@FLOAT{\@dblfloat}\def\end@FLOAT{\end@dblfloat}%
  \isSC@WIDE%
```

```
    {\setlength{\@tempdima}{\textwidth}%
     \addtolength{\@tempdima}{\marginparwidth}%
     \addtolength{\@tempdima}{\marginparsep}}%
    {\setlength{\@tempdima}{\textwidth}}
  \endSC@FLOAT{\@tempdima}}%
```

`\endSC@FLOAT` Sets the caption width. If caption width plus figure/table width (plus separation space) is too large then the caption width is set equal to the remaining width.

```
\def\endSC@FLOAT#1{%
  \setlength\SC@tempdim{#1}%
  % Kann man auf dieses Laengenregister verzichten? (RN) <****>
  \settowidth\SC@BOXWD{\usebox\SC@BOX}%
  \setlength\SC@CAPWD{\SC@fraction\SC@BOXWD}%
  \setlength\@tempdima{\SC@BOXWD}%
  \addtolength\@tempdima{\SC@CAPWD}%
  \addtolength\@tempdima{\columnsep}%
  \ifthenelse{\lengthtest{\@tempdima>\SC@tempdim}}%
    {\addtolength\SC@CAPWD{-\@tempdima}\addtolength\SC@CAPWD{\SC@tempdim}}{}%
```

`\@FLOAT` Calls the LaTeX float command with the two minipages inside a main minipage.

```
  \@FLOAT{\SC@captype}%
    \abovecaptionskip\z@skip
    \belowcaptionskip\z@skip
```

Creates a label for each figure or table (etc.) for later determination if the page is odd or even. The counter `SC@C` must be incremented before.

```
    \stepcounter{SC@C}\SC@label{\SC@IDENT}%
```

`\isSC@WIDE`

```
    \isSC@WIDE%
      {\ifthenelse{\lengthtest{\@tempdima>\textwidth}}%
        {\isSC@ODD{\def\SC@hpos{l}}{\def\SC@hpos{r}}}%
        {\def\SC@hpos{c}}%
       \setlength{\@tempdimc}{\textwidth}}%
      {\setlength{\@tempdimc}{\SC@tempdim}\def\SC@hpos{c}}%
    \makebox[\@tempdimc][\SC@hpos]{%
```

`\SC@FLOAT` Has two parameters. The first parameter is the minipage with the caption text inside and the last parameter is the minipage with the body of the figure or table inside.

```
      \SC@FLOAT%
        {\begin{minipage}[\SC@vpos]{\SC@CAPWD}%
           \ifthenelse{\equal{\SC@OPTCAPtext}{\@empty}}%
             {\SC@caption{\expandafter\protect\SC@CAPtext}}%
             {\SC@caption[\expandafter\protect\SC@OPTCAPtext]%
                          {\expandafter\protect\SC@CAPtext}}%
           \unskip%
           \ifthenelse{\equal{\SC@LABtext}{\@empty}}%
             {}{\SC@label{\expandafter\protect\SC@LABtext}}%
         \end{minipage}}%
        {\begin{minipage}[\SC@vpos]{\SC@BOXWD}%
```

```
            \offinterlineskip%
            \kern0pt\relax
            \usebox{\SC@BOX}%
          \end{minipage}}%
    }%
  \end@FLOAT%
}
```
⟨/package⟩