The **HEP-FLOAT** package

Convenience package for float placement

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Abstract

The **HEP-FLOAT** package redefines some **LaTeX** float placement defaults and defines convenience wrappers for floats.

- The **HEP-FLOAT** package can be loaded with `\usepackage{hep-float}`.
- Automatic float placement is adjusted to place a single float at the top of pages and to reduce the number of float pages, using the **LaTeX** macros.
  - `\setcounter{bottomnumber}{0}` no floats at the bottom of a page (default 1)
  - `\setcounter{topnumber}{1}` a single float at the top of a page (default 2)
  - `\setcounter{dbltopnumber}{1}` same for full widths floats in two-column mode
  - `\renewcommand{\textfraction}{.1}` large floats are allowed (default 0.2)
  - `\renewcommand{\topfraction}{.9}` (default 0.7)
  - `\renewcommand{\dbltopfraction}{.9}` (default 0.7)
  - `\renewcommand{\floatpagefraction}{.8}` float pages must be full (default 0.5)

The most useful float placement is usually archived by placing the float *in front of* the paragraph it is referenced in first. Additionally, manual float placement can be deactivated using the `manualplacement` package option.

- `\raggedright` The float environments have been adjusted to center their content. The usual behaviour can be reactivated using `\raggedright`.
- `\centering` The `panels` environment makes use of the `subcaption` package [1]. It provides sub-floats and takes as mandatory argument either the number of sub-floats (default 2) or the width of the first sub-float as fraction of the `\linewidth`. Within the `\begin{panels}{⟨vertical alignment⟩}{⟨width⟩}` environment the `\panel` macro initiates a new sub-float. In the case that the width of the first sub-float has been given as an optional argument to the `panels` environment the `\panel{⟨width⟩}` macro takes the width of the next sub-float as mandatory argument. The example code is presented in table 1a.
- `\tabular` The `booktabs` [2] and `multirow` [3] packages are loaded enabling publication quality tabulars such as in table 1b.

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*This document corresponds to **HEP-FLOAT** v1.0.
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\begin{panels}{2}
\begin{tabular}{cccc}
  one & two \\
  a & b & c & d \\
  b & c & d &
\end{tabular}
\end{panels}

(a) Code for this panel environment. (b) The $\text{booktabs}$ and $\text{multirow}$ features.

Table 1: Example use of the $\text{panels}$ environment in Panel (a) and the features from the $\text{booktabs}$ and $\text{multirow}$ packages in Panel (b).

\section*{A Implementation}

\texttt{\textbackslash RequirePackage\{kvoptions\}}

\begin{verbatim}
1 \RequirePackage{kvoptions}
2 \SetupKeyvalOptions{
3  family=hepfloat,
4  prefix=hepfloat@
5 }
\end{verbatim}

\texttt{\DeclareBoolOption\{true\}\{manualplacement\}}

\begin{verbatim}
6 \DeclareBoo\{true\}\{manualplacement\}
7 \ProcessKeyvalOptions*
\end{verbatim}

Adjust the $\LaTeX$ float placement defaults

\begin{verbatim}
8 \setcounter\{bottomnumber\}\{0\} \% 1
9 \setcounter\{topnumber\}\{1\} \% 2
10 \setcounter\{dbltopnumber\}\{1\} \% 2
11 \renewcommand\{\topfraction\}\.9 \% .7
12 \renewcommand\{\dbltopfraction\}\.9 \% .7
13 \renewcommand\{\textfraction\}\.1 \% .2
14 \renewcommand\{\floatpagefraction\}\.8 \% .5
\end{verbatim}

\texttt{\textbackslash let\{hep@figure\}\{figure\}}

\begin{verbatim}
15 \let\hep@figure\{figure\}
16 \let\end@hep@figure\{endfigure\}
17 \let\hep@table\{table\}
\end{verbatim}

Center the content of $\text{figure}$ and $\text{table}$ environments. Ignore the manual placement if the $\text{manualplacement}$ option is set to false.

\texttt{\textbackslash let\hep@table\{table\}}
A.1 Sub-floats

\subfigure\subtable

Load the subcaption package \cite{subcaption}. Provide the old \subcaption@minipage macro.

\begin{verbatim}
\RequirePackage[subrefformat=parens]{subcaption}
captionsetup{font=small}
captionsetup[sub]{font=small}
providecommand*{\subcaption@minipage}[2]{\minipage{#1}{#2}\setcaptionsubtype\relax}
\end{verbatim}

\subfigure\subtable

Define the panels environment and the \panel macro.

\begin{verbatim}
newcommand{\hep@panels@space}{20}
newenvironment{panels}[2][b]{
  \begin{subfigure}[b]{#2\hep@panels@space}
\caption@withoptargs{\subcaption@minipage[#1]{\linewidth/#2\hep@panels@space}}
\end{subfigure}
}
\end{verbatim}

\subfigure\subtable

Define an internal macro for global behaviour.

\begin{verbatim}
newcommand{\begin@subcaption@minipage}[2][b]{
  \caption@withoptargs{\subcaption@minipage[#1][#2]}
  \centering\vskip 0pt
}
\end{verbatim}

\subfigure\subtable

Define the \panel macro for the case that the number of panels is given.

\begin{verbatim}
\ifdim#2pt>1pt%
  newcommand{\hep@panel@space}{(1-#2+\hep@panels@space)/\hep@panels@space}%
\fi%
newcommand{\panel}[1][b]{
  \hep@panel@space
  endminipage\hfill\begin@subcaption@minipage[\linewidth/#2\hep@panel@space]
  \vskip_opt%}
\end{verbatim}
Define the \texttt{panel} macro for the case that the width of the panel is given.

A.2 Tables

\texttt{tabular} Enhance tabulars with the \texttt{booktabs} and \texttt{multirow} packages \cite{2, 3}.

A.3 Figures

\texttt{graphic} Provide the \texttt{graphic} macro for the inclusion of figures using the \texttt{graphicx} package \cite{4}.

\texttt{graphics} Provide the \texttt{graphics} macro for the inclusion of figures located in a subfolder.

B Readme

(*readme*)

# The ‘hep-float’ package

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## Introduction

The ‘hep-float’ package redefines some ‘LaTeX’ float placement defaults and defines convenient wrappers for floats.

The ‘hep-float’ package can be loaded with ‘\texttt{\usepackage{hep-float}}’.
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References


