The LaTeX keyfloat Package

v2.03 — 2021/05/28

© 2016–2021 Brian Dunn
bd@BDTechConcepts.com

Provides a key/value interface for generating floats.

Abstract

The keyfloat package provides a key/value user interface for quickly creating figures with a single image each, figures with arbitrary contents, tables, subfloats, rows of floats, floats located [H]ere, floats in the [M]argin, and floats with text [W]rapped around them.

Key/value combinations may specify a caption and label, a width proportional to \linewidth, a fixed width and/or height, rotation, scaling, a tight or loose frame, an \arraystretch, a continued float, additional supplemental text, and an artist/author’s name with automatic index entry. When used with the tocdatal package, the name also appears in the List of Figures.

Floats may be moved into or rearranged inside a multi-row environment or subfloats, and are typeset to fit within the given number of columns, continuing to additional rows as necessary. Nested sub-rows may be used to generate layouts such as two small figures placed vertically next to one larger figure.

As an example, a typical command to include a figure with a framed image of half \linewidth could be:

```
\keyfig*[hbp]{f,lw=.5,c={A caption},l={fig:label}}{image}
```

keyfloat uses the caption, subcaption, newfloat or float, and wrapfig packages, and cannot be used with the subfig, subfigure, subfloat, floatrow, or floatflt packages.

License:

This work may be distributed and/or modified under the conditions of the LaTeX Project Public License, either version 1.3 of this license or (at your option) any later version. The latest version of this license is in http://www.latex-project.org/lppl.txt and version 1.3 or later is part of all distributions of LaTeX version 2005/12/01 or later.
1 Introduction
   1.1 A problem with floats ........................................ 6
   1.2 The keyfloat package ......................................... 6
   1.3 Features ..................................................... 7

2 Using the keyfloat package ........................................ 9
   2.1 Loading keyfloat and related packages ...................... 9
   2.2 Macros and environments .................................... 10
   2.3 Keys and values .............................................. 12
   2.4 Other settings ................................................ 16
   2.5 Examples .................................................... 17
      2.5.1 Single floats ........................................... 17
      2.5.2 Groups of floats ....................................... 28
      2.5.3 Subfloats ............................................... 30
      2.5.4 Continued floats ....................................... 32
      2.5.5 Continued subfloats ................................... 33
      2.5.6 Margin floats .......................................... 34
      2.5.7 Wrapped floats ......................................... 36
      2.5.8 Custom frames .......................................... 41
      2.5.9 Artist's name .......................................... 43
   2.6 Customization ................................................ 45
      2.6.1 Custom frames .......................................... 45
      2.6.2 Distance between floats and rows ..................... 45
      2.6.3 Formatting the captions .............................. 46

3 Code ........................................................................ 47
   3.1 Older packages ................................................ 47
   3.2 Prohibited packages .......................................... 47
   3.3 Required packages ............................................ 48
   3.4 In-line figures and tables .................................... 49
   3.5 Row counting and control .................................... 50
   3.6 Float key handling ............................................ 50
   3.7 Nesting control ................................................ 57
   3.8 Subfloat key handling ........................................ 57
   3.9 Computing image width ...................................... 61
   3.10 Framing and rotation ........................................ 62
<table>
<thead>
<tr>
<th>Section</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.11</td>
<td>A graphics image from a file</td>
<td>64</td>
</tr>
<tr>
<td>3.12</td>
<td>Printing the caption</td>
<td>65</td>
</tr>
<tr>
<td>3.13</td>
<td>Defaults for a new float</td>
<td>70</td>
</tr>
<tr>
<td>3.14</td>
<td>Row start/end processing</td>
<td>70</td>
</tr>
<tr>
<td>3.15</td>
<td>Key environment helper macros</td>
<td>71</td>
</tr>
<tr>
<td>3.16</td>
<td>The \KFLT@keyflt macro</td>
<td>81</td>
</tr>
<tr>
<td>3.17</td>
<td>The \keyflt macro</td>
<td>82</td>
</tr>
<tr>
<td>3.18</td>
<td>The keyfloat environment</td>
<td>82</td>
</tr>
<tr>
<td>3.19</td>
<td>The keyfigure environment</td>
<td>83</td>
</tr>
<tr>
<td>3.20</td>
<td>The \keyfig macro</td>
<td>84</td>
</tr>
<tr>
<td>3.21</td>
<td>The \keyfigbox macro</td>
<td>84</td>
</tr>
<tr>
<td>3.22</td>
<td>The \keyparbox macro</td>
<td>85</td>
</tr>
<tr>
<td>3.23</td>
<td>The \keytab macro</td>
<td>85</td>
</tr>
<tr>
<td>3.24</td>
<td>The keytable environment</td>
<td>86</td>
</tr>
<tr>
<td>3.25</td>
<td>A row of floats</td>
<td>86</td>
</tr>
<tr>
<td>3.26</td>
<td>Subfloats</td>
<td>91</td>
</tr>
<tr>
<td>3.27</td>
<td>Margin floats</td>
<td>96</td>
</tr>
<tr>
<td>3.28</td>
<td>Wrapped floats</td>
<td>97</td>
</tr>
</tbody>
</table>

**Change History and Index**

**List of Examples**

1. Figure with an image from a file          17
2. Figure with arbitrary contents            17
3. Figure environment with arbitrary contents 18
4. Table macro                                18
5. Table environment with arbitrary contents 19
6. Figure with many options selected         20
7. Using \linewidth                          21
8. Using frames                               22
9. Using rotation with boxes                 23
10. Located [H]ere                           24
11. Unnumbered float                         25
12. Unnumbered float with a LOF entry        25
13. An unnumbered in-text image              26
14. A box without a caption                   27
15. Groups of figures — keyfloats environment 28
List of Figures

1  A \keyfig with an image ........................................... 17
2  A \keyfigbox ......................................................... 17
3  A keyfigure environment ........................................... 18
4  A figure with options .............................................. 20
5  Half of \linewidth .................................................... 21
6  Loosely-framed figure .............................................. 22
7  Tightly-framed figure .............................................. 22
8  A keyfig [H] .......................................................... 24
Starred short caption .................................................. 25
9  Next to a \keyparbox .................................................. 27
10 First in a group ...................................................... 29
11 Third in a group ...................................................... 29
12 Fourth in a group ..................................................... 29
13 Fifth in a group ...................................................... 29
14 Sixth in a group ........................................................ 29
15 Subfigures ............................................................ 30
16 Figure to be continued .............................................. 32
16 ...continued ............................................................ 32
17 A set of figures ........................................................ 33
17 ...continued ............................................................ 33
18 A marginfigure ........................................................ 34
19 A \keyfig[M] .......................................................... 35
20 A \keyfig[W] .......................................................... 36
21 A \keyfigbox[W] ......................................................... 37
List of Tables

1  Keys and values — part I ........................................ 13
2  Keys and values — part II .................................... 14
3  Caption-related key combinations ............................ 15
4  Key \wp: Wrapped float placement options ................ 15
5  A \keytab table ............................................... 18
6  A \keytable environment .................................... 19
7  Loosely-framed table ......................................... 22
8  Tightly-framed table ......................................... 22
9  A table [H] .................................................... 24
10 Seventh in a group ............................................. 29
11 Subtables [H] .................................................. 31
12 A \marginregular[\textwidth] .................................. 34
13 A \keytable\textwidth .......................................... 35
14 A \keytable\textwidth .......................................... 36
15 A \keytable\textwidth .......................................... 38
1 Introduction

The `keyfloat` package simplifies the creation of \LaTeX\ floats, while still allowing a large number of useful features.

1.1 A problem with floats

When including a figure with a graphics image into a document, the user typically enters something such as:

\begin{figure}
\centering
\includegraphics[width=3in]{filename}
\caption{A Figure}
\label{fig:somelabel}
\end{figure}

When doing that often enough, it makes sense to factor the common code:

\onefigure[3in]{filename}{A Figure}{fig:somelabel}

Expanding the capability of \onefigure via \texttt{xparse} can lead to the general case of:

\onefigure*[loc]{width}{filename}{add\'l text}{shortcap}{caption}*{label}

Attempting to add additional features such as frames and continued floats hits the limit of nine parameters for a \TeX\ macro, requiring that new features use some kind of change-state macros instead. Attempting to support rows of floats or subfloats only makes things more complicated still.

A key/value system solves the problem of adding more features, does not require much additional typing, is a more self-documenting syntax, and allows a shared syntax with subfloats and groups of floats as well. Thus, the `keyfloat` package.

1.2 The keyfloat package

Using `keyfloat`, the previous example becomes:

\keyfig{\textwidth=c \textwidth, l=fig:somelabel}{filename}

The `\onefigure` general case becomes:

\keyfig*[loc]{\textwidth, t={add\'l text}, sc=shortcap, cstar=caption, l=label}{filename}
1.3 Features

The macros and environments provided by \texttt{keyfloat} include:

\texttt{keyfig}: A figure with an image.
\texttt{keytab}: A table.
\texttt{keyflt}: An arbitrary float type macro.
\texttt{keyfigbox}: A figure with arbitrary contents.
\texttt{keyparbox}: A “figure” without a caption, useful to place uncaptioned text inside a group.
\texttt{keyfigure}: A figure environment.
\texttt{keytable}: A table environment.
\texttt{keyfloat}: An arbitrary float type environment.
\texttt{keyfloats}: A group of rows and columns of floats.
\texttt{keysfigs}: A figure containing a group of rows and columns of subfigures.
\texttt{keysfigs}: A figure containing a group of rows and columns of subfigures.
\texttt{keysfigs}: A figure containing a group of rows and columns of subfigures.
\texttt{keysfigs}: A figure containing a group of rows and columns of subfigures.
\texttt{keywrap}: Wraps a keyfloat around an environment of text. Usable inside a list.
\texttt{marginfigure}: A figure environment placed into the margin.\footnote{marginfigure and margintable: The environments provided by the \texttt{tufte-book} class are used if loaded, otherwise \texttt{keyfloat} provides its own versions.}
\texttt{margintable}: A table environment placed in the margin.

Additional features include:

- Rows and columns of floats may be generated by placing them inside a \texttt{keyfloats} environment.
- Subfloats may be generated by placing them inside a \texttt{keysfigs} or \texttt{keysfigs} environment.
- Dynamic layout: The number of columns is specified. Extra floats are placed onto additional rows as needed, with the final row adjusted to compensate for leftovers.
• Floats may be placed \texttt{[H]ere}.
• Floats may be placed in the \texttt{[M]argin}.
• Floats may be placed with text \texttt{[W]rapped around them}.
• Floats may be starred to span two columns.
• Continued floats may be used to repeat the previous float number.
• A figure may contain an image, with additional sizing, rotation, and a frame.
• Tables may be stretched. (\texttt{\textbackslash arraystretch})
• Boxes of arbitrary contents may be assigned a width and framed.
• Floats may be moved into and out of the grouping environments as needed.
• An artist/author's name may be added to a figure and the index.
• If the \texttt{tocdata} package is loaded (use v0.12+), the name is also added to the \texttt{LOF}.
• Additional descriptive text may be added as well.
• Frames may be customized.

\begin{itemize}
  \item \texttt{examples} A large number of examples are provided, each showing \LaTeX\ source and the resulting float.
  \item \texttt{index} A customized index is included at the back of the documentation.
  \item \texttt{margin tags} Blue margin tags are used to help quickly find information, and often indicate the destination of index entries.
  \item \textnormal{⚠️} \texttt{warnings} Several warnings are noted in the text. Watch out for these special cases.
  \item \texttt{problems} See the "troubleshooting" section of the index for help with specific problems which may occur.
\end{itemize}
2 Using the keyfloat package

2.1 Loading keyfloat and related packages

keyfloat is loaded with the usual command:

\usepackage{keyfloat}

\usepackage{tocdata}
\usepackage{titletoc}% or titletoc, or neither
\usepackage{keyfloat}

Pkg float To use custom float types with the float package:

\usepackage{float}
\newfloat{diagram}{htb}{lod}

Pkg newfloat To use custom float types with the newfloat package:

\usepackage{newfloat}
\DeclareFloatingEnvironment[
  fileext={lod},
  listname={List of Diagrams},
  name={Diagram},
]{diagram}

Pkg caption For the caption package, to have table captions appear above the tables, and to use custom float types:

\usepackage[tableposition=top]{caption}
\captionsetup[diagram]{
  style=default, justification=centering,
  margin=0pt, parskip=0pt, skip=1ex,
  labelfont={small,bf},textfont={small,bf}
}

Pkg cleveref To use custom float and subfloat types with cleveref:

\usepackage{cleveref}
\crefname{diagram}{diagram}{diagrams}
\crefname{subdiagram}{subdiagram}{subdiagrams}
2.2 Macros and environments

\keyfig *[^\langle loc \rangle\{\langle keys/values \rangle\}\{\langle image filename \rangle\}]
A macro to generate a figure with an image from a file.

\keytab *[^\langle loc \rangle\{\langle keys/values \rangle\}\{\langle tabular contents \rangle\}]
A macro to generate a table with tabular contents. Usually use the keytable environment instead.

\keyflt *[^\langle loc \rangle\{\langle float type \rangle\}{\langle keys/values \rangle}\{\langle contents \rangle\}]
A macro to generate an arbitrary float type with its contents.

\keyfigbox *[^\langle loc \rangle\{\langle keys/values \rangle\}\{\langle box contents \rangle\}]
A macro to generate a figure with arbitrary paragraph contents. See example 2.

\keyparbox *[^\langle loc \rangle\{\langle keys/values \rangle\}\{\langle box contents \rangle\}]
A macro to generate a figure with arbitrary paragraph contents, but no number or caption. This is equal to a \keyfigbox with cstar={}. Mostly useful to add supplemental information inside a row of floats or subfloats. See example 14.

\env keyfigure *[^\langle loc \rangle\{\langle keys/values \rangle\}]
An environment to generate a figure with arbitrary contents. Useful for multi-paragraph contents. See example 3.

\env keytable *[^\langle loc \rangle\{\langle keys/values \rangle\}]
An environment to generate a table with arbitrary contents. Useful for larger tables. See example 5.

\env keyfloat *[^\langle loc \rangle\{\langle float type \rangle\}{\langle keys/values \rangle}]
An environment to generate an arbitrary float type with its contents. Useful for multi-paragraph contents.

The above macros and environments may be used by themselves, or inside the following keyfloats, keysubfigs, or keysubtabs environments.

\env keyfloats *[^\langle loc \rangle\{\langle num columns \rangle\}]
A group of figures or tables typeset in rows. May be nested, [H], [W], or [M]. See example 15.

\env keysubfigs *[^\langle loc \rangle\{\langle numcols \rangle\}\{\langle keys \rangle\}]
A group of subfigures typeset in rows. May not be nested. May be [H], [W], or [M]. See example 16.
keyfloat

Env keysubtabs
* \[\{\langle loc\rangle\}\{\langle numcols\rangle\}\{\langle keys\rangle\}\]
A group of subtables typeset in rows. May not be nested. May be [H], [W], or [M]. See example 17.

Env keysubfloats
* \[\{\langle loc\rangle\}\{\langle float type\rangle\}\{\langle numcols\rangle\}\{\langle keys\rangle\}\]
A group of subfloats typeset in rows. May not be nested. May be [H], [W], or [M].

Env keywrap
\[\{\langle width of keyfloat\rangle\}\{\langle keyfloat\rangle\}\]
Displays a keyfloat next to an environment of text. Two minipages are used side-by-side, which allows its use inside a list item where [W] will not work, but extra empty vertical space will appear if the keyfloat and the text are of unequal vertical size. \(\langle keyfloat\rangle\) may be any of keyfig, keyfigure, keyfloats, keysubfigs, etc., each with its proper arguments. See example 27.

Env marginfigure
\[\{\langle offset\rangle\}\]
A figure placed into the margin, with an optional vertical offset. \keyfloat uses the version provided by the tufte-book class if available, or provides its own version otherwise. See example 20.

Env margintable
\[\{\langle offset\rangle\}\]
A table placed into the margin, with an optional vertical offset. \keyfloat uses the version provided by the tufte-book class if available, or provides its own version otherwise. See example 21.

Arg *
The star option create floats which span both columns in a two-column document.

Arg [H] The [H] location forces a figure to be “Here”, in the form of a minipage instead of a float. A caption, label, etc. may still be assigned.

Arg [M] The [M] location places the float into the margin. When the tufte-book class is used, its marginfigure and margintable environments are used, otherwise keyfloat provides and uses its own versions of the same environments. See examples 22 and 23.

Arg [W] The [W] location wraps text around the float. Use this just before the start of a paragraph with contents large enough to wrap around the float. Do not use this inside a list environment. Select placement with the \texttt{wp} key; see the wrapfig package documentation for more information. Use \texttt{w} or \texttt{lw} to set the width of the item/image contained inside the wrap area. By default the caption will also be contained in this width. To use a larger width for the overall container and caption, set \texttt{w} or \texttt{lw} for the size of the image, and also use \texttt{ww} or \texttt{wlw} for a larger size for the caption. Watch the log for warnings from wrapfig.

\textbf{wrapfig warnings}

Arg [loc] The star and \{loc\} options are ignored for floats inside a keyfloats, keysubfigs, or keysubtabs environment. Note that these container environments may have their own star and \{loc\} options.
2.3 Keys and values

Table 1 shows the key/value combinations which are allowed. In most cases these may be used in any order and any combination, except for the following:

*subfloat keys* The keys labeled "Sub" may be used for the `keysubfigs` and `keysubtabs` environments, which group a number of subfloats together under one master float. The master float has its own caption, label, and text, and each subfloat inside the group likewise has its own set of keys.

*keyfloats keys* `keyfloats` does not accept any keys at all.

The “artist” keys `ap`, `af`, `a1`, and `as` are only used by figures.

The `stretch` key increases space between tabular elements.

The rest of the macros and environments accept all of the keys, as they each create an individual float or subfloat, and each may have its own assigned dimensions and frame.

*short/long caption combinations* Table 2 shows the combinations of the caption-related keys `c`, `cstar`, and `sc`, and how they control the caption numbering and entries in the `LOF/LOT`.

*wrapped float placement* Table 3 shows the wrapped-float placement options for the `wp` key for floats placed `[W]`. 
Table 1: Keys and values — part I

<table>
<thead>
<tr>
<th>Key</th>
<th>Sub\textsuperscript{a}</th>
<th>Description</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>c</td>
<td>•</td>
<td>An unstarred caption. If empty, creates a figure with a number but no caption.</td>
<td>c=A caption</td>
</tr>
<tr>
<td>cstar</td>
<td>•</td>
<td>A starred caption. Creates a float without a number. If empty, creates a figure with no number or caption.</td>
<td>cstar=No Num</td>
</tr>
<tr>
<td>sc</td>
<td>•</td>
<td>The short caption for the \texttt{LOF/LOT}, even if cstar.</td>
<td>sc=Short cap</td>
</tr>
<tr>
<td>cont</td>
<td>•</td>
<td>Continued float?</td>
<td>cont</td>
</tr>
<tr>
<td>l</td>
<td>•</td>
<td>The label. Enclose in braces if a comma is included. Ignored in unnumbered floats.</td>
<td>l=fig:A name</td>
</tr>
<tr>
<td>ap, aup</td>
<td>•</td>
<td>Artist/author's prefix, such as &quot;Mr.&quot;\textsuperscript{b}</td>
<td>ap=Mr.</td>
</tr>
<tr>
<td>af, auf</td>
<td>•</td>
<td>Artist/author's first name.\textsuperscript{b}</td>
<td>af=First</td>
</tr>
<tr>
<td>al, aul</td>
<td>•</td>
<td>Artist/author's last name.\textsuperscript{b}</td>
<td>al=Last</td>
</tr>
<tr>
<td>as, aus</td>
<td>•</td>
<td>Artist/author's suffix, such as ~III.\textsuperscript{b}</td>
<td>al=~III</td>
</tr>
<tr>
<td>t</td>
<td>•</td>
<td>Additional text. May include paragraphs. Enclose in braces if a comma is included. May need \texttt{\protect before macro calls. Fully-justified alignment.}</td>
<td>t=Paragraphs</td>
</tr>
<tr>
<td>tc</td>
<td>•</td>
<td>Additional text, aligned to the center.</td>
<td>tc=Paragraphs</td>
</tr>
<tr>
<td>tl</td>
<td>•</td>
<td>Additional text, aligned to the left.</td>
<td>tl=Paragraphs</td>
</tr>
<tr>
<td>tr</td>
<td>•</td>
<td>Additional text, aligned to the right.</td>
<td>tr=Paragraphs</td>
</tr>
</tbody>
</table>

\textsuperscript{a} All the keys in Part I may be used with the \texttt{keysbfigs, keysbtabs, and keysbfloats} environments.

\textsuperscript{b} Artist/author keys: \texttt{al} is an artist's last name, \texttt{aul} is an author's last name, etc. Artists names are printed centered, authors are flush right. A fixed-width non-breakable space is placed between parts of names, except that the optional suffix is connected directly to the last name, allowing "\texttt{al=\{, Title\}}", for example.
Table 1: Keys and values — part II

<table>
<thead>
<tr>
<th>Key</th>
<th>Description</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>lw</td>
<td>Set the width to a fraction of $\textwidth$.</td>
<td>lw=.5</td>
</tr>
<tr>
<td></td>
<td>Cancels $w$. If a non-image float, sets the width of the text box.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>For wrapped objects, may be used with $\text{wlw}$ for a smaller item with</td>
<td></td>
</tr>
<tr>
<td></td>
<td>a larger caption.</td>
<td></td>
</tr>
<tr>
<td>w</td>
<td>Set the actual width.</td>
<td>w=2in</td>
</tr>
<tr>
<td></td>
<td>Cancels $\text{lw}$. If a non-image float, sets the width of the text box.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>For wrapped objects, may be used with $\text{ww}$ for a smaller item with</td>
<td></td>
</tr>
<tr>
<td></td>
<td>a larger caption.</td>
<td></td>
</tr>
<tr>
<td>h</td>
<td>Set the actual height, images only.</td>
<td>w=2in</td>
</tr>
<tr>
<td>s</td>
<td>Set the image scale, images only.</td>
<td>s=3</td>
</tr>
<tr>
<td>a</td>
<td>Set the rotation angle; counter-clockwise degrees.</td>
<td>r=90</td>
</tr>
<tr>
<td>f</td>
<td>Selects a loose frame with the current $\fboxsep$.</td>
<td>f</td>
</tr>
<tr>
<td></td>
<td>Only rotated with $\text{keyfig}$.</td>
<td></td>
</tr>
<tr>
<td>ft</td>
<td>Selects a tight frame with no $\fboxsep$.</td>
<td>ft</td>
</tr>
<tr>
<td></td>
<td>Useful for photographs, or diagrams which already have some margin built in.</td>
<td></td>
</tr>
<tr>
<td>stretch</td>
<td>Sets $\text{arraystretch}$ inside the float.</td>
<td>stretch=1.5</td>
</tr>
<tr>
<td>mo</td>
<td>Sets the vertical offset for a margin float.</td>
<td>mo=-1.2ex</td>
</tr>
<tr>
<td>wp</td>
<td>Sets the wrap placement for a wrapped float.</td>
<td>wp=1</td>
</tr>
<tr>
<td></td>
<td>The default is 0, which places the wrapped float at the outside edge of the</td>
<td></td>
</tr>
<tr>
<td></td>
<td>text. See table 3.</td>
<td></td>
</tr>
<tr>
<td>wlw</td>
<td>Sets the total width of the wrapped item to a fraction of $\textwidth$.</td>
<td>wlw=.6</td>
</tr>
<tr>
<td></td>
<td>May be more than the $w$ or $\text{lw}$ width.</td>
<td></td>
</tr>
<tr>
<td>ww</td>
<td>Sets the total width of the wrapped item.</td>
<td>ww=2in</td>
</tr>
<tr>
<td></td>
<td>May be more than the $w$ or $\text{lw}$ width.</td>
<td></td>
</tr>
<tr>
<td>va</td>
<td>Sets the vertical alignment of the outermost minipage container for the</td>
<td>va=t</td>
</tr>
<tr>
<td></td>
<td>keyfloat. Defaults to 'c'.</td>
<td></td>
</tr>
</tbody>
</table>

*None of the keys in Part II are used in the keysubfigs, keysubtabs, and keysubfloats environments.*
Table 2: Caption-related key combinations

<table>
<thead>
<tr>
<th>Keys in Use</th>
<th>Type of</th>
<th>Caption</th>
<th>LOF/LOT</th>
</tr>
</thead>
<tbody>
<tr>
<td>c cstar sc</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• — —</td>
<td>Numbered</td>
<td>Caption</td>
<td></td>
</tr>
<tr>
<td>• — —</td>
<td>Numbered</td>
<td>Short Caption</td>
<td></td>
</tr>
<tr>
<td>— • —</td>
<td>Unnumbered</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>— • —</td>
<td>Unnumbered</td>
<td>Short Caption</td>
<td></td>
</tr>
<tr>
<td>— cstar={}</td>
<td>Ignored</td>
<td>None</td>
<td>None</td>
</tr>
</tbody>
</table>

\(a\) Caption: Shows whether the float will be numbered, unnumbered, or have no caption.

\(b\) \text{LOF/LOT}: Shows whether the regular or short caption will appear in the List of Figures or List of Tables, or if there will be no listing.

Table 3: \text{wp}: Wrapped float placement options

<table>
<thead>
<tr>
<th>Key</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>r</td>
<td>to the right of the text body</td>
</tr>
<tr>
<td>l</td>
<td>to the left of the text body</td>
</tr>
<tr>
<td>i</td>
<td>to the inside margin</td>
</tr>
<tr>
<td>o</td>
<td>to the outside margin</td>
</tr>
</tbody>
</table>

The un-capitalized key attempts to place the float “here”, and the capitalized key allows \LaTeX{} to try to find the best location. The default is \texttt{0}. 
2.4 Other settings

\KFLTtightframe \{\langle contents\rangle\} Frames the contents without separation.
\KFLTlooseframe \{\langle contents\rangle\} Frames the contents with separation.

These may be used to re-define how contents are framed. The default is a simple \fbox.

\Len \KFLTtightframewidth Combined width of the frame and separation for each of tight and loose frames. These settings should be adjusted when changing the frame width and/or separation. The value should be equivalent to \fboxwidth plus \fboxsep.

\Len \KFLTlooseframewidth

\Len \KFLTimageboxwidth The computed width of the image. Useful to enclose an mdframed environment to restrict its width. See example 29.
An image.

Figure 1: A \keyfig with an image

Some text. More text.
Another paragraph.

Figure 2: A \keyfigbox

2.5 Examples

2.5.1 Single floats

Example 1: Figure with an image from a file

Code:
\keyfig{c=A \cs{keyfig} with an image,l=fig:simple}{image}

Result:
Figure 1

natural size This float (fig. 1) is shown at its natural size because no width or height modifiers were specified. When used alone like this, a regular float is created.

Example 2: Figure with arbitrary contents

Code:
\keyfigbox{f,c={A \cs{keyfigbox}},l=fig:figbox}

{Some text. More text. \par Another paragraph.}

Result:
Figure 2

default width The \keyfigbox creates a figure with a box of arbitrary contents, instead of an image from a file. Its default width is the full \linewidth, unless w or lw keys are used.
Arbitrary contents may go here.
Including multiple paragraphs.

Figure 3: A keyfigure environment

Table 4: A \keytab table

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>D</td>
</tr>
</tbody>
</table>

Example 3: Figure environment with arbitrary contents

Code:

```latex
\begin{keyfigure}{f,c={A \texttt{\textbackslash env\{keyfigure\} environment}, l=fig:environment}}
Arbitrary contents may go here.
Including multiple paragraphs.
\end{keyfigure}
```

Result:

*Figure 3*

The keyfigure environment is preferred over the \texttt{keyfigbox} macro when multiple lines of contents are to be included.

Example 4: Table macro

Code:

```latex
\keytab{c=A \texttt{\textbackslash cs\{keytab\} table},l=tab:simpletable}{\testtable}
```

Result:

*Table 4*

Do not try to use tables which overflow the page.

For anything other than a simple table, use the keytable environment. See example 5.

For large tables, use the longtable or supertabular packages.
Table 5: A keytable environment

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>B</td>
</tr>
<tr>
<td>C</td>
<td>D</td>
</tr>
</tbody>
</table>

\textsuperscript{a}A footnote.

Example 5: Table environment with arbitrary contents

\texttt{Code:}

\begin{keytable}{f,c={A \env{keytable} environment}, l=tab:environment}
Arbitrary contents may go here.\footnote{A footnote.}
\testtable
\end{keytable}

\texttt{Result:}

Table 5

The keytable environment is preferred over the keytab macro since most tables are multi-line creations.

keytab centers the table, but keytable does not. Add \centering if desired.
Additional text. Multiple paragraphs may be used. The entire text is enclosed in braces because a comma is included. Alignment may be set by using tags \optn{tc}, \optn{tl}, or \optn{tr} instead of \optn{t}.

**Figure 4: A figure with many options**

---

**Example 6: Figure with many options selected**

 getCode

\keyfig{
    w=2in, ft, r=15,
    c=A figure with many options,
    sc=A figure with options,
    t={Additional text. Multiple paragraphs may be used. The entire text is enclosed in braces because a comma is included. Alignment may be set by using tags \optn{tc}, \optn{tl}, or \optn{tr} instead of \optn{t}},
    l=fig:options
}{image}

*Result:*

**Figure 4**

Width is fixed at 2 in, a tight frame is specified (\fboxsep of 0 pt), a short caption appears in the List of Figures, and the additional text is using the default fully-justified alignment.

Since fig. 4 is a float, it may appear on the following page.
Example 7: Using \texttt{\textbackslash linewidth}

Code:

\keyfig{lw=.5,c=Half of \texttt{\textbackslash cs\texttt{\textbackslash linewidth}},l=fig:\texttt{\textbackslash linewidth}}{image}

Result:

\texttt{Figure 5}

\texttt{\textbackslash linewidth} Figure 5 is half of \texttt{\textbackslash linewidth} in size. When the \texttt{lw} key is used inside a \texttt{keyfloats} or \texttt{keysupfigs} environment, the \texttt{\textbackslash linewidth} will be proportional to the sub-box for each element. When used alone, such as here, the \texttt{\textbackslash linewidth} is the full width of the text on this page.

\texttt{lw} and \texttt{w} are not used at the same time. If both \texttt{lw} and \texttt{w} are specified, the last one cancels any previous ones.
Example 8: Using frames

Code:

\begin{keyfloats}[hbp][4]
\keyfig[f,c=Loosely-framed figure,l=fig:looseframe]{image}
\keyfig[ft,c=Tightly-framed figure,l=fig:tightframe]{image}
\keytab[f,c=Loosely-framed table,l=tab:looseframe]{\testtable}
\keytab[ft,c=Tightly-framed table,l=tab:tightframe]{\testtable}
\end{keyfloats}

Result:

Figures 6 and 7 and tables 6 and 7

Table 6: Loosely-framed table

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>B</td>
</tr>
<tr>
<td>C</td>
<td>D</td>
</tr>
</tbody>
</table>

Table 7: Tightly-framed table

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>B</td>
</tr>
<tr>
<td>C</td>
<td>D</td>
</tr>
</tbody>
</table>

The f key adds a loose frame with the current \fboxsep. This is desirable in most cases.

The tf key adds a tight frame with no separation. This is useful for framing a photograph, or a diagram which already has a margin.

Framing tables is seldom recommended. In the case of the tight frame, table 7, note that the external frame almost overwrites the table's natural horizontal rules.

custom frames Also see section 2.6.1 for customizing frames.
Table 8: Table, rotated

( Framed to show box width. )

Example 9: Using rotation with boxes

Code:

\keytab{f,w=.8in,c={Table, rotated},
  r=70,l=tab:rotated,
  tc=(Framed to show box width.)}
{\testwidetable}

Result:

Table 8

rotated whitespace  Unless a width is given, a box is the full \linewidth. When rotated, this extra horizontal space is rotated into extra vertical space. To avoid this extra space, set a w or lw to be wide enough for the table or other contents, but not much wider. When this box is rotated, it will not take much more vertical space than necessary.

⚠️ box width

frame rotation  Unlike an image, the frame of a box does not rotate with its contents.
Example 10: Located [H]ere

Code:
\keytab[H]{c={A table [H]},l=tab:here}{\testtable}
\keyfig[H]{f,w=1in,c={A keyfig [H]},l=fig:here}{image}

Result:
Table 9, Figure 8

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>B</td>
</tr>
<tr>
<td>C</td>
<td>D</td>
</tr>
</tbody>
</table>

An image.

Figure 8: A keyfig [H]

⚠️ Out of sequence

Table 9 and Figure 8 are to be placed “[H]ere”, and therefore may appear out-of-sequence with surrounding figures. Place a `\clearpage` before or after to re-sync, if necessary.
Starred caption with a short caption.

Example 11: Unnumbered float

Code:

\keyfig[H]{f,cstar={A starred caption}}{image}

Result:

See fig: "A starred caption".

A starred caption creates a float without a number, and without an entry in the List of Figures unless there is a non-empty short caption. (See the next example.)

⚠️  No label  Labels cannot be used when there is no number for a float.

Example 12: Unnumbered float with a \texttt{LOF} entry

Code:

\keyfig{
  f,cstar={Starred caption with a short caption.},
  sc={Starred short caption}
}{image}

Result:

See fig: "Starred caption with a short caption".

A starred caption with a non-empty short caption creates an unnumbered entry in the List of Figures.
Example 13: An unnumbered in-text image

Code:

\keyfig[H]{f,cstar={},
    tc={Optional text which is not a caption.}}{image2}

Result:
See fig: "Optional text which is not a caption."

By using [H] and cstar=(), the image is placed inline without a number or \lref entry. Also see example 14.
Some contents.

A \texttt{keyparbox} with no number or label.

\begin{keyfloats}{2}
\texttt{keyparbox}[
\fboxsep=.5,\tc=\texttt{A \texttt{\textbackslash cs\{keyparbox\} with no number or label.}}
]{\texttt{Some contents.}}
\texttt{keyfig}[c=\texttt{Next to a \texttt{keyparbox}},l=\texttt{fig:nexttoparbox}]{image}
\end{keyfloats}

\texttt{keyparbox}[H]\{f, lw=.5\}{\texttt{A \texttt{\textbackslash cs\{keyparbox\} [H], outside the row.}}}

Result:

Figure 9, and the box to its left.

\begin{keyfigbox}{H}{cstar={}}{A \texttt{\textbackslash cs\{keyparbox\} [H], outside the row.}}

A \texttt{keyparbox} is a \texttt{keyfigbox} with \texttt{cstar={}}, and is mostly useful as an information box inside a row or a set of subfloats.
2.5.2 Groups of floats

Example 15: Groups of figures — keyfloats environment

Code:

\begin{keyfloats}{2}
\keyfig{lw=1,f,c={First in a group},
  l=fig:firstinrow,tl={\cs{raggedright} text}}{image}
\keyparbox{}{\centering A \cs{keyparbox} describing something.
  \par With several paragraphs.}
\begin{keyfloats}{2}
\keyfig{lw=1,c={Third in a group},
  l=fig:thirdinarow}{image}
\keyfig{lw=1,c={Fourth in a group}}{image2}
\keyfig{lw=1,c={Fifth in a group}}{image}
\keyfig{lw=1,c={Sixth in a group},
  l=fig:sixthinarow}{image2}
\end{keyfloats}
\keytab{c={Seventh in a group},l=tab:seventhinrow}{\testwidetable}
\end{keyfloats}

Result:

Figure 10 to Table 10 are in a keyfloats environment. Furthermore, Figures 11 to 14 are in an additional nested keyfloats environment, forming a small box of floats inside the larger group.

The keyfloats environment takes an argument for the number of columns. Additional floats are automatically placed on following rows. Changing the number of columns will cause the floats to automatically readjust as necessary. Leftovers will be centered on the last row.

\begin{itemize}
  \item \texttt{\linewidth} is adjusted for each row and nested row, so the \texttt{lw} key will need to be changed if a float is moved to a different nesting level.
  \item \texttt{image too large} Fixed-width or fixed-height floats may be too large to fit if they are moved into a group. It is the user's responsibility to adjust \texttt{w}, \texttt{h}, or \texttt{lw} as necessary.
\end{itemize}

Keyfloats may be located [H], [M], or located [W] set with half the line width:
\begin{verbatim}
\begin{keyfloats}[H]{2}...
\end{keyfloats}
\end{verbatim}

Keyfloats may be starred to span both columns in a two-column format:
\begin{verbatim}
\begin{keyfloats}*[2]...
\end{keyfloats}
\end{verbatim}
An image.

Figure 10: First in a group

Another image

Figure 11: Third in a group

Figure 12: Fourth in a group

An image.

Figure 13: Fifth in a group

Figure 14: Sixth in a group

A \keyparbox describing something.

With several paragraphs.

Table 10: Seventh in a group

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>B</td>
<td>C</td>
</tr>
<tr>
<td>D</td>
<td>E</td>
<td>F</td>
</tr>
</tbody>
</table>
2.5.3 Subfloats

Example 16: Subfigures — keysubfigs environment

Code:

```
\begin{keysubfigs}{3}{c=Subfigures,l=fig:subfigs}
  \keyfig{lw=1,f,c={First subfigure},
          l=fig:firstsubfig,t=Some text}{image}
  \keyfig{lw=1,f,r=90,c={Second subfigure},
          l=fig:secondsubfig,
          t=Lots of lots of lots of lots of text.}{image2}
\end{keysubfigs}
```

Result:

Figure 15

Figures 15a to 15e are in the fig. 15 keysubfigs environment. The keysubtabs environment is similar. Mixed types have the type of their container, as shown with fig. 15d.
Subfloats are associated floats (a, b, …) collected together into one common float (the enclosing keysubfigs or keysubtabs environment). The enclosing float can have its own caption (call “Sub-Figures” in the example), which appears in the LOF/LOT, and also a label. Each subfloat can have its own caption and label as well, but the subcaption does not appear in the LOF/LOT.

⚠️ **mixed subfloats** All subfloats are forced to have the same type as its containing float. A table inside a figure will be labeled as a figure, for example. This avoids miss-labeling as each subfloat must clearly be identified as a child of its containing float.

⚠️ **nested subfloats** keysubfigs and keysubtabs may not be used inside the keyfloats environment, and cannot be nested inside each other. (No subfloat 12aa, 12ab, 12ba, etc.)

nested keyfloats The keyfloats environment may be used inside keysubfigs or keysubtabs to gather subfloats together, such as the three right-most figures in fig. 15.

Subfloats may be located [H], [M], or located [W] set with half the line width:
\begin{keysubfigs}[H]{3}{key/vals …}

Subfloats may be starred to span both columns in a two-column format:
\begin{keysubfigs}*{2}{key/vals …}

---

**Example 17: Subtables [H] — keysubtabs environment**

*Code:*
\begin{keysubtabs}[H]{2}{c=Subtables [H],l=tab:subtabs}
\keytab{c={First subtable},l=fig:firstsubtab}{\testtable}
\keytab{c={Second subtable},l=fig:secondsubtab}{\testwidetable}
\end{keysubtabs}

*Result:*

Table 11: Subtables [H]

<table>
<thead>
<tr>
<th>a: First subtable</th>
<th>b: Second subtable</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>B</td>
</tr>
<tr>
<td>C</td>
<td>D</td>
</tr>
</tbody>
</table>
2.5.4 Continued floats

The `cont` key may be used to generate a “continued” float. The continued float receives the same number as the previous float, and it is assumed that they are the same float, except that they are separated for some reason such as size on the page.

The label may be placed in a continued float, and will still receive the same float number as the prior non-continued float.

Example 18: Continued figure

Code:

\begin{keyfloats}{2}
\keyfig{,c=Figure to be continued}{image}
\keyfig{c={\dots continued},cont,l=fig:firstcontinued}{image2}
\end{keyfloats}

Result:

Figure 16
An image. An image.

a: First of a set b: Second of a set

Figure 17: A set of figures

Another image Another image

c: Third of a set d: Fourth of a set

Figure 17: ...continued

2.5.5 Continued subfloats

The keysubfigs and keysubtabs environments may also be given the cont key. The containing environment's float receives the same number as the previous float (presumably another subfloat container).

Example 19: Continued subfloats

Code:

\begin{keysfigs}{2}{c={A set of figures},l=fig:continuedfigures}
\keyfig{c={First of a set},l=fig:contfirst}{image}
\keyfig{c={Second of a set},l=fig:contsecond}{image}
\end{keysfigs}
\begin{keysfigs}{2}{c={\dots continued},cont}
\keyfig{c={Third of a set},l=fig:contthird}{image2}
\keyfig{c={Fourth of a set},l=fig:contfourth}{image2}
\end{keysfigs}

Result:

Figure 17
2.5.6 Margin floats

When a keyfloat is located [M], it will be placed in the margin.

When the tufte-book class is used, its marginfigure or margintable environments will be used, otherwise keyfloat provides environments of the same name and uses those instead.

---

**Example 20: The marginfigure environment**

*Code:*

\begin{marginfigure}
\centering
\includegraphics[width=.75\linewidth]{image}
\caption{A \texttt{marginfigure}}
\label{fig:marginfigure}
\end{marginfigure}

*Result:*

*Figure 18*

---

---

**Example 21: The margintable environment**

*Code:*

\begin{margintable}
\centering
\testwidetable
\caption{A \texttt{margintable}}
\label{fig:margintable}
\end{margintable}

*Result:*

*Table 12*
Example 22: Using `keyfig[M]`

Code:

```latex
\keyfig[M]c={A \cs{keyfig}\optn{[M]}},l=fig:keystartm,ft,
t=Additional text.
```

Text text text text text text.

More paragraphs.

```latex
{}(image2)
```

Result:

**Figure 19**

---

Example 23: Using `keytable[M]` and an offset

Code:

```latex
\begin{keytable}
\centering
\testwidetable
\end{keytable}
```

Result:

**Table 13**

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>D</td>
<td>E</td>
<td>F</td>
</tr>
</tbody>
</table>

A negative offset was used to shift the table upwards to the top of the example.

`distance between floats` To set the minimum-allowed distance between `\marginpars` and margin floats:

```latex
\setlength{\marginparpush}{3ex}
```
2.5.7 Wrapped floats

Example 24: Using \keyfig and \keytab

Code:
\keyfig[c={A \cs{keyfig}\optn{[W]}},
   l=fig:keyfigw,ft, lw=.4, wp=I,
   t={.4\cs{linewidth} wide, placed \optn{I}.}]
\blindtext
\keytab[c={A \cs{keytab}\optn{[W]}},l=tab:keytabw,w=.75in,]
\blindtext

Result:
Figure 20 and table 14


Table 14: A \keytab

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Example 25: Using `\keyfigbox[w]` and `\keyparbox[w]`

Code:

\keyfigbox[w]{c={A \cs{keyfigbox}\optn{[W]}},
l=fig:keyfigboxw,f,lw=.25,wp=I,
t=Text text text text text text text text text}
{The contents.}
\blindtext
\keyparbox[w]{w=1in}{A \cs{keyparbox}[W] and some more text.}
\blindtext

Result:

*Figure 21 and the `\keyparbox`.*


Example 26: Using `\keyfigure` and `\keytable`

**Code:**

```latex
\begin{keyfigure}
  c={A \cs{keyfigure}\optn{[W]}},
  l=fig:1, f, w=1.5in
\end{keyfigure}

This is a keyfigure.
```

```latex
\begin{keytable}
  c={A \env{keytable}\optn{[W]}},
  l=tab:1, w=2in, wp=L,
  tc=Placed \optn{L} and 2in wide.
\end{keytable}
```

**Result:**

**Figure 22 and table 15**


**Table 15: A \keytable**

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>D</td>
<td>E</td>
<td>F</td>
</tr>
</tbody>
</table>

Placed L and 2in wide.
Example 27: Using keywrap with a keyfig

Code:

\begin{itemize}
  \item First item.
    Several lines of text text text text text text text text text text text text text text text text text text text.
  \item \begin{keywrap}{.3\linewidth}{\keyfig{%
    lw=1,c=(Keywrap with \cs{keyfig}),l=fig:keywrapfig%
}{image}}
    Second item.
    Several lines of text text text text text text text text text text text text text text text text text.
    These paragraphs are inside the \texttt{keywrap}. A vertical gap appears below if the text is not enough to fill the space next to the \texttt{\cs{keyfig}}.
  \end{keywrap}
  Outside the \texttt{\wrapfig}, but still in the second item. There is no elegant way to place only part of a paragraph inside a \texttt{\keywrap}, and attempting to do so requires manually removing the vertical paragraph skip.
  \item Third item.
\end{itemize}

Result:

\textit{Figure 23}

- First item. Several lines of text text text text text text text text text text text text text text text text text text text.
- Second item. Several lines of text text text text text text text text text text text text text text text text text.
  These paragraphs are inside the \texttt{\keywrap}. A vertical gap appears below if the text is not enough to fill the space next to the \texttt{\keyfig}.
- Third item.

\textit{Notes}

Outside the \texttt{\wrapfig}, but still in the second item. There is no elegant way to place only part of a paragraph inside a \texttt{\keywrap}, and attempting to do so requires manually removing the vertical paragraph skip.

\textit{Figure 23: Keywrap with \keyfig}
Example 28: Using wrap width \texttt{ww} and \texttt{wlw}

\textbf{Code:}

\begin{verbatim}
\keyfig[W]{c={A \cs{keyfig}\optn{[W] with \optn{wlw}}},
  l=fig:keyfigwlw,ft,lw=.15, wlw=.4,wp=I,
  t={.15\cs{linewidth} wide, in a .4\cs{linewidth} box.}}{image2}
\blindtext[1]
\keyfig[W]{c={A \cs{keyfig}\optn{[W] with \optn{ww}}},
  l=fig:keyfigww,ft,w=1cm,ww=3cm,wp=I,
  t={1cm wide, in a 3cm box.}}{image2}
\blindtext[1]
\end{verbatim}

\textbf{Result:}

\textit{Figures 24 and 25}

\begin{center}
\begin{itemize}
  \item \textbf{Figure 24: A} \texttt{\keyfig[W]} \texttt{with wlw}
    \begin{quote}
    \end{quote}
\end{itemize}
\end{center}

\begin{center}
\begin{itemize}
  \item \textbf{Figure 25: A} \texttt{\keyfig[W]} \texttt{with ww}
    \begin{quote}
    \end{quote}
\end{itemize}
\end{center}
2.5.8 Custom frames

Example 29: Custom frames with \texttt{mdframed}

\begin{verbatim}
\renewcommand{\KFLTtightframe}{\begin{minipage}{\KFLTimageboxwidth}
\begin{mdtightframe}#1\end{mdtightframe}\end{minipage}}
\setlength{\KFLTtightframewidth}{1pt}
\renewcommand{\KFLTlooseframe}{\begin{mdlooseframe}[leftmargin=1.5in,rightmargin=1.5in]#1\end{mdlooseframe}}
\setlength{\KFLTlooseframewidth}{4pt}
\end{verbatim}

Result:
Figures 26 and 27

Example 29 shows custom frames created with the \texttt{mdframed} package along with \texttt{Pkg tikz}. Note that \texttt{mdframed} uses the full \texttt{\linewidth} even if the left/right margins are explicitly set, which causes extra vertical space when rotated. Because of this, the framed object is enclosed inside a minipage whose width is precomputed based on the object itself, then set in \texttt{\KFLTimageboxwidth}. Any shadow may fall outside this
Figure 28: Custom shadow

A looseley-framed shadow box.

Figure 29: Custom loosely-framed shadow box.

See section 2.6.1 for more details.

Example 30: Custom shadows with fancybox

Code:

\renewcommand{\KFLTtightframe}[1][1]{%
\setlength{\fboxrule}{.4pt}
\setlength{\fboxsep}{0pt}
\setlength{\shadowsize}{2pt}
\shadowbox{#1}%
}
\setlength{\KFLTtightframewidth}{0.4pt}

\renewcommand{\KFLTlooseframe}[1][1]{%
\setlength{\fboxrule}{.4pt}
\setlength{\fboxsep}{3pt}
\setlength{\shadowsize}{2pt}
\shadowbox{#1}%
}
\setlength{\KFLTlooseframewidth}{3.4pt}

\keyfig{ft,c=Custom shadow,l=fig:customshadow}{image}
\keyfigbox{f,c=Custom loosely-framed shadow, lw=.5, lw=\.5, l=fig:customlooseshadow}{A loosely-framed shadow box.}

Result:
Figures 28 and 29

Example 30 shows custom shadow frames created with the fancybox package. This combination respects lw and w.

See section 2.6.1 for more details.
2.5.9 Artist’s name

Example 31: Artist’s name — image

Code:
\keyfig{ft,ap=Mr.,af=First,al=Last,as={~III},
tc={\textit{About the illustration.}},
c=Artist’s name --- image,l=fig:artist}{image}

Result:
Figure 30

Example 32: Artist’s name — arbitrary contents

Code:
\tdartistright
\begin{keyfigure}{f,ap=Mr.,al=Last,}
c=Artist’s name --- arbitrary contents,l=fig:artistpar}
\centering Some text, a quotation, a TikZ\ diagram --- anything not an image file.
\end{keyfigure}
\tdartistcenter

Result:
Figure 31

The artist’s name and optional prefix/suffix are printed below the figure, and an index entry is made for the name in (Last, First) format, or (Last) if there is no first name. If the \tocdata package is loaded, the artist’s name is also added to the List of Figures, and the \tdname... macros may be used to align the name.
Some fully-justified text just for illustrative purposes, in case you have use for long explanations. This text may be the full \textwidth in size.

Multiple paragraphs of text are allowed.

\textbf{Figure 32: Artist's collection}

\begin{example}[Subfloats with an artist]
\begin{code}
\begin{keysubfigs}{2}
  \begin{keyfig}{c=Artist's First Work}{image}
  \end{keyfig}
  \begin{keyfig}{c=Artist's Second Work, \tc=Commentary about the work.}{image2}
  \end{keyfig}
\end{keysubfigs}
\end{code}
\end{example}

\textbf{Result: Figure 32}

A group of figures may be placed into a subfloat container, which may have its own artist keys and additional text. Furthermore, each subfloat inside the collection may also have its own artist tags and additional text.
2.6 Customization

2.6.1 Custom frames

There are two user-redefinable framing macros:

\KFLTtightframe and \KFLTlooseframe

A float’s contents are placed into a box, which is passed to either of these two macros depending on the key \f or \tf.

Each macro takes one argument and frames it.

Each macro has a associated \LaTeX lengths:

\KFLTtightframewidth and \KFLTlooseframewidth

These lengths must be redefined to the expected total frame width, equal to the frame thickness plus separation.

The default definitions are:

\newcommand{\KFLTtightframe}[1]{% 
\setlength{\fboxsep}{0pt}% 
\setlength{\fboxrule}{.4pt}% 
\fbox{#1}% 
} 
\setlength{\KFLTtightframewidth}{.4pt}

\newcommand{\KFLTlooseframe}[1]{% 
\setlength{\fboxsep}{3pt}% 
\setlength{\fboxrule}{.4pt}% 
\fbox{#1}% 
} 
\setlength{\KFLTlooseframewidth}{3.4pt}

See example 29 for an example created with the \mdframed package, and example 30 for an example created with the \fancybox package.

2.6.2 Distance between floats and rows

To spread out the distance between floats and/or rows of floats on a busy page, the following settings may be changed. The settings used in this documentation are:

\setlength{\floatsep}{5ex plus 1ex minus 1ex} 
\setlength{\dblfloatsep}{5ex plus 1ex minus 1ex}
2.6.3 Formatting the captions

To modify the typesetting of the captions, see the `caption` package. The settings used in this documentation are:

% default applied to margin floats:
\captionsetup{labelfont={small,bf},textfont={small,bf}}

\captionsetup[figure]{
  style=default, justification=centering,
  margin=0pt, parskip=0pt, skip=2ex,
  labelfont={small,bf},textfont={small,bf}
}

\captionsetup[table]{
  style=default, justification=centering,
  margin=0pt, parskip=0pt, skip=1ex,
  labelfont={small,bf},textfont={small,bf}
}

\captionsetup[subfigure]{
  style=default, justification=centering,
  margin=0pt, parskip=0pt, skip=2ex,
  labelfont={small},textfont={small}
}

\captionsetup[subtable]{
  style=default, justification=centering,
  margin=0pt, parskip=0pt, skip=1ex,
  labelfont={small},textfont={small}
}
3 Code

3.1 Older packages

Ensure that tocdata, if loaded, is new enough:

\ifpackageloaded{tocdata}{
  \ifpackagelater{tocdata}{2019/03/21}{}
  \PackageError{keyfloat}{%  
    The tocdata package is out of date.\MessageBreak
    Update to tocdata v2.02 2019/03/21 or later\MessageBreak
    to use use this version of keyfloat%  
}{}%

3.2 Prohibited packages

Prohibits the use of a certain other packages.

\KFLT@@prohibitpackage{⟨packagename⟩}

\newcommand*{\KFLT@prohibitpackage}[2]{%
  \ifpackageloaded{#1}{
    \PackageError{keyfloat}{%  
      The keyfloat package conflicts with the #1\MessageBreak
      package. Remove #1 to use keyfloat.\MessageBreak
      Alternative(s):\MessageBreak
      \space\space#2%  
}{}%
  \KFLT@prohibitpackage{⟨packagename⟩}
Prohibits the use of another package, both now and also `\AtBeginDocument`.

```latex
\newcommand*{\KFLT@prohibitpackage}[2]{
  \KFLT@@prohibitpackage{#1}{#2}
  \AtBeginDocument{\KFLT@@prohibitpackage{#1}{#2}}
}
```

The list of prohibited packages:

```latex
\KFLT@prohibitpackage{floatrow}{caption and subcaption}
\KFLT@prohibitpackage{subfig}{subcaption}
\KFLT@prohibitpackage{subfigure}{subcaption}
\KFLT@prohibitpackage{subfloat}{subcaption}
\KFLT@prohibitpackage{floatflt}{wrapfig}
```

### 3.3 Required packages

**Pkg** `etoolbox` v2.6 or later for `\BeforeBeginEnvironment`, `\AfterEndEnvironment`

```latex
\RequirePackage{etoolbox}[2011/01/03]%
```

**Pkg** `xparse` Argument processing:

```latex
\RequirePackage{xparse}
```

**Pkg** `keyval` Key processing:

```latex
\RequirePackage{xkeyval}
```

**Pkg** `graphicx` For `\includegraphics` and `rotating`:

```latex
\RequirePackage{graphicx}
```

**Pkg** `caption` Handles all caption-related functions:

```latex
\RequirePackage{caption}[2010/10/31] % v3.2 to support `\phantomcaption`
```

**Pkg** `subcaption` Derived from `caption`, used to handle subfloats:

```latex
\RequirePackage{subcaption}
```

**Pkg** `calc` Used to compute box width minus frame sep and width.

```latex
\RequirePackage{calc}
```
Provides rotation via the \texttt{turn} environment:

\begin{verbatim}
\RequirePackage{rotating}
\end{verbatim}

\textbf{Pkg placeins} Provides to process existing floats before adding new ones.

\begin{verbatim}
\RequirePackage{placeins}
\end{verbatim}

\textbf{Pkg wrapfig} Provides figure wrapping code.

\begin{verbatim}
\RequirePackage{wrapfig}
\end{verbatim}

\textbf{Pkg gettitlestring} Used by \texttt{hyperref} and \texttt{nameref}.

Expand names used in titles:

\begin{verbatim}
\PassOptionsToPackage{expand}{gettitlestring}
\end{verbatim}

Rows of floats are created by a simple \texttt{minipage} environment, instead of relying on a preexisting package. This proved to be advantageous when support was added for multiple rows in one environment.

### 3.4 In-line figures and tables

These macros are commonly used by others.

\textbf{Env tablehere} Place a table exactly \texttt{[H]}.

\begin{verbatim}
\ProvideDocumentEnvironment{tablehere}{}{\vskip\intextsep
\noindent\minipage{\linewidth}\def\@captype{table}\normalcolor\reset@font
\normalsize}{\vskip\intextsep}
\end{verbatim}

\textbf{Env figurehere} Place a figure exactly \texttt{[H]}.

\begin{verbatim}
\ProvideDocumentEnvironment{figurehere}{}{\vskip\intextsep
\noindent\minipage{\linewidth}}
\end{verbatim}
3.5 Row counting and control

Used to count position and wrap at end of each row.

\begin{itemize}
\item \textbf{Ctr KFLT@numcols} Columns per row.
\item \textbf{Ctr KFLT@thiscol} Column currently processing. 0 if not yet in a keyfloats or subfloat.
\item \textbf{Len KFLT@rowboxwidth} How wide is each box in the row.
\end{itemize}

3.6 Float key handling

\begin{itemize}
\item \textbf{Bool KFLT@cont} Continued float?
\item \textbf{Key [main] cont} Continued float?
\item \textbf{\KFLT@c} Caption storage
\item \textbf{Bool KFLT@cstar} Starred caption?
\item \textbf{Key [main] c} Caption
\end{itemize}
Key [main] \ cstar

Caption starred?

\define@key{KFLT@keys}{cstar}{%
\renewcommand{\KFLT@c}{#1}\setboolean{KFLT@cstar}{true}%
\}

Key [main] \ sc

Short caption

\define@key{KFLT@keys}{sc}{%
\renewcommand{\KFLT@sc}{#1}\setboolean{KFLT@scgiven}{true}%
\}

\KFLT@sc

Short caption storage

\newcommand{\KFLT@sc}{}

Bool \ KFLT@scgiven

Was a short caption given?

\newboolean{KFLT@scgiven}

\KFLT@type

Float type: “figure”, “table”

\newcommand*{\KFLT@type}{}

Key [main] \ l

Label

\define@key{KFLT@keys}{l}{\renewcommand{\KFLT@l}{#1}}

\KFLT@l

Label storage

\newcommand*{\KFLT@l}{}

For the artist/author keys:

Key [main] \ ap

Artist prefix

\define@key{KFLT@keys}{ap}{\renewcommand{\KFLT@ap}{#1}}

\KFLT@ap

Storage for artist prefix

\newcommand*{\KFLT@ap}{}
keyfloat

Key [main]  af  Artist first name

89 \define@key{KFLT@keys}{af}{\renewcommand{\KFLT@af}{#1}}

\KFLT@af  Storage for artist first name

90 \newcommand*{\KFLT@af}{}

Key [main]  al  Artist last name

91 \define@key{KFLT@keys}{al}{\renewcommand{\KFLT@al}{#1}}

\KFLT@al  Storage for artist last name

92 \newcommand*{\KFLT@al}{}

Key [main]  as  Artist suffix

93 \define@key{KFLT@keys}{as}{\renewcommand{\KFLT@as}{#1}}

\KFLT@as  Storage for artist suffix

94 \newcommand*{\KFLT@as}{}

Key [main]  aup  Author prefix

95 \define@key{KFLT@keys}{aup}{\renewcommand{\KFLT@aup}{#1}}

\KFLT@aup  Storage for author prefix

96 \newcommand*{\KFLT@aup}{}

Key [main]  auf  Author first name

97 \define@key{KFLT@keys}{auf}{\renewcommand{\KFLT@auf}{#1}}

\KFLT@auf  Storage for author first name

98 \newcommand*{\KFLT@auf}{}

Key [main]  aul  Author last name

99 \define@key{KFLT@keys}{aul}{\renewcommand{\KFLT@aul}{#1}}
\KFLT@a1  Storage for author last name
100 \newcommand*{\KFLT@aul}{}

Key [main] aus  Author suffix
101 \define@key{KFLT@keys}{aus}{\renewcommand{\KFLT@aus}{#1}}

\KFLT@aus  Storage for author suffix
102 \newcommand*{\KFLT@aus}{}

\KFLT@textalign  Storage for text alignment.
103 \newcommand*{\KFLT@textalign}{}

\KFLT@t  Additional text storage
104 \newcommand{\KFLT@t}{}

Create replacement macros in case \texttt{tocdata} is not loaded:
105 \providecommand{\tdartisttextjustify}{}
106 \providecommand{\tdartisttextcenter}{}
107 \providecommand{\tdartisttextleft}{}
108 \providecommand{\tdartisttextright}{}
109 \providecommand{\tdauthortextjustify}{}
110 \providecommand{\tdauthortextcenter}{}
111 \providecommand{\tdauthortextleft}{}
112 \providecommand{\tdauthortextright}{}
113 \providecommand{\tdartistjustify}{}
114 \providecommand{\tdartistcenter}{}
115 \providecommand{\tdartistleft}{}
116 \providecommand{\tdartistright}{}
117 \providecommand{\tdauthorjustify}{}
118 \providecommand{\tdauthorcenter}{}
119 \providecommand{\tdauthorleft}{}
120 \providecommand{\tdauthorright}{}

\texttt{Key [main]} t  Additional text, justified alignment.
\begin{dquote}
Key [main] tc Additional text, centered alignment.

\begin{verbatim}
\define@key{KFLT@keys}{t}{%
  \renewcommand{\KFLT@t}{{#1}}%
  \renewcommand{\KFLT@textalign}{}%
}\end{verbatim}

\begin{dquote}
Additional text, centered alignment.
Key [main] tc
\end{dquote}

Key [main] tr Additional text, aligned to the right.

\begin{verbatim}
\define@key{KFLT@keys}{tc}{%
  \renewcommand{\KFLT@t}{{#1}}%
  \renewcommand{\KFLT@textalign}{\centering}%
}\end{verbatim}

\begin{dquote}
Additional text, aligned to the right.
Key [main] tr
\end{dquote}

Key [main] tl Additional text, aligned to the left.

\begin{verbatim}
\define@key{KFLT@keys}{tl}{%
  \renewcommand{\KFLT@t}{{#1}}%
  \renewcommand{\KFLT@textalign}{\raggedright}%
}\end{verbatim}

\begin{dquote}
Additional text, aligned to the left.
Key [main] tl
\end{dquote}

Key [main] lw Fraction of \texttt{\textbackslash linewidth}

\begin{verbatim}
\define@key{KFLT@keys}{lw}{%
  \renewcommand{\KFLT@lw}{{#1}}%
  \setlength{\KFLT@w}{0pt}%
}\end{verbatim}

\begin{dquote}
\texttt{\KFLT@lw} Fraction of linewidth storage: “.5”
\end{dquote}

\begin{verbatim}
\newcommand*{\KFLT@lw}{}
\end{verbatim}

Key [main] w Fixed width

\begin{verbatim}
\define@key{KFLT@keys}{w}{%
  \setlength{\KFLT@w}{#1}%
  \renewcommand{\KFLT@lw}{}%
}\end{verbatim}

\begin{dquote}
\texttt{\KFLT@w} Width storage: “3cm”
\end{dquote}

\begin{verbatim}
\newlength{\KFLT@w}
\end{verbatim}
\end{dquote}
Key [main] h Fixed height
147 \define@key{KFLT@keys}{h}{\setlength{\KFLT@h}{#1}}
\KFLT@h Height storage: “2in”
148 \newlength{\KFLT@h}

Key [main] s Scale
149 \define@key{KFLT@keys}{s}{\renewcommand{\KFLT@s}{#1}}
\KFLT@s Scale storage: “3”
150 \newcommand*{\KFLT@s}{1}

Key [main] r Angle. 90 is counter-clockwise 90 degrees.
151 \define@key{KFLT@keys}{r}{\renewcommand{\KFLT@r}{#1}}
\KFLT@r Angle storage: “90”
152 \newcommand*{\KFLT@r}{0}

Key [main] f Frame the image with \KFLTlooseframe.
153 \define@key{KFLT@keys}{f}{true}{\setboolean{KFLT@f}{#1}}

Bool KFLT@f Frame the image?
154 \newboolean{KFLT@f}

Key [main] ft Tightly frame the image using \KFLTtightframe. This is useful for photographs, or diagrams which already have built-in margins.
155 \define@key{KFLT@keys}{ft}{true}{\setboolean{KFLT@ft}{#1}}

Bool KFLT@ft Tightly frame the image?
156 \newboolean{KFLT@ft}

Key [main] stretch Set \arraystretch inside the table environment.
157 \define@key{KFLT@keys}{stretch}{\renewcommand{\KFLT@stretch}{#1}}
\KFLT@stretch Storage for \arraystretch.

158 \newcommand*{\KFLT@stretch}{1}

\key{main}{mo} Set vertical offset for a margin float.

159 \define@key{\KFLT@keys}{mo}{\setlength{\KFLT@mo}{#1}}

\KFLT@mo Storage for the vertical margin offset.

160 \newlength{\KFLT@mo}

\key{main}{wp} Set wrap placement for a wrapped float.

See table 3 on page 15.

161 \define@key{\KFLT@keys}{wp}{\renewcommand{\KFLT@wp}{#1}}

\KFLT@wp Storage for the wrap placement.

162 \newcommand{\KFLT@wp}{0}

\key{main}{wlw} Wrapped figure, fraction of \linewidth

163 \define@key{\KFLT@keys}{wlw}{%
164 \renewcommand{\KFLT@wlw}{#1}%
165 \setlength{\KFLT@ww}{0pt}%
166 }

\KFLT@wlw Wrapped figure, fraction of \linewidth storage: “.5”

167 \newcommand*{\KFLT@wlw}{}

\key{main}{ww} Wrapped figure, fixed width

168 \define@key{\KFLT@keys}{ww}{%
169 \setlength{\KFLT@ww}{#1}%
170 \renewcommand{\KFLT@wlw}{}%
171 }

\KFLT@ww Wrapped figure, width storage: “3cm”

172 \newlength{\KFLT@ww}
keyfloat

Key [main] \texttt{va} Set vertical alignment of the outermost minipage container.

\begin{verbatim}
173 \define@key{KFLT@keys}{va}{\renewcommand{\KFLT@va}{#1}}
\end{verbatim}

\KFLT@va Storage for the vertical alignment.

\begin{verbatim}
174 \newcommand{\KFLT@va}{c}
\end{verbatim}

3.7 Nesting control

\texttt{Ctr} KFLT@keyfloatdepth Depth inside a keyfigs environment

\begin{verbatim}
175 \newcounter{KFLT@keyfloatdepth}
176 \setcounter{KFLT@keyfloatdepth}{0}
\end{verbatim}

\texttt{Bool} KFLT@inkeysubfloats Inside a keysubfigs environment?

\begin{verbatim}
177 \newboolean{KFLT@inkeysubfloats}
178 \setboolean{KFLT@inkeysubfloats}{false}
\end{verbatim}

3.8 Subfloat key handling

These keys are for the container holding a collection of subfigures.

\texttt{Bool} KFLT@subgrpcont Continued float?

\begin{verbatim}
179 \newboolean{KFLT@subgrpcont}{}
\end{verbatim}

Key [subfloat container] \texttt{cont} Continued float

\begin{verbatim}
180 \define@key{KFLT@subgrpkeys}{cont}[true]{%
181 \setboolean{KFLT@subgrpcont}{#1}%
182 }
\end{verbatim}

\KFLT@subgrpc Sub-caption storage

\begin{verbatim}
183 \newcommand{\KFLT@subgrpc}{}
\end{verbatim}

\texttt{Bool} KFLT@subgrpcstart Sub-caption starred?

\begin{verbatim}
184 \newboolean{KFLT@subgrpcstart}{}
\end{verbatim}
Key [subfloat container] \texttt{c} Caption
\begin{verbatim}
185  \define@key{KFLT@subgrpkeys}{c}{%
186     \renewcommand{\KFLT@subgrpsc}{#1}\setboolean{KFLT@subgrpscgiven}{true}%
187  }
\end{verbatim}

Key [subfloat container] \texttt{cstar} Starred caption?
\begin{verbatim}
188  \define@key{KFLT@subgrpkeys}{cstar}{%
189     \renewcommand{\KFLT@subgrpsc}{#1}\setboolean{KFLT@subgrpscgiven}{true}%
190  }
\end{verbatim}

Key [subfloat container] \texttt{sc} Short caption
\begin{verbatim}
191  \define@key{KFLT@subgrpkeys}{sc}{%
192     \renewcommand{\KFLT@subgrpsc}{#1}\setboolean{KFLT@subgrpscgiven}{true}%
193  }
\end{verbatim}

\texttt{KFLT@subgrpsc} Sub-shortcaption storage
\begin{verbatim}
194  \newcommand{\KFLT@subgrpsc}{}
\end{verbatim}

\texttt{KFLT@subgrpscgiven} Sub-shortcaption was given?
\begin{verbatim}
195  \newboolean{KFLT@subgrpscgiven}
\end{verbatim}

\texttt{KFLT@subgrptype} Subfloats collection type storage: “figure”, “table”
\begin{verbatim}
196  \newcommand*{\KFLT@subgrptype}{}
\end{verbatim}

Key [subfloat container] \texttt{l} Label
\begin{verbatim}
197  \define@key{KFLT@subgrpkeys}{l}{\renewcommand{\KFLT@subgrpl}{#1}}
198  \newcommand*{\KFLT@subgrpl}{}
\end{verbatim}

\texttt{KFLT@subgrptextalign} Storage for text alignment.
\begin{verbatim}
199  \newcommand*{\KFLT@subgrptextalign}{}
\end{verbatim}

\texttt{KFLT@subgrpt} Additional text storage
\begin{verbatim}
200  \newcommand*{\KFLT@subgrpt}{}
\end{verbatim}
keyfloat

Used for the additional text in the float.

201 \newcommand{\KFLT@subgrpt}{}

Key [subfloat container]  t  Additional text — full justification

202 \define@key{\KFLT@subgrpkeys}{t}{%
203 \renewcommand{\KFLT@subgrpt}{#1}%
204 \renewcommand{\KFLT@subgrptextalign}{}%
205 }

Key [subfloat container]  t  Additional text — center justification

206 \define@key{\KFLT@subgrpkeys}{tc}{%
207 \renewcommand{\KFLT@subgrpt}{#1}%
208 \renewcommand{\KFLT@subgrptextalign}{\centering}%
209 }

Key [subfloat container]  t  Additional text — aligned left

210 \define@key{\KFLT@subgrpkeys}{tl}{%
211 \renewcommand{\KFLT@subgrpt}{#1}%
212 \renewcommand{\KFLT@subgrptextalign}{\raggedright}%
213 }

Key [subfloat container]  t  Additional text — aligned right

214 \define@key{\KFLT@subgrpkeys}{tr}{%
215 \renewcommand{\KFLT@subgrpt}{#1}%
216 \renewcommand{\KFLT@subgrptextalign}{\raggedleft}%
217 }

For the tocdatal package:

Key [subfloat container]  ap  Artist prefix

218 \define@key{\KFLT@subgrpkeys}{ap}{\renewcommand{\KFLT@subgrpap}{#1}}

\KFLT@subgrpap  Storage for artist prefix

219 \newcommand*{\KFLT@subgrpap}{}

Key [subfloat container]  af  Artist first name

220 \define@key{\KFLT@subgrpkeys}{af}{\renewcommand{\KFLT@subgrpaf}{#1}}
keyfloat

\KFLT@subgrpaf Storage for artist first name
221 \newcommand*{\KFLT@subgrpaf}{}

Key [subfloat container] al Artist last name
222 \define@key{KFLT@subgrpkeys}{al}{\renewcommand{\KFLT@subgrpal}{#1}}

\KFLT@subgrpal Storage for artist last name
223 \newcommand*{\KFLT@subgrpal}{}

Key [subfloat container] as Artist suffix
224 \define@key{KFLT@subgrpkeys}{as}{\renewcommand{\KFLT@subgrpas}{#1}}

\KFLT@subgrpas Storage for artist suffix
225 \newcommand*{\KFLT@subgrpas}{}

Key [subfloat container] aup Author prefix
226 \define@key{KFLT@subgrpkeys}{aup}{\renewcommand{\KFLT@subgrpaup}{#1}}

\KFLT@subgrpaup Storage for author prefix
227 \newcommand*{\KFLT@subgrpaup}{}

Key [subfloat container] auf Author first name
228 \define@key{KFLT@subgrpkeys}{auf}{\renewcommand{\KFLT@subgrauf}{#1}}

\KFLT@subgrauf Storage for author first name
229 \newcommand*{\KFLT@subgrauf}{}

Key [subfloat container] au1 Author last name
230 \define@key{KFLT@subgrpkeys}{au1}{\renewcommand{\KFLT@subgrpaul}{#1}}

\KFLT@subgrpaul Storage for author last name
231 \newcommand*{\KFLT@subgrpaul}{}
Key [subfloat container] aus Author suffix

232 \define@key{KFLT@subgrpkeys}{aus}{\renewcommand{\KFLT@subgrpaus}{#1}}

\KFLT@subgrpaus Storage for author suffix

233 \newcommand*{\KFLT@subgrpaus}{}

3.9 Computing image width

Len \KFLT@imagewidth Computed width of the image

234 \newlength{\KFLT@imagewidth}

Len \KFLT@boxwidth Computed width of the container box

235 \newlength{\KFLT@boxwidth}

Len \KFLT@wrapwidth Computed width of the wrapped figure

236 \newlength{\KFLT@wrapwidth}

\KFLT@findwidths Figure out how wide to make an image and its container

237 \newcommand*{\KFLT@findwidths}{% Default to a box of full \linewidth minus the potential frame:
238 \ifbool{KFLT@ft}% tight frame?
239 {\setlength{\KFLT@boxwidth}{\linewidth - 2\KFLTtightframewidth}}% 240 % not tight frame
241 \ifbool{KFLT@f}% loose frame?
242 {\setlength{\KFLT@boxwidth}{\linewidth - 2\KFLTlooseframewidth}}% 243 \setlength{\KFLT@boxwidth}{\linewidth}% no frame
244 % not tight frame

Several width options exist. First see if width was given:

245 \ifdimgreater{\KFLT@w}{0pt}%

Width was given:

246 {\setlength{\KFLT@imagewidth}{\KFLT@w}}% 247 \ifdimgreater{\KFLT@w}{0pt}%
Use full \linewidth or only a fraction:

\ifcsempty{KFLT@lw}\
\setlength{\KFLT@imagewidth}{\KFLT@boxwidth}\%
\setlength{\KFLT@imagewidth}{\KFLT@lw\KFLT@boxwidth}\%
\fi % width not given

The wrap width is the same as the image width, unless specified:

\ifdimgreater{\KFLT@ww}{0pt}\
\setlength{\KFLT@wrapwidth}{\KFLT@ww}\%
\fi % width not given

If \texttt{wlw}, use a fraction of line width, else if none given use the same as the image width.

\ifcsempty{KFLT@wlw}\
\setlength{\KFLT@wrapwidth}{\KFLT@imagewidth}\%
\setlength{\KFLT@wrapwidth}{\KFLT@wlw\KFLT@boxwidth}\%
\fi % width not given

\subsection{Framing and rotation}

A user-redefinable macro and length to tightly frame the contents.

\KFLTtightframe may be redefined to a macro which frames its contents. \KFLTtightframewidth should be redefined to the total width of the new frame and its separation.

\KFLTtightframe {\{\texttt{contents}\}}

\newcommand{\KFLTtightframe}[1]{% 
\setlength{\fboxsep}{0pt}\% 
\setlength{\fboxsep}{0pt}\% 
\setlength{\fboxrule}{.4pt}\% 
\fbox(#1)\%
\}

\KFLTtightframewidth Must be set to the combined width of the tight frame and separation used by \KFLTtightframe.
\newlength{\KFLTtightframewidth}
\setlength{\KFLTtightframewidth}{.4pt}

\KFLTlooseframe{⟨contents⟩}

A user-redefinable macro and length to loosely frame the contents.
\KFLTlooseframe may be redefined to a macro which frames its contents. \KFLTlooseframewidth should be redefine to the total width of the new frame and its separation.

\newcommand{\KFLTlooseframe}[1]{
\setlength{\fboxsep}{3pt}
\setlength{\fboxrule}{.4pt}
\fbox{#1}
}

\KFLTlooseframewidth
Must be set to the combined width of the loose frame and separation used by \KFLTlooseframe.

\newlength{\KFLTlooseframewidth}
\setlength{\KFLTlooseframewidth}{3.4pt}

\KFLT@frame{⟨contents⟩}

Frames the contents according to the f key. To be nested for further processing.

\newcommand{\KFLT@frame}[1]{
\ifbool{KFLT@ft}{\KFLTtightframe{#1}}{
\ifbool{KFLT@f}{\KFLTlooseframe{#1}}{#1}
}
}

\KFLT@findenvboxwidth
Figures the width of the contents of \KFLT@envbox plus the frame:

\newcommand{\KFLT@findenvboxwidth}{
\settowidth{\KFLTimageboxwidth}{\usebox{\KFLT@envbox}}
\ifbool{KFLT@ft}{\addtolength{\KFLTimageboxwidth}{2\KFLTtightframewidth}}{
\ifbool{KFLT@f}{\addtolength{\KFLTimageboxwidth}{2\KFLTlooseframewidth}}{
\addtolength{\KFLTimageboxwidth}{0pt}}
}
}
3.11 A graphics image from a file

\KFLT@onefigureimage \{\langle filename\rangle\}

Create an image with size, frame, and turn.

Several possible combinations of linewidth, width, and height are available, and each is treated separately. Scaling and width/height are done first, then framing, then rotation.

\begin{lrbox}{\KFLT@envbox}

Handle the \texttt{lw} key. If \texttt{lw} is used, width and height are ignored.

\ifdefempty{\KFLT@lw}{% not linewidth

Handle the \texttt{w} key, which may be used along with the \texttt{h} key:

\ifdimgreater{\KFLT@w}{0pt}{% width is given
\ifdimgreater{\KFLT@h}{0pt}{{ width and height are both given:

\includegraphics[width=\KFLT@imagewidth,height=\KFLT@h]{#1}

Only width:

\includegraphics[width=\KFLT@imagewidth]{#1}

)}% w and h

)% width is given

)% not looseframe

}
Width was not given, so maybe handle h alone:

{% width is not given
\ifdim greater{\KFLT@h}{0pt}%

h was given:

\ifdim greater{\KFLT@h}{0pt}%% includegraphics[scale=\KFLT@s,height=\KFLT@h]{#1}%

If none were given, use the image's natural size:

\ifdim greater{\KFLT@h}{0pt} % width is not given
    \includegraphics[scale=\KFLT@s]{#1} %
\fi

\end(lrbox)%%
\unskip%%
\KFLT@findenvboxwidth%%
\begin{turn}{\KFLT@r}%%
\KFLT@frame{\usebox{\KFLT@envbox}}%%
\end{turn}%%
%
%

3.12 Printing the caption

\KFLT@dosimplecaption \langle star? \rangle \langle short cap or -NO VALUE- \rangle \langle caption \rangle

Calls \caption depending on several combinations of star and short captions being given.

\NewDocumentCommand{\KFLT@dosimplecaption}{m m m}{%\unskip\\IfBooleanTF{#1}% star?
    {\IfValueTF{#2}{\caption*[#2]{#3}}{\caption*{#3}}}%%
    {\IfValueTF{#2}{\caption[#2]{#3}}{\caption{#3}}}%%
}\%\end{lrbox}%%\unskip%%\KFLT@findenvboxwidth%%\begin{turn}{\KFLT@r}%%\KFLT@frame{\usebox{\KFLT@envbox}}%%\end{turn}%%
%
%
There are two versions of \KFLT@docaption, depending on whether tocdata is loaded.

\ifpackageloaded{tocdata}%%
\% tocdata loaded

\newcommand*{\KFLT@@docaption}[6]{% 
\addvspace{\smallskipamount}\
\ifcempty{KFLT@#6t}{% 
\IfBooleanTF{#3}{% 
\csuse{caption#1}*[#4]{#5}\
\ifcsstring{KFLT@#6textalign}{\textjustify}{\csuse{td#1textjustify}}{}% 
\ifcsstring{KFLT@#6textalign}{\raggedright}{\csuse{td#1textright}}{}% 
\ifcsstring{KFLT@#6textalign}{\raggedleft}{\csuse{td#1textleft}}{}% 
\csuse{caption#1}[#4][#5]
\csuse{KFLT@#6a#2p}\
{\csuse{KFLT@#6a#2f}}\
{\csuse{KFLT@#6a#2l}}\
{\csuse{KFLT@#6a#2s}}\
\csuse{KFLT@#6a#2f}}{\csuse{caption#1}[#4][#5]\
\csuse{KFLT@#6a#2p}\
{\csuse{KFLT@#6a#2f}}\
{\csuse{KFLT@#6a#2l}}\
{\csuse{KFLT@#6a#2s}}}
\csuse{KFLT@#6t}\
\csuse{KFLT@#6a#2p}\
{\csuse{KFLT@#6a#2f}}\
{\csuse{KFLT@#6a#2l}}\
{\csuse{KFLT@#6a#2s}}}
\ifcsstring{KFLT@#6textalign}{\textjustify}{\csuse{td#1textjustify}}{}% 
\ifcsstring{KFLT@#6textalign}{\raggedright}{\csuse{td#1textright}}{}% 
\ifcsstring{KFLT@#6textalign}{\raggedleft}{\csuse{td#1textleft}}{}% 
\csuse{caption#1}[#4][#5]\
\csuse{KFLT@#6a#2p}\
{\csuse{KFLT@#6a#2f}}\
{\csuse{KFLT@#6a#2l}}\
{\csuse{KFLT@#6a#2s}}\
\csuse{KFLT@#6a#2f}}{\csuse{caption#1}[#4][#5]\
\csuse{KFLT@#6a#2p}\
{\csuse{KFLT@#6a#2f}}\
{\csuse{KFLT@#6a#2l}}\
{\csuse{KFLT@#6a#2s}}}
\csuse{KFLT@#6t}\
\csuse{KFLT@#6a#2p}\
{\csuse{KFLT@#6a#2f}}\
{\csuse{KFLT@#6a#2l}}\
{\csuse{KFLT@#6a#2s}}}}}
Depending on whether the `tocdata` package is present, and an artist is specified, use either `\caption` or `\captionartist`.

The fourth argument is `()` if a regular float, or `subgrp` if `keysubfigs` or `keysubtabs`.

See Table 2 for the possible combinations of the caption-related keys: `c`, `cstar`, and `sc`.

With `tocdata`:

```latex
\NewDocumentCommand{\KFLT@docaption}{s o m m}{% 
  Is the last name empty? Assume no artist if so.
  \ifcsempty{KFLT@#4al}{% figure w/o artist
    \ifcsempty{KFLT@#4aul}{% figure w/o artist or author
      A figure without an artist or author uses the simple caption.
      \KFLT@dosimplecaption{#1}{#2}{#3}{% figure w/o artist or author
    }{\KFLT@@docaption{author}{u}{#1}{#2}{#3}{#4}}% figure w/ author
  }% figure w/ author
}{\KFLT@@docaption{artist}{}{#1}{#2}{#3}{#4}}% figure with an artist
}% KFLT@tocdata
}% tocdata loaded
}% no tocdata
```

Without `tocdata`:
\KFLT@docaption * \{\langle 2: short caption \rangle \} \{\langle 3: caption \rangle \} \{\langle 4: empty or “subgrp” \rangle \}

\NewDocumentCommand{\KFLT@docaption}{s o m m}{%
  If todata is not loaded, use a simple caption.
  \KFLT@dosimplecaption(#1)(#2)(#3)%

  Create an index entry depending on whether there is a last, first name:
  \ifcsempty{KFLT@#4al}%
  \ifcsempty{KFLT@#4aul}%
  \ifcsempty{KFLT@#4auf}%
  \ifcsempty{KFLT@#4af}%

  Caption-creation logic.
  The argument is {} if a regular float, or subgrp if keysubfigs or keysubtabs.
  See Table 2 for the possible combinations of the caption-related keys: c, cstar, and sc.
\newcommand{\KFLT@caption}[1]{%
  A starred caption is printed but not numbered.
  \ifbool{KFLT@#1cstar}% starred caption?
  This is a starred caption:
A key given as cstar={} yields a float with no caption at all.

\ifcempty{KFLT@#1c} % cstar={}?
{}%

Non-empty starred caption might have a \texttt{LOF} entry if it has a short caption sc key:

\% non-empty starred caption
\ifcempty{KFLT@#1sc} %

No sc short caption, but there is a cstar, so no \texttt{LOF} entry:

{}%

Both cstar and sc were given, so add a \texttt{LOF} entry:

\% non-empty cstar and sc:
\edef\KFLT@listtype{\csuse{KFLT@#1type}}%
\addcontentsline{\csuse{ext@KFLT@listtype}}{\csuse{KFLT@#1type}}{% non-empty cstar and sc}
\KFLT@docaption*{\csuse{KFLT@#1c}}{#1}%
}
\% starred caption

Unstarred caption c was given, so number this float:

\% unstarred caption
\ifcempty{KFLT@#1sc} %
\% no short cap
\KFLT@docaption{\csuse{KFLT@#1c}}{#1}%
\% no short cap
\% short cap
\KFLT@docaption[\csuse{KFLT@#1sc}]{\csuse{KFLT@#1c}}{#1}%
\% short cap

Optional label:

\ifcempty{KFLT@#1l} %
{}%
\label{\csuse{KFLT@#1l}}%
\% unstarred caption
\}

3.13 Defaults for a new float

\KFLT@defaults Defaults all settings before reading the keys.

\newcommand*{\KFLT@defaults}{%
  \setboolean{KFLT@cont}{false}%
  \renewcommand{\KFLT@c}{}%
  \setboolean{KFLT@cstar}{false}%
  \renewcommand{\KFLT@sc}{}%
  \setboolean{KFLT@scgiven}{false}%
  \renewcommand{\KFLT@type}{figure}%
  \renewcommand{\KFLT@l}{}%
  \renewcommand{\KFLT@ap}{}%
  \renewcommand{\KFLT@af}{}%
  \renewcommand{\KFLT@al}{}%
  \renewcommand{\KFLT@as}{}%
  \renewcommand{\KFLT@aup}{}%
  \renewcommand{\KFLT@auf}{}%
  \renewcommand{\KFLT@aul}{}%
  \renewcommand{\KFLT@aus}{}%
  \renewcommand{\KFLT@t}{}%
  \renewcommand{\KFLT@textalign}{}%
  \renewcommand{\KFLT@lw}{}%
  \setlength{\KFLT@w}{0pt}%
  \setlength{\KFLT@h}{0pt}%
  \renewcommand{\KFLT@s}{1}%
  \renewcommand{\KFLT@r}{0}%
  \setboolean{KFLT@f}{false}%
  \setboolean{KFLT@ft}{false}%
  \renewcommand{\KFLT@stretch}{1}%
  \setlength{\KFLT@mo}{-1.2ex}%
  \renewcommand{\KFLT@wp}{0}%
  \renewcommand{\KFLT@wlw}{}%
  \setlength{\KFLT@ww}{0pt}%
  \renewcommand{\KFLT@va}{c}%
  \}

3.14 Row start/end processing

\KFLT@maybestartfloatrow Counts rows

After ending a preexisting row, move to the next row. The use of \defcounter makes this counter change local.

\newcommand*{\KFLT@maybestartfloatrow}{%
  \KFLT@maybeendfloatrow%
  \defcounter{KFLT@thiscol}{\value{KFLT@thiscol}+1}%
Counts rows

Adds vertical space then resets to allow the start of a new row. The use of \defcounter makes this counter change local.

\newcommand*{\KFLT@maybeendfloatrow}{
  \ifnumless{\value{KFLT@thiscol}}{\value{KFLT@numcols}}{
    \par
    \addvspace{.75\floatsep}
    \defcounter{KFLT@thiscol}{0}
  }{
  }
}

3.15 Key environment helper macros

\KFLT@trackrows Tracks and spaces rows and columns.

If are nested inside a keyfloats or a subfloat:

\newcommand{\KFLT@trackrows}{
  \ifboolexpr{\test \ifnumgreater{\value{KFLT@keyfloatdepth}}{0} or \bool{KFLT@inkeysubfloats}}{
    \KFLT@maybestartfloatrow
  }{
    \KFLT@addtext {⟨empty or “subgrp”⟩}
  }
}

Possibly fill space between columns:

\ifnumgreater{\value{KFLT@thiscol}}{1}{
  \hfill
}{
}\KFLT@addtext {⟨empty or “subgrp”⟩}
Adds optional additional text.

The argument is \{} if a regular float, or subgrp if keysubfigs or keysubtabs.

\newcommand{\KFLT@addtext}[1]

\begin{verbatim}
Is there text to add?

\ifcempty{KFLT@#1t}%
{}% no text
{% text to add
{\% local

Add some space, then create a full-width minipage to contain the text:

\addvspace{\smallskipamount}%
\begin{minipage}{\linewidth}%
Inside this minipage, temporarily prevent underfull \hbox warnings:

\hbadness=10000\relax%

Set the alignment and some text parameters:

\csuse{KFLT@#1textalign}%
\footnotesize%
\setlength{\parskip}{1.5ex}%
\setlength{\parindent}{0em}%

Typeset the actual text:

\csuse{KFLT@#1t}%

Close it all out with a little more space:

\end{minipage}%
\par\addvspace{2ex}%
{% local
}
\end{verbatim}

\KFLT@optionalname \langle \text{name} \rangle

Adds optional artist's name and the following space.

\newcommand{\KFLT@optionalname}[1]
keyfloat

\KFLT@addartisttext \{\langle empty or “subgrp”\rangle\}

Adds optional additional text.

The argument is {} if a regular float, or subgrp if keysubfigs or keysubtabs.

One of two versions is used, depending on whether the tocdata package is available.

If tocdata is loaded and this float has an artist or author, then the float’s artist’s information and optional text will be printed elsewhere by \KFLT@caption. Otherwise, the text is printed here.

Two versions, depending on whether tocdata is loaded:

\@ifpackageloaded{tocdata}\{
\newcommand{\KFLT@addartisttext}[1][]{
\ifcsempty{KFLT@#1al}% artist last name
\%
\ifcsempty{KFLT@#1aul}% author last name
\%
{\KFLT@addtext{#1}}
\%
\}
\%
\}
\KFLT@addartisttext
\%
\}
\%
\}
\KFLT@addartisttext

If tocdata is loaded:

\newcommand{\KFLT@addartisttext}[1][]{
\ifcsempty{KFLT@#1al}% artist last name
\%
\ifcempty{KFLT@#1aul}% author last name
\%
{\KFLT@addtext{#1}}
\%
\}
\%
\}
\KFLT@addartisttext
\%
\}
\KFLT@addartisttext

If tocdata is not loaded, the name and text are added here:

\newcommand*{\KFLT@addartisttext}[3][%
Add space and create the name inside a full-width minipage:

\addvspace{\medskipamount}\
\begin{minipage}{\linewidth}\
Inside this minipage, temporarily prevent underfull \hbox warnings:

\hbadness=10000\relax\

Text alignment is #3, and depends on artist or author:

#3

#1 is empty or ‘subgrp’
#2 is empty for artist, ‘u’ for author:

\footnotesize\textsc{\KFLT@optionalname{\csuse{KFLT@#1a#2p}}}\KFLT@optionalname{\csuse{KFLT@#1a#2f}}\csuse{KFLT@#1a#2l}\csuse{KFLT@#1a#2s}\

\end{minipage}\
\par\addvspace{2ex}\

\newcommand{\KFLT@addartisttext}[1]{\Ifcsempty{KFLT@#1al}{\Ifcsempty{KFLT@#1aul}{\KFLT@@addartisttext{#1}{u}{\raggedleft}}{\KFLT@@addartisttext{#1}{}{\centering}}}{\KFLT@addartisttext{#1}{}}}\KFLT@addtext{#1}\

Only use the artist information if a last name is given:

\Ifcsempty{KFLT@#1al}{\Ifcsempty{KFLT@#1aul}{\KFLT@addartisttext(#1){u}{\raggedleft}}{\KFLT@addartisttext(#1){}{\centering}}}{\KFLT@addartisttext(#1){}}\

Any additional text follows the artist’s name:

\KFLT@addtext(#1)%
\KFLT@addartisttext% KFLT@addartisttext
\% tocdata not loaded
The computed width of the object.

This may be used as the width parameter of a minipage to encase the object.

\newlength{\KFLTimageboxwidth}

Typeset the contents in a width which depends on the keys.

\newsavebox{\KFLT@envbox}
\NewDocumentEnvironment{KFLT@boxinner}{}{% keyboxinner
(Possibly) frame the contents of an lrbox:
\begin{lrbox}{\KFLT@envbox}
Rotate the contents:
\turn{\KFLT@r}
Box the contents in the width computed by \KFLT@findwidths:
\minipage{\KFLT@imagewidth}
Spacing inside the box. Also default to regular justified text alignment.
\setlength{\parskip}{2ex}
\renewcommand{\arraystretch}{\KFLT@stretch}
End of the environment:
{% endkeyboxinner
End the rotated box:
\endturn
Possibly frame:
\end{lrbox}
\KFLT@frame{\usebox{\KFLT@envbox}}
\par
{% endkeyboxinner
\KFLT@boxkeys \{\{keys\}\} \{\{float type\}\}

Default the options, adjust for a table, then parse the keys:

\NewDocumentCommand{\KFLT@boxkeys}{+m m}{\KFLT@defaults \renewcommand{\KFLT@type}{#2} \setkeys{KFLT@keys}{#1}}

\newbool{KFLT@captionistop}
\caption@position
\captionsetup[table]{position=above}
\newbool{KFLT@captionistop}

\KFLT@LWR@hook@boxouter Used by lwarp.
\newcommand*{\KFLT@LWR@hook@boxouter}{}

\KFLT@boxouter \{\{star?\}\} \{\{loc\}\}

Boxes the contents of figures and floats.

Not used by subfigures.

\NewDocumentEnvironment{KFLT@boxouter}{m m}{boxouter}

The keyfigure and keytable environments handle the contents in one of three possible ways, depending on whether it is called alone, inside a keyfloats environment, or inside a keysubfigs or keysubtabs environment.

Start the new subfigure or subtable, of the given width:

\ifbool{KFLT@inkeysubfloats}{\csuse{sub\KFLT@type}{\KFLT@rowboxwidth}}% subfloat

If keyfloats, place the contents inside a minipage:

\ifnumgreater{\value{KFLT@keyfloatdepth}}{0}{\ifbool{KFLT@keywrap}}% keyfloats

\ifnumgreater{\value{KFLT@keyfloatdepth}}{0}{\ifbool{KFLT@keywrap}}% keyfloats
A hook for \texttt{lwarp} to set \texttt{\linewidth}, etc.

\texttt{\KFLT@LWR@hook@boxouter}\% Not a subfloat or keyfloats, so create a single float.

See if inside a keywrap. If so, force [H] and vertical align top.

\ifbool{KFLT@keywrap}{% not a keywrap
See if the float should \texttt{[W]}rap:

\ifstrequal{#2}{W}\%
Place [W], so create a wrapfloat using the \texttt{wrapfig} package:

{\[W\]}

Temporarily figure out $\texttt{\KFLT@imagewidth}$, and make the wrapped figure environment as wide as the desired image size plus frame:

\texttt{\KFLT@findwidths}\%
\texttt{\wrapfloat{\KFLT@type}{\KFLT@wp}\%
{\KFLT@wrapwidth+2\KFLTlooseframewidth}\%
\texttt{\minipage{\KFLT@wrapwidth+2\KFLTlooseframewidth}\%

Inside this minipage, temporarily prevent underfull \texttt{\hbox} warnings:

\texttt{\hbadness=10000\relax}\%
\texttt{\normalcolor\reset@font\normalsize}\%

Change the interior image to the discovered fixed width.
\renewcommand{\KFLT@lw}{}%
\renewcommand{\KFLT@w}{\KFLT@imagewidth}%
\renewcommand{\KFLT@wlw}{}%
\renewcommand{\KFLT@ww}{0pt}%
}% [W]
{% not [W]
See if the float should be positioned in the [M]argin:
\ifstrequal{#2}{M}%
Place [M], so create a marginfloat:
{% [M]
 \KFLT@marginfloat[\KFLT@mo](\KFLT@type)%
}% [M]
{% not [M]
See if the float should be positioned [H]ere:
\ifstrequal{#2}{H}%
Place [H], so create an inline minipage:
{% [H]
   \vskip\intextsep
   \noindent\minipage[\KFLT@va]{\linewidth}%
   \normalcolor\reset@font\normalsize%
   \captionsetup{type=\KFLT@type}%
}% [H]
Not [H], so create a float: For a starred float, make a two-column table in a two-col format.
{% not [H]
   \IfBooleanTF{#1}%
   {\csuse{\KFLT@type*}[#2]}%
   {\csuse{\KFLT@type}[#2]}%
}% not [H]
}% not [M]
}% not [W]
}% not keywrap
}% not keyfloats
}% not subfloat
Handle a continued float. Ignored if in a subfloat.
\ifbool{KFLT@cont}{\ContinuedFloat}{}%
Figure out image and parbox widths for the contents:

\KFLT@findwidths%

Place the caption above the contents depending on caption position option:

\caption@iftop{\booltrue{KFLT@captionistop}}{\boolfalse{KFLT@captionistop}}% \ifbool{KFLT@captionistop}{\KFLT@caption{}}{}

Typeset the contents:

\center\unskip%

End of the KFLT@boxouter environment:

{% endboxouter
\endcenter\unskip
\addvspace{\smallskipamount}%

Optionally print artist’s name and additional text:

\KFLT@addartisttext()

Place the caption below the contents depending on caption position option:

\ifbool{KFLT@captionistop}{}{\KFLT@caption{}}%

If are inside keysubtabs, end the subtable:

\ifbool{KFLT@inkeysfloats}{}{%
\csuse{endsub\KFLT@type}%
}%
\ifnumgreater{\value{KFLT@keyfloatdepth}}{0}{% keyfloats?
\endminipage%
}{}

Not subfloat or keyfloats, so is an individual float.

Close the minipage or float:

See if in a keywrap:
See if the float should [W]rap:

\ifstrequal(#2){W}{% 
Place [W], so close the wrap float:

{% [W] 
\endminipage% 
\endwrapfloat% 
}% [W] 
{% not [W]

See if the float should be positioned in the [M]argin:

\ifstrequal(#2){M}{% 
[M], so close the marginfloat:

{% [M] 
\endKFLT@marginfloat% 
}% [M]

[H] or float:

{% not [M] 
\ifstrequal(#2){H}{% 
{% 
\endminipage% [H] 
\vskip\intextsep% 
}% [H]
{% not [H] 
\IfBooleanTF{#1}% starred float? 
\csuse{endKFLT@type*}}% 
\csuse{endKFLT@type}}% 
{% not [H]
{% not [H]
{% not [M]
{% not [M]
{% not keywrap 
{% not keyfloats 
{% not subfloat 
}%} % endkeyboxouter
keyfloat

\KFLT@ignorespaces \{(commandname)\} Only do command if not nested inside something.

\newcommand*{\KFLT@ignorespaces}[1]{%\
  \ifboolexpr{\test {\ifnumgreater{\value{KFLT@keyfloatdepth}}{0}} or\bool{KFLT@inkeysubfloats}}{%{\csuse{#1}}}%
  \}

\KFLT@envignorespaces Only \ignorespaces if not nested inside something.

\newcommand*{\KFLT@envignorespaces}{%\
  \KFLT@@ignorespaces{ignorespacesafterend}%
  \}

3.16 The \KFLT@keyflt macro

\KFLT@keyflt \{(1:star)\}\{(2:loc)\}\{(3:type)\}\{(4:keys/values)\}\{(5:contents)\}

A lower-level macro to generate a float with its contents. This is used by \keyfig and \keyflt.

\NewDocumentCommand{\KFLT@keyflt}{m m m +m +m}{%\
  \ifcsdef{ftype@#3}{}{%\
    \PackageError{keyfloat}{%\
      \protect\keyflt: Invalid float type.\MessageBreak%\
      \protect\keyflt*[loc]{type}{keys/values}{contents}\MessageBreak%\
      Also, \protect\keyflt\space is not an environment
    }%\
  }%\
  \KFLT@ignorespaces%
  \KFLT@trackrows%
3.17 The `\keyflt` macro

\keyflt * \langle loc \rangle \langle type \rangle \langle keys/values \rangle \langle contents \rangle

A user-level macro to generate a float with its contents centered inside an inner box. This may be used by itself, or inside a `keyfloats` or `keysutabs` environment.

\begin{keyflt}{s O{tbp} m +m +m}
\KFLT@keyflt{#1}{#2}{#3}{#4}{%\KFLT@boxinner%\centering%#5%\endKFLT@boxinner%}%\endkeyflt

Generates an error in case the user tried to use `\keyflt` as an environment.

\def\endkeyflt{%\PackageError{keyfloat}{%\protect\end{keyflt}:\MessageBreak\protect\keyflt\space is a macro, not an environment.\MessageBreakPerhaps you want the keyfloat environment instead%}%\protect\begin{keyfloat} ... \protect\end{keyfloat}.
%}

3.18 The `keyfloat` environment

\KFLT@keyfloatstart {\langle star? \rangle}{\langle loc \rangle}{\langle float type \rangle}{\langle keys/values \rangle}
keyfloat

\KFLT@envignorespaces
\KFLT@boxkeys(#4)(#3)
\KFLT@boxouter(#1)(#2)
\KFLT@boxinner
\KFLT@envignorespaces
\newcommand{\KFLT@keyfloatend}{%
\endKFLT@boxinner%
\endKFLT@boxouter%
\KFLT@envignorespaces%
}

\KFLT@keyfloatend

\newcommand{\KFLT@keyfloatend}{%
\endKFLT@boxinner%
\endKFLT@boxouter%
\KFLT@envignorespaces%
}

\newcommand{\KFLT@keyfloatend}{%
\endKFLT@boxinner%
\endKFLT@boxouter%
\KFLT@envignorespaces%
}

\BeforeBeginEnvironment{keyfloat}{%
\KFLT@trackrows%
}

\BeforeBeginEnvironment{keyfloat}{%
\KFLT@trackrows%
}

\BeforeBeginEnvironment{keyfloat}{%
\KFLT@trackrows%
}

3.19 The keyfigure environment

\BeforeBeginEnvironment{keyfigure}{%
\KFLT@trackrows%
}

\BeforeBeginEnvironment{keyfigure}{%
\KFLT@trackrows%
}

3.19 The keyfigure environment

\BeforeBeginEnvironment{keyfigure}{%
\KFLT@trackrows%
}

Extra code to track rows outside of the keyfloat environment, before it starts. This is done to allow nesting without losing track of the prior level.

Extra code to track rows outside of the keyfloat environment, before it starts. This is done to allow nesting without losing track of the prior level.

Extra code to track rows outside of the keyfigure environment, before it starts. This
is done to allow nesting without losing track of the prior level.

\BeforeBeginEnvironment{keyfigure}{
  \KFLT@trackrows%
}

3.20 The \keyfig macro

\keyfig * [\langle loc\rangle] \{\langle keys/values\rangle\} \{\langle image filename\rangle\}

A user-level macro to generate a figure with an image. This may be used by itself, or inside a keyfloats or keysubfigs environment.

\NewDocumentCommand{\keyfig}{s O{tbp} +m m}{
  \KFLT@keyflt{#1}{#2}{figure}{#3}{
    \KFLT@onefigureimage{#4}
  }%}

3.21 The \keyfigbox macro

\keyfigbox * [\langle loc\rangle] \{\langle keys/values\rangle\} \{\langle box contents\rangle\}

A user-level macro to generate a figure with arbitrary paragraph contents. This may be used by itself, or inside a keyfloats or keysubtabs environment.

\NewDocumentCommand{\keyfigbox}{s O{tbp} +m +m}{
  \KFLT@ignorespaces%
  \KFLT@trackrows%
  \KFLT@boxkeys{#3}{figure}%
  \begingroup%
  \KFLT@boxouter{#1}{#2}%
  \KFLT@boxinner%
  #4%
  \endKFLT@boxinner%
  \endKFLT@boxouter%
  \endgroup%
  \KFLT@ignorespaces%}
3.22 The \keyparbox macro

\keyparbox * \{⟨loc⟩\} \{⟨keys/values⟩\} \{⟨box contents⟩\}

A user-level macro to generate a figure with arbitrary paragraph contents, but no number or caption. This is equal to a \keyfigbox with cstar={}. This may be used by itself, or inside a keyfloats or keysubtabs environment.

\begin{verbatim}
\NewDocumentCommand{\keyparbox}{s O{tbp} +m +m} {%
  \KFLT@ignorespaces%
  \KFLT@trackrows%
  \KFLT@boxkeys{#3}{figure}%

  \IfBooleanTF{#1}{% Force cstar={}:
    \renewcommand{\KFLT@c}{}%  \setboolean{KFLT@cstar}{true}%
    \keyflt*{#2}{}\{table\}{}{#3}{#4}%
  }{% Continue like \figbox:
    \begingroup%
    \KFLT@boxouter{#1}{#2}%
    \KFLT@boxinner%
    #4%
    \endKFLT@boxinner%
    \endKFLT@boxouter%
    \begingroup%
    \KFLT@ignorespaces%
  }
}\end{verbatim}

3.23 The \keytab macro

\keytab * \{⟨loc⟩\} \{⟨keys/values⟩\} \{⟨tabular contents⟩\}

A user-level macro to generate a table with tabular contents. This may be used by itself, or inside a keyfloats or keysubtabs environment.

\begin{verbatim}
\NewDocumentCommand{\keytab}{s O{tbp} +m +m} {%
  \IfBooleanTF{#1}{% \keyflt*[#2]{table}{#3}{#4}%
    \keyflt[#2]{table}{#3}{#4}%
  }{%}
}\end{verbatim}
3.24 The keytable environment

\begin{env}
\keytable *
\begin{association}
\row{\textit{loc}}{\textit{keys/values}}
\end{association}
\end{env}

Extra code to track rows outside of the keytable environment, before it starts. This is done to allow nesting without losing track of the prior level.

3.25 A row of floats

\newcommand*{\kflt@nonest}{
  \ifboolexpr{
    \test {\ifnum\greater{\value{\kflt@keyfloatdepth}}{0}} or
    \bool {\kflt@inkeysubfloats}
  }{
    \PackageError{keyfloat}{
      Cannot nest keysubfigs or keysubtabs.\MessageBreak%
      (Not in outer par mode.)\MessageBreak%
    }
  }{
    \PackageError{keyfloat}{
      The subcaption package do not support nested environments,\MessageBreak%
      so the keyfloat package cannot place a\MessageBreak%
      keysubfigs or keysubtabs environment inside another,\MessageBreak%
      or inside a keyfloats.\MessageBreak%
    }
  }
}

\kflt@LWR@hook@keyfloats Used by lwarp.
User-level macro to create rows of figures/tables. Wrapping occurs after the number of specified columns. \keyfloats environments may be nested to create a vertical set of figures next to a single larger figure, for example.

Place \keyfig, \keyfigbox, and \keytab commands inside the \keyfloats environment.

Note that \lw linwidth keys may need to be adjusted inside a \keyfloats, \keysubfigs, or \keysubtabs, since \linewidth changes depending on the number of columns. Likewise, manually-selected \w width and \h tags may need to be adjusted to prevent overflow.

\NewDocumentEnvironment{\keyfloats}{s O{tbp} m}{% A hook for lwarp to set \linewidh, etc.
  \KFLT@envignorespaces% \KFLT@LWR@hook@keyfloats%
  \addtocounter{KFLT@keyfloatdepth}{1}%
  \ifboolexpr{% If [H], nested, subfloats, or keywrap, use a minipage instead of a float:
    \test {\ifstrequal(#2)(H)} or
    \test {\ifnumgreater{\value{KFLT@keyfloatdepth}}{1}} or
    \bool {KFLT@inkeysubfloats} or
    \bool {KFLT@keywrap}%
   }{% [H] or nested
  }%}
If nested, use different spacing as was computed in the outer nesting level:

\ifboolexpr{%
test {\ifnumgreater{\value{KFLT@keyfloatdepth}}{1}} or
bool {KFLT@inkeysubfloats}
}%
\KFLT@LWR@hook@keyfloatsminipage{\KFLT@rowboxwidth}%
}%
\vskip\intextsep%
\KFLT@LWR@hook@keyfloatsminipage{\linewidth}%
}%

Reset font and color:

\normalcolor\reset@font\normalsize%

If inside subfloats, generate subfigures by default:

\ifbool{KFLT@inkeysubfloats}{}{%
\captionsetup*{type=figure}% [H] or nested

Isn’t [H] or nested

{% See if [W]:
\ifstrequal{#2}{W}%
{% [W]:

[W]:

\wrapfloat{figure}{0}{.5\linewidth}%
\minipage{\linewidth}%

Inside this minipage, temporarily prevent underfull \hbox warnings:

\hbadness=10000\relax%

\normalcolor\reset@font\normalsize%
}%
{% not [H]:
\ifstrequal{#2}{M}%
{% [M]:

[M]:


A normal figure:

\documentclass{article}
\usepackage{keyfloat}
\begin{document}

\begin{figure}%
\IfBooleanTF{#1}% starred figure, two-col figure in a two-col format
{\begin{figure*}[#2]%
{\begin{figure}[#2]%
% not [H]
\end{figure}%}
\end{figure}% not [H]
\end{figure*}%
% not [H]
\end{figure}%
\end{figure*}\
\end{figure}
\end{document}

Compute the width of each entry:

\begin{figure}
\begin{tabular}{l}
\textbf{Nested or subfloats:}
\end{tabular}
\end{figure}
\begin{figure}
\begin{tabular}{l}
\textbf{Keyfloats:}
\end{tabular}
\end{figure}
\begin{figure}
\begin{tabular}{l}
\textbf{Center the contents:}
\end{tabular}
\end{figure}
\begin{figure}
\begin{tabular}{l}
\textbf{Count columns using \texttt{\defcounter} for a local effect:}
\end{tabular}
\end{figure}
\begin{figure}
\begin{tabular}{l}
\textbf{When ending a \texttt{keyfloats} environment:}
\end{tabular}
\end{figure}
\begin{figure}
\begin{tabular}{l}
\textbf{[H] or rows/subfigs? Close a minipage:}
\end{tabular}
\end{figure}
Spacing if nested or not:

\begin{boolexpr}{
  test {\ifnumgreater{\value{KFLT@keyfloatdepth}}{0}} or
  bool {KFLT@keywrap}
}\
\vskip\intextsep
\end{boolexpr}

Not [H]:

\% not [H], etc.
\ifstrequal{#2}{W}
\endminipage
\endwrapfloat
\% was [H], etc.

[M]:

\endKFLT@marginfloat
\% figure

Unnest the environment:
Extra code to track rows outside of the keyfloats environment, before it starts. This is done to allow nesting without losing track of the prior level.

\BeforeBeginEnvironment{keyfloats}{%
\KFLT@trackrows%
}

### 3.26 Subfloats

\KFLT@subgrpdefaults Sets defaults before reading the keys.

\newcommand*{\KFLT@subgrpdefaults}{%
\setboolean{KFLT@subgrpcont}{false}%
\renewcommand{\KFLT@subgrpc}{}%
\setboolean{KFLT@subgrpcstar}{false}%
\renewcommand{\KFLT@subgrpc}{}%
\setboolean{KFLT@subgrpscgiven}{false}%
\renewcommand{\KFLT@subgrptype}{figure}%
\renewcommand{\KFLT@subgrpl}{}%
\renewcommand{\KFLT@subgrpap}{}%
\renewcommand{\KFLT@subgrf}{}%
\renewcommand{\KFLT@subgrpal}{}%
\renewcommand{\KFLT@subgrpas}{}%
\renewcommand{\KFLT@subgrpaup}{}%
\renewcommand{\KFLT@subgrpauf}{}%
\renewcommand{\KFLT@subgrpaul}{}%
\renewcommand{\KFLT@subgrpaus}{}%
\renewcommand{\KFLT@subgrpt}{}%
\renewcommand{\KFLT@subgrptextalign}{}%
}

\newbool{KFLT@subcaptionistop}
\KFLT@subfloats{⟨starred?⟩}{⟨loc⟩}{⟨cols⟩}{⟨keys/values⟩}

Start a subfloat environment
\NewDocumentCommand{\KFLT@subfloats}{m m m +m}{% 
  \KFLT@envignorespaces%

  Parse the key-value combinations:

  \setkeys{KFLT@subgrpkeys}{#4}%

  Nest the environment:

  \setboolean{KFLT@inkeysubfloats}{true}%

  Figure out the width of each subfloat. If starred, use the full-page \textwidth, else use \linewidth. .9 is used to leave a little room between columns.

  \IfBooleanTF{#1}{% 
    \setlength{\KFLT@rowboxwidth}{.9\textwidth/\real{#3}}}% 
  \setlength{\KFLT@rowboxwidth}{.9\linewidth/\real{#3}}%

  If [H], or in a keywrap, create an inline minipage:

  \ifboolexpr{test {\ifstrequal{#2}{H}} or \bool {KFLT@keywrap}}{% \vskip\intextsep \noindent\begin{minipage}{\linewidth}%
    \normalcolor\reset@font\normalsize%
  }{

  Not [H]:

  (% \ifstrequal{#2}{W}%
  (% \normalcolor\reset@font\normalsize%

  [W]:

  \wrapfloat{\KFLT@subgrpertype}{0}{.5\linewidth}%
  \setlength{\KFLT@rowboxwidth}{.5\KFLT@rowboxwidth}%
  \minipage{\linewidth}%

  Inside this minipage, temporarily prevent underfull \hbox warnings:

  \hbadness=10000\relax%

  \normalcolor\reset@font\normalsize%
A subfloat:

\IfBooleanTF{#1}\
{\begin{KFLT@subgrptype*}[#2]}\
{\begin{KFLT@subgrptype}[#2]}\
}% [M]

}% not [H]
%

Set the caption type:

\captionsetup*{type=KFLT@subgrptype}

Process continued floats:

\ifbool{KFLT@subgrpcont}\
{\ContinuedFloat}\n
Center the contents:

\center\unskip

Place the caption above the contents depending on \texttt{caption} position option:

\caption@iftop{\booltrue{KFLT@subcaptionistop}}{\boolfalse{KFLT@subcaptionistop}}{\KFLT@caption(subgrp)}{}

Not yet started a row of subfloats. The use of \texttt{defcounter} makes these changes local.

\defcounter{KFLT@numcols}[#3]
\defcounter{KFLT@thiscol}[0]

Creat a group for the subfloats. Necessary in case they change \texttt{\tdartisttextcenter}, etc.
\KFLT@endsubfloats \{\langle starred?\rangle\}\{\langle loc\rangle\}

Ends a subfloat environment.

\newcommand*{\KFLT@endsubfloats}[2]{
    End the group containing the subfloats:
    \begingroup%
    \endgroup%
    \unskip%
    \endcenter%
    A little extra space at the bottom:
    \par\addvspace{\bigskipamount}%
    Optionally print artist's name and additional text:
    \KFLT@addartisttext{subgrp}%
    Place the caption below the contents depending on caption position option:
    \ifbool{KFLT@subcaptionistop}{}{\KFLT@caption{subgrp}}%
    End the float or minipage:
    \ifboolexpr{\test{\ifstreq{#2}{H}} or \bool{KFLT@keywrap}}{
        \end{minipage}\vskip\intextsep}% was \[H\]
    { not \[H\]:
        \ifstreq{#2}{W}% \[W\]
        \endminipage%
        \endwrapfloat%
        { not \[W\]:
            \ifstreq{#2}{M}% \[M\]
            \endKFLT@marginfloat%
            \endminipage%
            \endwrapfloat%
        }%
    }%
    \end{minipage}
Unnest the environment:

\setboolean{KFLT@inkeysubfloats}{false}\
\KFLT@envignorespaces\
\KFLT@LWR@hook@keysubfloats

\KFLT@LWR@hook@keysubfloats  Used by lwarp.

\newcommand*{\KFLT@LWR@hook@keysubfloats}{}

\begin{KFLT@keys/floats}[(\texttt{star?})] (\texttt{loc}) (\texttt{float type}) (\texttt{numcols}) (\texttt{keys/values})\end{KFLT@keys/floats}

A group of subfigures typeset in rows.

\NewDocumentEnvironment{\KFLT@keys/floats}{m m m m +m}{
\Error if trying to nest environments:
\KFLT@nonest%
\A hook for lwarp to set $\texttt{linenwidth}$, etc.
\KFLT@LWR@hook@keysubfloats%
\Default the options:
\KFLT@subgrpdefaults%
\Default to figure float type:
\renewcommand{\KFLT@subgrptype}[^3]%
\Start of the environment:
\KFLT@floats[^1][^2][^4][^5]% the start of the environment
end of the environment:

1092\%
1093%KFLT@endsubfloats{#1}{#2}\%
1094%}

Env keysubfloats *\langle loc\rangle\langle float type\rangle\langle numcols\rangle\langle keys/values\rangle

A group of subfloats typeset in rows.

1095\NewDocumentEnvironment{keysubfloats}{s O{tbp} m m +m}%
1096%KFLT@keysubfloats{#1}{#2}{#3}{#4}{#5}\%
1098}{%}
1099%endKFLT@keysubfloats%
1100\}

Env keysubfigs *\langle loc\rangle\langle numcols\rangle\langle keys/values\rangle

A group of subfigures typeset in rows.

1101\NewDocumentEnvironment{keysubfigs}{s O(tbp) m m +m}%
1102%KFLT@keysubfigs{#1}{#2}{figure}{#3}{#4}\%
1104}{%}
1105%endKFLT@keysubfloats%
1106\}

Env keysubtabs *\langle loc\rangle\langle numcols\rangle\langle keys/values\rangle

A group of subtables typeset in rows.

1107\NewDocumentEnvironment{keysubtabs}{s O(tbp) m m +m}%
1108%KFLT@keysubtabs{#1}{#2}{table}{#3}{#4}\%
1110}{%}
1111%endKFLT@keysubfloats%
1112\}

3.27 Margin floats

Env KFLT@marginfloat [\langle offset\rangle]\langle type\rangle

1113\newsavebox{\KFLT@marginfloatbox}
Provided in case `tufte-book` is not loaded:

**Env** `marginfigure` \[\langle \text{offset}\rangle\]

```
\ProvideDocumentEnvironment{marginfigure}{O{-1.2ex}}{
  \begin{KFLT@marginfloat}[\#1][figure]
  \end{KFLT@marginfloat}
}
```

**Env** `margintable` \[\langle \text{offset}\rangle\]

```
\ProvideDocumentEnvironment{margintable}{O{-1.2ex}}{
  \begin{KFLT@marginfloat}[\#1][table]
  \end{KFLT@marginfloat}
}
```

### 3.28 Wrapped floats

**Bool** `KFL@keywrap` Tells the next keyfloat to wrap around some text.

```
\newboolean{KFLT@keywrap}
\boolfalse{KFLT@keywrap}
```

**Len** `\KFLT@keywrapwidth` The width of the object to be wrapped beside the text.

```
\newlength{\KFLT@keywrapwidth}
```

**Len** `\KFLT@keywrapparskip` The \parskip outside of the keywrap.

```
\newlength{\KFLT@keywrapparskip}
```
The \parindent outside of the keywrap.

\DeclareDocumentEnvironment{keywrap}{m +m}%
\begin{keywrap}{⟨width⟩}{⟨keyfloat⟩}

The main text is placed in a minipage to the left, and the wrapped content is later placed in another minipage to the right.

Inside this minipage, temporarily prevent underfull \hbox warnings:

\BeforeBeginEnvironment{keywrap}{%
## Change History and Index

### Change History

#### v0.10
- **General:** 2016/12/01 Initial ver. 1

#### v0.11
- \texttt{\KFLT@addtext}: Improved paragraph handling. 72
- **General:** 2016/12/02 1

#### v0.12
- \texttt{\keyfigbox}: Group around contents. 84
- \texttt{\keyflt}: Group around contents. 82
- \texttt{\keyparbox}: Group around contents. 85
- **General:** 2016/12/09 1
  - Adapts to older version of tocdata. 53
  - Added \texttt{mo} key. 56
  - Added \texttt{wp} key. 56
  - Docs: Improved index. 1
  - Docs: Loading keyfloat. 1
  - Docs: Margin float examples. 34
  - Docs: Wrapped float examples. 36
  - marginfigure: Added. 97
  - marginetable: Added. 97
  - \texttt{\KFLT@boxouter}: [M] and [W] floats. 76

#### v0.13
- \texttt{\KFLT@subfloats}: Fix: Subfloat type selection. 91
- **General:** 2017/01/18 1
  - \texttt{\KFLT@imageboxwidth}: Added. 75
  - Docs: Other Settings. 1
  - Fix: Expands names in references. 49

#### v0.14
- \texttt{\KFLT@docaption}: Factored. 66
- **General:** 2017/02/09 1
  - if no artist given. 67

#### v0.15
- \texttt{\KFLT@subfloats}: Adjustments for keywrap. 91
- **General:** 2017/05/12 1
  - Added vertical alignment key va. 57
  - keyfloats: Adjustments for keywrap. 87
  - keywrap: Added. 98

#### v1.00
- General: 2019/01/11 1
  - Docs PDF bookmark improvements. 1
  - Removed xifthen dependency. 48
  - Removed spurious spaces. 1
  - Source formatting improvements. 1

#### v2.00
- \texttt{\KFLT@docaption}: Factored. 66
- \texttt{\KFLT@ignorespaces}: Added. 81
- \texttt{\KFLT@caption}: Generalized for float type. 69
- \texttt{\KFLT@docaption}: Added support for authors. 68
- \texttt{\KFLT@environate}: Added. 81
- \texttt{\KFLT@keyfloatend}: Factored. 83
- \texttt{\KFLT@keyfloatstart}: Factored. 82
- \texttt{\KFLT@keyflt}: Added. 83
- \texttt{\KFLT@onefigureimage}: Filename in arg instead of \texttt{\KFLT@i}. 64
- \texttt{\KFLT@prohibitpackage}: Improved package conflict detection. 48
- \texttt{\endkeyflt}: Added. 82
- \texttt{\keyfig}: Factored. 84
- \texttt{\keyflt}: Added. 82
- \texttt{\keytab}: Factored. 85
- **General:** 2019/03/21 1
  - Added custom float types. 1
  - Added float authors. 1
  - Adjustments for tocdta v2.00. 53
  - keyfloat: Added. 83
  - \texttt{\KFLT@boxouter}: Added custom float types. 78, 80

99
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.

<table>
<thead>
<tr>
<th>Symbols</th>
<th>v2.01</th>
</tr>
</thead>
<tbody>
<tr>
<td>* (argument)</td>
<td>11</td>
</tr>
<tr>
<td>\linewidth</td>
<td>21</td>
</tr>
<tr>
<td>subfloats</td>
<td>28</td>
</tr>
<tr>
<td>with rotation</td>
<td>23</td>
</tr>
<tr>
<td>[H] (argument)</td>
<td>11</td>
</tr>
<tr>
<td>[M] (argument)</td>
<td>11</td>
</tr>
<tr>
<td>[W] (argument)</td>
<td>11</td>
</tr>
<tr>
<td>[loc] (argument)</td>
<td>11</td>
</tr>
<tr>
<td>A</td>
<td>11</td>
</tr>
<tr>
<td>af (key) [main]</td>
<td>52</td>
</tr>
<tr>
<td>af (key) [subfloat container]</td>
<td>59</td>
</tr>
<tr>
<td>al (key) [main]</td>
<td>52</td>
</tr>
<tr>
<td>al (key) [subfloat container]</td>
<td>60</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>v2.02</th>
</tr>
</thead>
<tbody>
<tr>
<td>\KFLT@addartisttext: Avoid underfull \hbox warning.</td>
</tr>
<tr>
<td>\KFLT@addtext: Avoid underfull \hbox warning.</td>
</tr>
<tr>
<td>\KFLT@findwidths: Added \w and \wl.</td>
</tr>
<tr>
<td>\KFLT@keyflt: Work with float.</td>
</tr>
<tr>
<td>\KFLT@subfloats: Avoid underfull \hbox warning.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>v2.03</th>
</tr>
</thead>
<tbody>
<tr>
<td>General: 2021/05/27</td>
</tr>
<tr>
<td>Added \w and \wl.</td>
</tr>
<tr>
<td>Work with float.</td>
</tr>
<tr>
<td>keyfloats: Avoid underfull \hbox warning.</td>
</tr>
<tr>
<td>\KFLT@boxouter: Added \w and \wl.</td>
</tr>
<tr>
<td>Avoid underfull \hbox warning.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>v2.04</th>
</tr>
</thead>
<tbody>
<tr>
<td>General: 2021/05/28</td>
</tr>
<tr>
<td>Fixed \hbadness w/ \relax.</td>
</tr>
</tbody>
</table>

100
<table>
<thead>
<tr>
<th>Key</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>al</td>
<td>52</td>
</tr>
<tr>
<td>ap</td>
<td>51</td>
</tr>
<tr>
<td>as</td>
<td>52</td>
</tr>
<tr>
<td>auf</td>
<td>52</td>
</tr>
<tr>
<td>aul</td>
<td>52</td>
</tr>
<tr>
<td>aup</td>
<td>52</td>
</tr>
<tr>
<td>aus</td>
<td>53</td>
</tr>
<tr>
<td>c</td>
<td>50</td>
</tr>
<tr>
<td>cont</td>
<td>50</td>
</tr>
<tr>
<td>cstar</td>
<td>51</td>
</tr>
<tr>
<td>f</td>
<td>55</td>
</tr>
<tr>
<td>ft</td>
<td>55</td>
</tr>
<tr>
<td>h</td>
<td>55</td>
</tr>
<tr>
<td>l</td>
<td>51</td>
</tr>
<tr>
<td>lw</td>
<td>54</td>
</tr>
<tr>
<td>mo</td>
<td>56</td>
</tr>
<tr>
<td>r</td>
<td>55</td>
</tr>
<tr>
<td>s</td>
<td>55</td>
</tr>
<tr>
<td>sc</td>
<td>51</td>
</tr>
<tr>
<td>stretch</td>
<td>55</td>
</tr>
<tr>
<td>t</td>
<td>53</td>
</tr>
<tr>
<td>tc</td>
<td>54</td>
</tr>
<tr>
<td>tl</td>
<td>54</td>
</tr>
<tr>
<td>tr</td>
<td>54</td>
</tr>
<tr>
<td>va</td>
<td>57</td>
</tr>
<tr>
<td>w</td>
<td>54</td>
</tr>
<tr>
<td>wl</td>
<td>56</td>
</tr>
<tr>
<td>wp</td>
<td>56</td>
</tr>
<tr>
<td>ww</td>
<td>56</td>
</tr>
</tbody>
</table>

[subfloat container]
<table>
<thead>
<tr>
<th>Key</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>af</td>
<td>59</td>
</tr>
<tr>
<td>al</td>
<td>60</td>
</tr>
<tr>
<td>ap</td>
<td>59</td>
</tr>
<tr>
<td>as</td>
<td>60</td>
</tr>
<tr>
<td>auf</td>
<td>60</td>
</tr>
<tr>
<td>aul</td>
<td>60</td>
</tr>
<tr>
<td>aup</td>
<td>60</td>
</tr>
<tr>
<td>aus</td>
<td>58</td>
</tr>
<tr>
<td>c</td>
<td>58</td>
</tr>
<tr>
<td>cont</td>
<td>57</td>
</tr>
<tr>
<td>cstar</td>
<td>58</td>
</tr>
</tbody>
</table>

Key floats
<table>
<thead>
<tr>
<th>Key</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>keyfloat</td>
<td>10,784</td>
</tr>
<tr>
<td>keyfloats</td>
<td>10,882</td>
</tr>
</tbody>
</table>

Key floats (environment)
<table>
<thead>
<tr>
<th>Key</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>keyfloats</td>
<td>10,794</td>
</tr>
<tr>
<td>keyfloats</td>
<td>10,824</td>
</tr>
</tbody>
</table>

Keyfigure
<table>
<thead>
<tr>
<th>Key</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>keyfig</td>
<td>10,804</td>
</tr>
<tr>
<td>keyfigbox</td>
<td>10,810</td>
</tr>
<tr>
<td>keyfigure</td>
<td>10,794</td>
</tr>
</tbody>
</table>

Keyfloats (environment)
<table>
<thead>
<tr>
<th>Key</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>keyfloats</td>
<td>10,882</td>
</tr>
<tr>
<td>keyfloats</td>
<td>10,824</td>
</tr>
</tbody>
</table>

Keys
<table>
<thead>
<tr>
<th>Key</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>keys</td>
<td>12</td>
</tr>
<tr>
<td>subfloats</td>
<td>12</td>
</tr>
</tbody>
</table>

Keystars
<table>
<thead>
<tr>
<th>Key</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>keys</td>
<td>10,1101</td>
</tr>
<tr>
<td>keysubfigs</td>
<td>10,1101</td>
</tr>
<tr>
<td>keys</td>
<td>11,1095</td>
</tr>
<tr>
<td>keysubfloats</td>
<td>11,1095</td>
</tr>
<tr>
<td>keysubtabs</td>
<td>11,1097</td>
</tr>
</tbody>
</table>

Keystretch
<table>
<thead>
<tr>
<th>Key</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>keytable</td>
<td>10,848</td>
</tr>
<tr>
<td>keyval</td>
<td>48</td>
</tr>
</tbody>
</table>

Keypars
<table>
<thead>
<tr>
<th>Key</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>keywrap</td>
<td>11,1143</td>
</tr>
<tr>
<td>KFL@keywrap</td>
<td>97</td>
</tr>
</tbody>
</table>

Keystretches
<table>
<thead>
<tr>
<th>Key</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>KFL@addartisttext</td>
<td>536</td>
</tr>
<tr>
<td>KFL@addtext</td>
<td>511</td>
</tr>
<tr>
<td>KFL@af</td>
<td>90</td>
</tr>
<tr>
<td>KFL@al</td>
<td>92,100</td>
</tr>
<tr>
<td>KFL@ap</td>
<td>88</td>
</tr>
<tr>
<td>KFL@as</td>
<td>94</td>
</tr>
<tr>
<td>KFL@auf</td>
<td>98</td>
</tr>
<tr>
<td>KFL@au</td>
<td>96</td>
</tr>
<tr>
<td>KFL@aus</td>
<td>102</td>
</tr>
</tbody>
</table>

KFLT
<table>
<thead>
<tr>
<th>Key</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>KFLT@boxinner</td>
<td>582</td>
</tr>
<tr>
<td>KFLT@boxkeys</td>
<td>599</td>
</tr>
<tr>
<td>KFLT@boxouter</td>
<td>607</td>
</tr>
<tr>
<td>KFLT@boxwidth</td>
<td>61</td>
</tr>
<tr>
<td>KFLT@c</td>
<td>70</td>
</tr>
<tr>
<td>KFLT@caption</td>
<td>422</td>
</tr>
<tr>
<td>KFLT@captionistop</td>
<td>76</td>
</tr>
<tr>
<td>KFLT@cont</td>
<td>50</td>
</tr>
<tr>
<td>KFLT@cstar</td>
<td>50</td>
</tr>
<tr>
<td>KFLT@defaults</td>
<td>452</td>
</tr>
<tr>
<td>KFLT@docaption</td>
<td>384,402</td>
</tr>
</tbody>
</table>

KFLT@dosimplecaption | 333 |
<table>
<thead>
<tr>
<th>Package/Key/Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>tocdata (package)</td>
<td>9</td>
</tr>
<tr>
<td>tocloft (package)</td>
<td>9</td>
</tr>
<tr>
<td>tr (key) [main]</td>
<td>54</td>
</tr>
<tr>
<td>troubleshooting</td>
<td>V</td>
</tr>
<tr>
<td>\linewidth</td>
<td>28</td>
</tr>
<tr>
<td>caption format</td>
<td>46</td>
</tr>
<tr>
<td>float out of sequence</td>
<td>24</td>
</tr>
<tr>
<td>image too large</td>
<td>28</td>
</tr>
<tr>
<td>large tables</td>
<td>18</td>
</tr>
<tr>
<td>mdframed</td>
<td>42</td>
</tr>
<tr>
<td>missing label</td>
<td>25</td>
</tr>
<tr>
<td>mixed subfloats</td>
<td>31</td>
</tr>
<tr>
<td>nested subfloats</td>
<td>31</td>
</tr>
<tr>
<td>rotating</td>
<td></td>
</tr>
<tr>
<td>extra space</td>
<td>23, 42</td>
</tr>
<tr>
<td>frame</td>
<td>23</td>
</tr>
<tr>
<td>rows too close or far</td>
<td>45</td>
</tr>
<tr>
<td>tufte-book (class)</td>
<td>34</td>
</tr>
<tr>
<td>\va (key) [main]</td>
<td>57</td>
</tr>
<tr>
<td>\w (key) [main]</td>
<td>54</td>
</tr>
<tr>
<td>\wlw (key) [main]</td>
<td>56</td>
</tr>
<tr>
<td>\wp (key) [main]</td>
<td>56</td>
</tr>
<tr>
<td>\x (key) [main]</td>
<td>56</td>
</tr>
<tr>
<td>wrapped float placement</td>
<td>15</td>
</tr>
<tr>
<td>\xparse (package)</td>
<td>48</td>
</tr>
<tr>
<td>\xparse (package)</td>
<td>48</td>
</tr>
<tr>
<td>\xparse (package)</td>
<td>48</td>
</tr>
</tbody>
</table>